City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 567-9999

June 21, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Whittier submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18-month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

Please note the City of Whittier's participation in the Lower San Gabriel River Watershed Group WMP and CIMP is for the entirety of the incorporated City including two (2) very small areas within the City limits that drain into the Reach 3 San Gabriel River watershed. These two (2) areas combined are approximately 80 acres. One of these areas is an "island" of incorporated Whittier in the Whittier Narrows area north of the Whittier Narrows Dam and consists of the well field for our groundwater supply. The other is a small area in the northeast corner of Whittier adjacent to unincorporated County area on the north and the City of La Habra Heights on the east. At their

June 20, 2013 meeting, the Lower San Gabriel River Watershed Committee approved incorporating these areas into their WMP.

The City Council received my report (attached) on June 11, 2013 and specifically authorized the submittal of this letter. In addition, the Council approved a Draft Whittier Green Streets Policy Manual and Draft Low Impact Development Ordinance with the intent of adopting final versions by December 15, 2013.

If you have any questions, please contact me at (562) 567-9500.

Sincerely,

David A. Pelser, PE, BCEE
Director of Public Works

Attachment: Staff Report to the Whittier City Council June 11, 2013
Draft Whittier Green Streets Policy Manual
Draft Whittier LID Ordinance

The City of Bellflower
Families. Businesses. Futures.
16600 Civic Center Drive, Bellflower, CA 90706
Tel 562.804.1424 Fax 562.925.8660 www.bellflower.org

CITY OF BELLFLOWER
"GROWING TOGETHER"

June 26, 2013

Mr. Samuel Unger
Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. Fourth Street, Suite 200
Los Angeles, CA 90013

Attn.: Renee Purdy

Re: Letter of Intent to Participate in the Development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) in Cooperation with the Lower San Gabriel River Watershed Group

Dear Mr. Unger:

The City of Bellflower (City) has voluntarily joined the Lower San Gabriel River Watershed Group (LSGR Group) in the development of a Watershed Management Program (WMP) and a Coordinated Integrated Monitoring Program (CIMP). We intend to comply with the requirements and provisions of the MS4 NPDES Permit (Order No. R4-2012-0175). The Watershed Group is comprised of the following permittees: the Cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

The City complied with Part VI.C.4.c.iv (1) through submission of a Notice of Intent letter dated December 27, 2012. We are complying with Part VI.C.4.c.iv (2) based on our Draft Green Streets Best Management Practices Policy and our adopted Stormwater Ordinance (City of Bellflower Ordinance No. 1099), which provides the City with authority to implement the Planning and Land Development Program requirements contained in Order No. R4-2012-0175, including Part VI.D.7.c.i.; Part VI.D.7.c.ii; Part VI.D.7.c.iii; and, if applicable, Part VI.D.7.c.iv, once the L.A. Regional Water Quality Control Board approves the WMP.

The City signed a Memorandum of Agreement (MOA) with the Los Angeles Gateway Regional Water Management Joint Powers Authority for the Administration and Cost Sharing Resulting from Preparation of the San Gabriel River Metals Total Maximum Daily Load Implementation Plan, Monitoring Program and Special Studies. This MOA has been used to begin preparation of a WMP, but it will soon be replaced with an MOU specifically for Development of a WMP or Enhanced WMP (EWMP), and a CIMP.

The City recognizes that while maintaining the 18-month schedule for development of the WMP, the LSGR Group intends to continue to evaluate and consider the EWMP option. If the LSGR Group decides prior to December 28, 2013, deadline to develop an EWMP, your office will be notified in a separate letter.

If you have any questions regarding the City's Letter of Intent, please contact Bernardo Iniguez, Environmental Services Manager, at 562-804-1424, ext. 2233.

Sincerely,

Jeffrey L. Stewart
City Manager

cc: Leo L. Mingle, Jr., Assistant City Manager
Deborah R. Chankin, Director of Public Works
Bernardo Iniguez, Environmental Services Manager

Doc 282033

City of Diamond Bar
21810 Copley Drive • Diamond Bar, CA 91765-4178
(909) 839-7000 • Fax (909) 861-3117
www.DiamondBarCA.gov

June 24, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Diamond Bar submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

The City of Diamond Bar is located in two sub-watersheds, Coyote Creek and San Jose Creek, both of which are tributaries of the San Gabriel River. At their June 20, 2013 meeting, the Lower San Gabriel River Watershed Committee approved the inclusion of Diamond Bar's San Jose Creek drainage area in the Lower San Gabriel River WMP.

While maintaining the 18 month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

If you have any questions, please contact David G. Liu, Director of Public Works/City Engineer at 909-839-7040 or Kimberly M. Young, Associate Engineer at 909-839-7044.

Sincerely,

James DeStefano
City Manager

CC: David G. Liu, Director of Public Works
Kimberly M. Young, Associate Engineer

Artesia
Bellflower
Cerritos
Diamond Bar
Downey
Hawaiian Gardens
La Mirada
Lakewood
Long Beach
Norwalk
Pico Rivera
Santa Fe Springs
Whittier

Lower San Gabriel River Watershed

Transmittal

June 27, 2013

To: losangeles@waterboards.ca.gov

Sam Unger, Executive Officer
Regional Water Quality Control Board, Los Angeles Region
320 4th Street Suite 200
Los Angeles, California 90013

Attention: Rene Purdy

Subject: Lower San Gabriel River Watershed

Please find the "Notice of Intent" and attached "Letters of Intent"for the cities and agencies comprising the Lower San Gabriel River Watershed. We look forward to working with your staff during the upcoming year in the development of the Watershed Management Program (or possible Enhanced WMP), and Coordinated Integrated Monitoring Program.

Please contact me at (562) 929-5760 if you have any questions or wish to discuss this further.

Sincerely,

Adriana Figueroa
Chair - Lower San Gabriel River Watershed
and Administrative Services Manager - City of Norwalk

Cc: LSGR Permittees

Notice of Intent

Lower San Gabriel River
Watershed Management Plan (WMP)

City of Artesia
City of Bellflower
City of Cerritos
City of Diamond Bar
City of Downey
City of Hawaiian Gardens
City of La Mirada
City of Lakewood
City of Long Beach
City of Norwalk
City of Pico Rivera
City of Santa Fe Springs
City of Whittier
Caltrans
Los Angeles County Flood Control District

Notice of Intent

Watershed Management Program (WMP)

Lower San Gabriel River Watershed

SECTION 1

PROGRAM TYPE AND PERMITTEES

The Permittees (listed in Table 1) that are party to this Notice of Intent (NOI) hereby notify the Los Angeles Regional Water Quality Control Board (Regional Water Board) of their intent to develop a Watershed Management Plan (WMP) for the Lower San Gabriel River Watershed. This NOI is being submitted in accordance with Part VI.C.4.b.i of Order R4-2012-0175.Permittees meet the LID and Green Street conditions and will submit the Draft WMP within 18 months of the effective date of Order R4-2012-0175 (June 28, 2014).

The Permittees also hereby notify the Regional Water Board of their intent to develop a Coordinated Integrated Monitoring Program (CIMP).The Permittees intend to follow a CIMP approach for each of the required monitoring plan elements and will submit the CIMP within 18 months of the effective date of Order R4-2012-0175 (June 28, 2014).

While maintaining the 18 month WMP schedule, the Permittees intend to continue to consider Enhanced-WMP (EWMP) option. If the Permittees decide to develop an EWMP prior to the December 28, 2013, the Permittees will notify the Regional Board in writing.

Table 1. Watershed Management Program Permittees

1. City of Artesia
2. City of Bellflower
3. City of Cerritos
4. City of Diamond Bar
5. City of Downey
6. City of Hawaiian Gardens
7. City of La Mirada
8. City of Lakewood
9. City of Long Beach[1]
10. City of Norwalk
11. City of Pico Rivera
12. City of Santa Fe Springs
13. City of Whittier
14. Caltrans[2]
15. Los Angeles County Flood Control District

[1] City of Long Beach is not a party to this MS4 Permit but has their participation in the development of this WMP/ CIMP.

[2] Caltrans is not a party to this MS4 Permit but has indicated their participation in the development of this WMP/CIMP.

SECTION 2

TOTAL MAXIMUM DAILY LOADS ESTABLISHED WATER QUALITY BASED EFFLUENT LIMITATIONS

Table 2 lists applicable interim, final Water Quality Based Effluent Limitations (WQBELs) and all other receiving water limitations established by Total Maximum Daily Loads (TMDLs) identified by Section VI.C.4.B.ii of the Order.

Table 2.This Table is optional, there are no final WQBELs and Receiving Water Limitations occurring before Watershed Management Program approval. This table shows upcoming WQBELs and is provided for reference.

TMDL Order	WQBEL	Interim/Final	Compliance Date
San Gabriel River Metals & Selenium TMDL* **2006-14**	30% of total drainage area meeting Dry weather 10% of total drainage area meeting Wet weather	Interim	9/30/2017
	70% of total drainage area meeting Dry weather 35% of total drainage area meeting Wet weather	Interim	9/30/2020
	100% of total drainage area meeting Dry weather 65% of total drainage area meeting Wet weather	Interim	9/30/2023
	100% of total drainage area meeting Dry weather 100% of total drainage area meeting Wet weather	Final	9/30/2026

* Shown for reference. It is anticipated this date will be after WMP is approved.

SECTION 3

IDENTIFY TMDL CONTROL MEASURES

The Permittees to this WMP are responsible for one TMDL that has interim and final WQBELs that occur following approval of the Program. Table 3 identifies the control measures being implemented by each Permittee for each TMDL. The Permittees will continue to implement these measures during the development of the WMP.

Table 3. Control Measures that will be implemented concurrently with WMP development for TMDLs

TMDL	Permittees	Implementation Plan and Control Measures	Status of Implementation
San Gabriel River Metals & Selenium TMDL* **2006-014**	Artesia Bellflower Cerritos Diamond Bar Downey Hawaiian Gardens Mirada Lakewood Long Beach Norwalk Pico Rivera Santa Fe Springs Whittier	Public Information & Public Participation Program • Provide Public Information related to control of metals Industrial/Commercial Facilities Program • Track critical sources of metals • Inspect critical industrial sources of metals • Notify industries identified as potential sources of metals of BMP requirements applicable to their sites Planning and Land Development Program • Implement New Development/ Redevelopment Project Performance Criteria Development Construction Program • Implement Construction Site Inventory Tracking • Implement Construction Plan Review and Approval Procedures • Conduct Construction Site Inspections Public Agency Activities Program • Implement Public Construction Management and Public Facility Inventory • Inventory Existing Development for Retrofitting Opportunities • Train Employees in Targeted Positions and Contractors	Continued Implementation of Permit Requirements

* Shown for reference. It is anticipated this date will be after WMP is approved.

RB-AR13132

SECTION 4

DEMONSTRATION OF MEETING LID ORDINANCE AND GREEN STREET POLICY REQUIREMENTS

The Permittees that are party to this NOI have LID ordinances and Green Street policies in place or in development. Table 4 summarizes the status of the Permittees' LID ordinances and Table 5 summarizes the status of the Permittees' Green Streets policies. More than 50% of the MS4 watershed area that will be addressed by the WMP is covered by LID ordinances and Green Streets policies that have already or are shortly going into effect.

Table 4.Status of LID Ordinance Coverage of the MS4 Watershed Area Addressed by the WMP

Permittee	LID Ordinance Status	MS4 Watershed Area for which Permittee is Responsible [acres]*	MS4 Watershed Area Covered by Permittee's LID Ordinance [acres]	Percentage of Watershed Area
Artesia	In Development	1,037	0	0%
Bellflower	In Development	1,216	0	0%
Cerritos	In Development	5,645	5,645	11%
Diamond Bar	Draft Ordinance	4,563	4,563	9%
Downey	Draft Ordinance	4,237	4,237	8%
Hawaiian Gardens	Draft Ordinance	614	614	1%
La Mirada	In Development	5,018	0	0%
Lakewood	Draft Ordinance	1,293	1,293	3%
Long Beach	In Place	2,138	2,138	4%
Norwalk	Draft Ordinance	6,246	6,246	12%
Pico Rivera	Draft Ordinance	3,929	3,929	8%
Santa Fe Springs	Draft Ordinance	5,683	5,683	11%
Whittier	Draft Ordinance	9,382	9,382	18%
LACFCD	N/A	-	-	-
Total MS4 Watershed Area		51,001	-	-
Total MS4 Watershed Area Covered by LID Ordinances			38,085	-
% of MS4 Watershed Area Covered by LID Ordinance				86%

Status Descriptions:

- In Place – Permittee has adopted an LID Ordinance that is in compliance with the requirements of Order R4-2012-0175 for its portion of the MS4 in the watershed.
- Draft Ordinance – Permittee has completed, or will complete by June 28, 2013, the development of a draft LID Ordinance that is in compliance with the requirements of Order R4-2012-0175 for its portion of the MS4 watershed.
- In Development – Permittee initiated development of an LID Ordinance that is in compliance with the requirements of Order R4-2012-0175 for its portion of the MS4 in the watershed within 60 days of the effective date of Order R4-2012-0175 and will have a draft ordinance.

*Watershed area acreage includes school districts and other state and federal owned lands that the permittees have no jurisdiction over.

Unincorporated area – Not a participant of this WMP group and should separately submit compliance documents to Regional Board.

Table 5.Status of Green Street Policy Coverage of the MS4 Watershed Area Addressed by the WMP

Permittee	Green Street Policy Status	MS4 Watershed Area for which Permittee is Responsible [acres] *	MS4 Watershed Area Covered by Permittee's Green Street Policy [acres]	Percentage of Watershed Area
Artesia	In Development	1,037	0	0%
Bellflower	In Development	1,216	0	0%
Cerritos	In Development	5,645	5,645	11%
Diamond Bar	Draft Policy	4,563	4,563	9%
Downey	Draft Policy	4,237	4,237	8%
Hawaiian Gardens	Draft Policy	614	614	1%
La Mirada	In Development	5,018	0	0%
Lakewood	Draft Policy	1,293	1,293	3%
Long Beach	In Place[2]	2,138	2,138	4%
Norwalk	Draft Policy	6,246	6,246	12%
Pico Rivera	Draft Policy	3,929	3,929	8%
Santa Fe Springs	Draft Policy	5,683	5,683	11%
Whittier	Draft Policy	9,382	9,382	18%
LACFCD	NA	-	-	-
Total MS4 Watershed Area		51,001	-	-
Total MS4 Watershed Area Covered by Green Street Policies			38,085	-
% of MS4 Watershed Area Covered by Green Street Policies				86%

Status Descriptions:

- In Place – Permittee has adopted or notified City Council that a Green Street Policy that is in compliance with the requirements of Order R4-2012-0175 for its portion of the MS4 in the watershed.
- Draft Policy – Permittee has completed, or will complete by June 28, 2013, the development of a draft Green Street Policy that is in compliance with the requirements of Order R4-2012-0175 for its portion of the MS4 watershed.
- In Development – Permittee initiated development of a Green Street Policy that is in compliance with the requirements of Order R4-2012-0175 for its portion of the MS4 in the watershed within 60 days of the effective date of Order R4-2012-0175 and will have a draft policy.

***** Watershed area acreage includes school districts and other state and federal owned lands that the permittees have no jurisdiction over.

Unincorporated area – Not a participant of this WMP group and should separately submit compliance documents to Regional Board.

[2] The City of Long Beach's Complete Streets Program is in place and is considered equivalent to the requirements for a Green Streets Policy.

SECTION 5

GEOGRAPHIC SCOPE OF WATERSHED MANAGEMENT PROGRAM

The San Gabriel River flows 60.6 miles through southern Los Angeles County. It drains a long, narrow watershed basin extending from high in the San Gabriel Mountains above the eastern Los Angeles Basin, across the San Gabriel Valley, to the Pacific Ocean and drains a watershed basin area of 713 square miles. There are 37 major cities in the San Gabriel River watershed, 14 of which are participants herein. The Flood Control District (LACFCD) owns, operates and maintains storm drains and channels within the Los Angeles County and is also included as a participant. This WMP will cover all of the areas within each of the jurisdictions of the MS4 Permittees within the lower San Gabriel River Watershed as shown in Figure 1. The total WMP area of the Lower San Gabriel River is 50,226 acres. Table 6 provides a breakdown of the land area within the watershed by permittee. Incidental areas of Pico Rivera and Whittier which drain into Reach 3 are included in the land area below and the intent is to address these areas within the Lower San Gabriel River (E) WMP.

The Permittees have jurisdiction over essentially 100% of the total watershed area, other than schools and other scattered state and federally owned lands. Those school districts, state and federal land areas are included within the land areas as shown on the tables.

Table 6.Lower San Gabriel River Watershed Land Area by Permittees

Permittee	Land Area (Acres)	Percent of Total Area
Artesia	1,037	2%
Bellflower	1,216	2%
Cerritos	5,645	11%
Diamond Bar	4,563	9%
Downey	4,237	8%
Hawaiian Gardens	614	1%
La Mirada	5,018	10%
Lakewood	1,293	3%
Long Beach	2,138	4%
Norwalk	6,246	12%
Pico Rivera	3,929	8%
Santa Fe Springs	5,683	11%
Whittier	9,382	18%
Caltrans	TBD	TBD
LACFCD	Not Delineated	--

In addition to the areas listed above, the WMP will also cover the portion of the city of Diamond Bar which drains to the San Jose Creek (approximately 4,966.4 Acres).

SECTION 6

PLAN CONCEPT AND INTERIM MILESTONES AND DEADLINES

If at any point, the Permittees elect to develop an Enhanced-WMP, the Permittees will follow the following program schedule:

Table 7.Watershed Management Program Interim Milestones and Deadlines

Milestone	Deadline
Notify Regional Board on decision to elect to develop Enhanced-WMP instead of WMP	December 2013
Compile technical memorandum of water quality priorities	December 2013
Complete internal draft of EWMP Work Plan	March 2014
Complete draft CIMP	April 2014
Submit final EWMP Work Plan	June 2014
Develop interim numeric milestones for EPA developed TMDLs	August 2014
Conduct initial RAA based on selected watershed control measures	December 2015
Complete internal draft of EWMP	April 2015
Submit draft EWMP to Regional Water Board	June 2015
Submit Final EWMP to Regional Water Board (revised based on the Regional Water Board comments)	January 2016

SECTION 7

COST ESTIMATE

It is estimated that the cost to hire a consultant for the development of the CIMP and WMP for Reach 1, Reach 2, Reach 3, and Coyote Creek is $600,000. Also, it is estimated that the cost to include the drainage area of San Jose Creek into the CIMP and WMP is $75,000. In addition, it is estimated that the Lower San Gabriel River Watershed Agencies will contribute several hundred thousands of dollars in in-kind services and contract administration costs.

The LACFCD, having no land authority over the Lower San Gabriel River Watershed, will contribute 10% of the total consultant CIMP and WMP development cost while the other 90% of the cost will be funded by the remaining Permittees, based upon their respective land area percentages in the Lower San Gabriel River watershed as shown in Table 6.

SECTION 8

PERMITTEE MEMORANDA OF UNDERSTANDING

All Permittees to the WMP are committed to the completion of the program development.

A copy of a draft WMP Memorandum of Understanding (MOU) is included. This draft MOU will be used as a template if the permittees elect to convert to Enhanced-WMP. This agreement would be executed before December 28, 2013.

SECTION 9

COMMITMENT TO IMPLEMENT A STRUCTURAL BMP OR SUITE OF BMPS

The Permittees listed in Table 8 will implement the identified structural BMP or suite of BMPs to fulfill the obligations under PartVI.C.b.iii.(5).

Table 8. Structural BMP or Suite of BMPs to be Implemented in the EWMP Watershed

Watershed	Permittee	Structural BMP or Suite of BMPs to be Implemented	Planned Implementation Date
Lower San Gabriel River	All listed on Table 1	The permittees are evaluating open space sites within the watershed for possible runoff treatment projects.	June 28, 2015
	See Note (1) Below	Install full capture inserts.	Grant pending

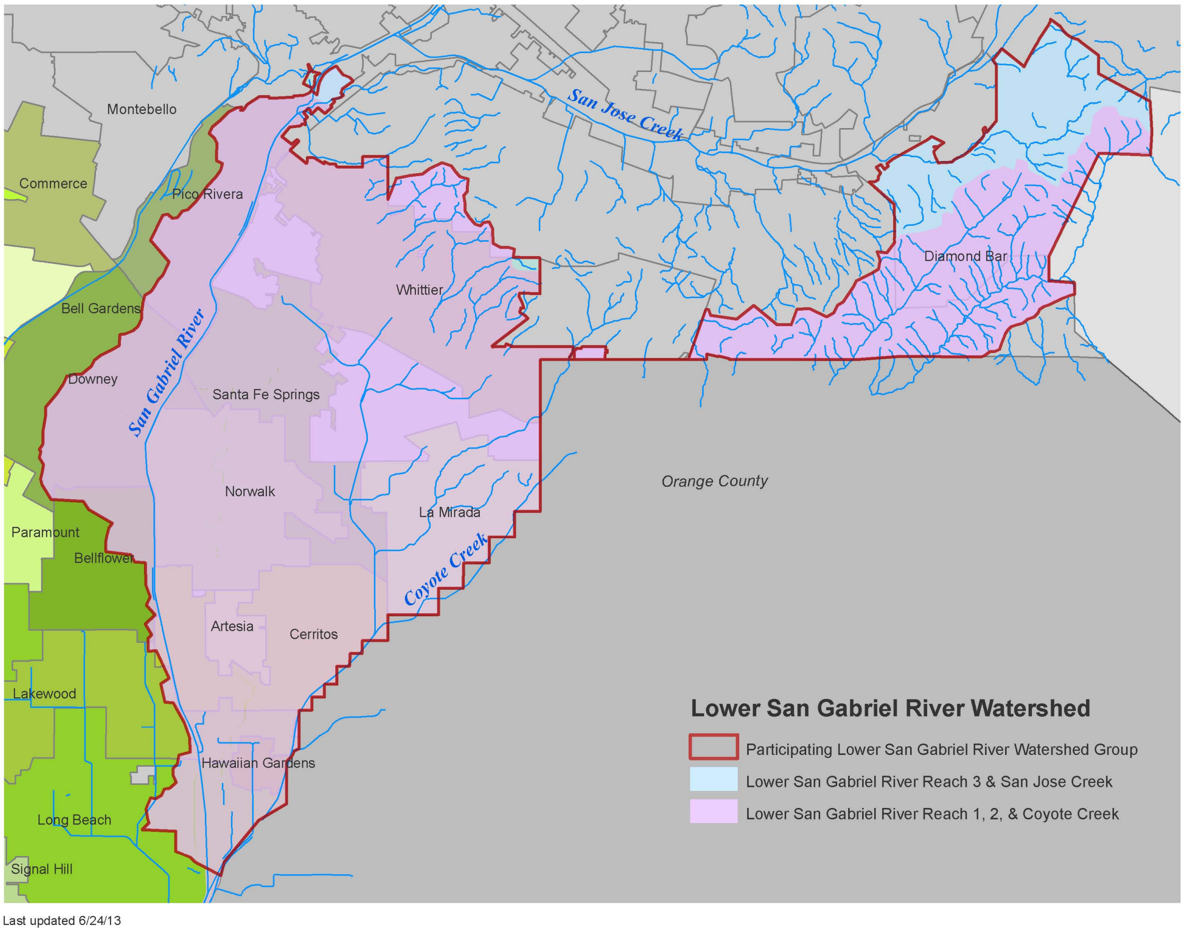
Notes:

(1) As a part of the Proposition 84, Integrated Regional Water Management (IRWM) Grant Program, the cities plan to install full capture inserts.

- Artesia 61
- Bellflower 63
- Downey 560
- Lakewood 1,014
- Norwalk 46
- Pico Rivera 467

The numbers include proposed catch basins that are in the Los Cerritos Channel Watershed.

Figure 1: Lower San Gabriel River Watershed Map



Note: Caltrans areas are not identified.

Attachment A

Memoranda of Understanding (MOU)

MEMORANDUM OF UNDERSTANDING
BETWEEN THE LOS ANGELES GATEWAY REGION INTEGRATED REGIONAL WATER MANAGEMENT JOINT POWERS AUTHORITY
AND
THE CITIES OF ARTESIA, BELLFLOWER, CERRITOS, DIAMOND BAR, DOWNEY, HAWAIIAN GARDENS, LA MIRADA, LAKEWOOD, LONG BEACH, NORWALK, PICO RIVERA, SANTA FE SPRINGS, WHITTIER, AND THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

FOR ADMINISTRATION AND COST SHARING TO PREPARE AND IMPLEMENT A WATERSHED MANAGEMENT PROGRAM "WMP" and COORDINATED INTEGRATED MONITORING PROGRAM "CIMP" AS REQUIRED BY THE REGIONAL WATER QUALITY CONTROL BOARD, LOS ANGELES REGION (REGIONAL WATER BOARD), NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT ORDER NO. R4-2012-0175 ("MS4 PERMIT")

This memorandum of understanding ("MOU") is made and entered into as of the date of the last signature set forth below, by and between the Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority ("GWMA"), a California Joint Powers Authority, and the Cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, and Whittier, the Los Angeles County Flood Control District ("District"), and the California Department of Transportation ("Caltrans") (hereafter jointly referred to as the "Watershed Permittees"):

RECITALS

WHEREAS, the mission of the GWMA includes the equitable protection and management of water resources within its area; and

WHEREAS, portions of the Watershed Permittees manage, drain or convey storm water into at least a portion of the Coyote Creek, San Jose Creek, as well as Reach 1, Reach 2 and Reach 3 of the San Gabriel River; and

WHEREAS, the Watershed Permittees and the GWMA are collectively referred to as the ("Parties"); and

WHEREAS, in 2011, the Cities tributary to Coyote Creek created a Coyote Creek Metals TMDL Technical Committee consisting of one voluntary representative from each of the cities of Artesia, Cerritos, Diamond Bar, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Santa Fe Springs and Whittier for the preparation of a watershed Implementation Plan for the San Gabriel River and Tributaries Metals and Selenium TMDL ("Metals TMDL"); and

WHEREAS, a Metals TMDL MOU was established in 2012 by the Watershed Permittees tributary to Coyote Creek including the Cities of Downey and Bellflower which drain to Reach 1 of the San Gabriel River but not including the city of Pico Rivera, Caltrans and the District, providing for annual funding of $250,000 through December 31, 2022 for tasks including monitoring, report preparation and other assistance from the consultants; and

WHEREAS, the Watershed Permittees wish to maintain continuity of that Metals TMDL Technical Committee effort to work with the GWMA in coordinating the preparation and submission of the Plans to be presented to the California Regional Water Quality Control Board, Los Angeles Region (Regional Water Board) on behalf of the Watershed Permittees; and

WHEREAS, the MS4 Permit was adopted by the Regional Water Board on November 8, 2012 and became effective on December 28, 2012 and allows Watershed Permittees to prepare a Watershed Management Program ("WMP") or an Enhanced Watershed Management Program ("EWMP") and a Coordinated Integrated Monitoring Program ("CIMP"), collectively "the Plans," to address certain elements of the MS4 Permit; and

WHEREAS, Section VI.E.3 of the new MS4 permit provides a framework for developing implementation plans for USEPA-established TMDLs by requiring permittees subject to waste load allocations ("WLAs") in such TMDLs to propose and implement best management practices ("BMPs") that will be effective in achieving compliance with USEPA-established numeric WLAs; and

WHEREAS , the California Department of Transportation ("Caltrans") is regulated under a separate MS4 permit and considering entering into a separate MOU with the Watershed Permittees and the GWMA to coordinate preparation of the Plans; and

WHEREAS, if Caltrans enters into an MOU, the Parties contemplate that the payment formula in Table 1 will be modified as appropriate and each Watershed Entity's proportionate payment obligation adjusted accordingly to reflect Caltrans' payments; and

WHEREAS, the Watershed Permittees have elected to prepare, the Plans to address certain elements of the MS4 Permit; and

WHEREAS, preparation of the Plans requires administrative coordination for the Watershed Entities that the GWMA can provide; and

WHEREAS, at the April 18th and 24th, 2013 meetings of the Coyote Creek Technical Committee, the decision was made to prepare a WMP and CIMP with the option of converting the WMP to an Enhanced Watershed Management Program upon approval by the Coyote Creek Technical Committee prior to December 28, 2013; and

WHEREAS, the Cities of Diamond Bar, Downey, Santa Fe Springs, Pico Rivera, Whittier, Caltrans and the District which have additional areas in or tributary to Reach 2 and Reach 3 of the San Gabriel River as well as San Jose Creek and have expressed their intent to participate in the Coyote Creek Technical Committee and preparation of the Plans; and

WHEREAS, at the meeting on May 16, 2013, the Coyote Creek Technical Committee changed its name to: the "Lower San Gabriel River Watershed Committee (LSGR Watershed Committee);" and

WHEREAS, the LSGR Watershed Committee has approved the inclusion of the areas of the Watershed Permittees that are tributary to Coyote Creek, the San Gabriel River Reaches 1, 2 and 3 and San Jose Creek, but excluding the estuary and estuary watershed (Exhibit A) in the development of the Plans; and

WHEREAS, the LSGR Watershed Committee has approved a Scope of Work (Exhibit C); and

WHEREAS, there are remaining funds on deposit with the GWMA for use in implementation measures for the Metals TMDL as a result of a previous MOU and these funds shall be used for the preparation of the WMP prior to expending any funding from this MOU, and

WHEREAS, the Parties have determined that authorizing GWMA to retain the consultant and hire additional consultants as necessary to prepare and deliver the Plans will be beneficial to the Parties; and

WHEREAS, the Parties have determined to pay their proportionate share of the costs of preparing the Plans and other related costs to be incurred by the GWMA in accordance with the Cost Sharing Allocation Formula reflected in Exhibit B, and

NOW, THEREFORE, in consideration of the mutual covenants and conditions set forth herein, the Parties do hereby agree as follows:

Section 1. Recitals. The recitals set forth above are fully incorporated as part of this MOU.

Section 2. Purpose. The purpose of this MOU is to cooperatively support and undertake preparation of the Plans, necessary environmental documentation, and any additional services agreed to by the Watershed Permittees working through the LSGR Watershed Committee and as approved by the GWMA. This MOU does not include services related to the implementation of the Plans. The Parties will enter into an amendment to the MOU if they desire to collectively provide such services.

Section 3. Cooperation. The Parties shall fully cooperate with one another to achieve the purposes of this MOU.

Section 4. Voluntary Nature. The Parties voluntarily enter into this MOU.

Section 5. Binding Effect. This MOU shall become binding on GWMA and the Watershed Permittees that execute this MOU.

Section 6. Term. This MOU shall expire on June 30, 2014 except for those Watershed Entities that agree to the extent of the MOU. The term of the MOU for the District shall expire upon approval of the Plans by the Regional Water Board unless the Parties agree to an amendment to this MOU providing for continuing participation by the District.

Section 7. LSGR Watershed Committee Representative.

a) Each Watershed Permittee shall appoint a representative ("Representative") to the LSGR Watershed Committee. Each member shall have one vote on the LSGR Watershed Committee.

b) All Draft and Final Plans shall be reviewed by the LSGR Watershed Committee for further revision and/or completion. No Plan or Plans shall be submitted to the Regional Water Board unless and until it/they have been approved, by a majority vote of the LSGR Watershed Committee, for submittal, excepting only a Party or Parties whose involvement in this MOU has been terminated.

c) In the absence of the Representative, the LSGR Watershed Committee may appoint an interim Representative for such time as the Representative provides in writing. The interim Representative shall have all the authority of the Representative during that time.

d) The LSGR Watershed Committee shall appoint a Representative ("Representative") and may appoint an Alternate Representative ("Alternate Representative"), each of whom shall have the authority to speak on behalf of the LSGR Watershed Committee to the GWMA on decisions to be made by the LSGR Watershed Committee. The LSGR Watershed Committee shall inform the GWMA of the names of the Representative and Alternate Representative in writing. The GMWA may rely on written directions from either the Representative or the Alternate Representative. In the event of conflicting directions from the Representative and the Alternative Representative, the GWMA shall rely on the Representative's direction.

Section 8. Role of the GWMA. The GWMA will contract with and serve as a conduit for paying the Consultants as approved by the Watershed Permittees. The consultant or consultants ("Consultant") shall prepare the Plans and any other plans and/or projects that the LSGR Watershed Committee have determined are necessary and the costs of which the Watershed Permittees have agreed to pay. The Representative and the Alternative Representative shall be the means of communication between the LSGR Watershed Committee and the GWMA on the approval of the Consultant and any other work the LSGR Watershed Committee requests and which will be paid by the Watershed Permittees.

Section 9. Financial Terms.

a) Each Watershed Permittee shall pay its Proportional Costs as provided in Exhibit B for Consultant and any other related costs to which the Representative or the Alternate Representative informs the GWMA the Watershed Permittees informs the GWMA in writing that the LSGR Watershed Committee has approved.

b) Watershed Permittees tributary to Reach 3 and San Jose Creek will be responsible for any additional costs due to Reasonable Assurance Analysis, monitoring and preparation of any WMP addendums for their individual tributary areas as provided in Exhibit B.

c) Each Permittee shall also pay its proportional share of GWMA's staff time for retaining a Consultant and invoicing the Watershed Permittees, audit expenses and other overhead costs, including legal fees, ("MOU Costs") incurred by GWMA in the performance of its duties under this MOU. GWMA shall add a percentage not to exceed three percent (3%) to each invoice submitted to each Permittee to cover each Permittee's share of the MOU Costs. The MOU Costs percentage shall be set each fiscal year through a majority vote by the GWMA's Policy Board.

d) GWMA shall submit an invoice to each Permittee upon selection of a Consultant reflecting each Permittee's estimated Proportional Costs of Consultant services through the following June 30th or December 31st, whichever date is earlier. Prior to releasing payment to the Consultant the GWMA shall submit a copy of the Consultant's invoice to the LSGR Watershed Committee for approval. The GWMA shall not make any payment to a Consultant without the approval of the LSGR Watershed Committee as expressed in writing the Representative or Alternate Representative.

e) GWMA shall not be required to incur obligations for its 2013-14 fiscal year in excess of the budget reflected in Table 1 or in excess of any budget approved by the GWMA and the LSGR Watershed Committee unless the LSGR Watershed Committee authorizes the GWMA to expend the additional funds. GWMA may suspend the work of the Consultants if the LSGR Watershed Committee does not provided authorization to incure these additional obligations.

f) Upon receiving the first and each subsequent invoice, each Permittee shall pay their Proportional Costs to the GWMA within forty-five days (45) days of receipt.

g) Upon execution of this MOU, the LSGR Watershed Committee shall recommend to GWMA a budget for the 2013-14 fiscal year. Each successive year, commencing May 15, 2014, the LSGR Watershed Committee shall recommend to GWMA a budget for the following fiscal year. Within 30 days of receiving the recommendation of the LSGR Watershed Committee, GWMA shall consider the recommendation and adopt a budget inclusive of the LSGR Watershed Committee's recommendation for the 2013-14 fiscal year. For each successive year, GWMA shall consider the LSGR Watershed Committee's recommendation and adopt a budget by June 30th inclusive of the LSGR Watershed Committee's recommendation. GWMA will send each Watershed Permittee an invoice during the first month of each fiscal year representing the Watershed Permittee's Proportional Costs of the adopted budget as provided in Table 2. GWMA shall not expend funds nor incur obligations in excess of the budgeted amount without prior notification to and approval by the LSGR Watershed Committee.

h) Each year GWMA shall provide an invoice to each Watershed Permittee, except the City of Long Beach, representing that Watershed Entity's Proportionate Share of the approved budget within thirty (30) days of approval of its budget for expenses related to the MOU. GWMA shall submit its invoices to the City of Long Beach no earlier than October 1st of each year.

i) A Permittee will be delinquent if the invoiced payment is not received by the GWMA within forty-five (45) days after first being invoiced by the GWMA. The GWMA will follow the procedure listed below, or such other procedure that the LSGR Watershed Committee directs to effectuate payment: 1) verbally contact the representative of the Permittee and at phone number listed in Section 14 of the MOU, and 2) submit a formal letter from the GWMA Executive Officer to the Permittee at the address listed in Section 14 of the MOU. If payment is not received within sixty (60) days of the due date, the GWMA may terminate the MOU unless the City Managers/Administrators for those Watershed Permittees in good standing inform the GWMA in writing that they agree to adjust their Proportional Cost allocations in accordance with the Cost Share Formula in Exhibit B to account for the delinquent Watershed Permittees costs. However, no such termination may be ordered unless the GWMA first provides the Watershed Permittees with ninety (90) days written notice of its intent to terminate the MOU. If the GWMA receives such confirmation from the City Managers/Administrators, the delinquent Permittee's participation in this MOU will be terminated and the Cost Share Formula Table 2 or such other formula to which the Watershed Permittees shall direct will be adjusted. A terminated Permittee shall remain obligated to GWMA for its delinquent payments and any other obligations incurred prior to the date of termination.

j) GWMA may suspend or modify the scope of work being performed by any Consultant retained by GWMA if any Watershed Permittee has not paid its invoice within forty five (45) of receipt unless the City Managers/Administrators/Representatives of those Watershed Permittees in good standing inform the GWMA that they will pay the delinquent Permittee's costs once the MOU with the delinquent Permittee has been terminated.

k) Any delinquent payments by a Watershed Permittee shall accrue compound interest at the then-current rate of interest in the Local Agency Investment Fund, calculated from the first date of delinquency until the payment is made

l) Funds remaining in the possession of the GWMA at the end of the term of this MOU, or at the termination of this Agreement, whichever occurs earlier, shall be promptly returned to the then remaining Watershed Permittees in good standing and in accordance with the Cost Share Formula in Exhibit A.

m) The Parties, with the exception of the District and Pico Rivera, previously funded the development of the Metals TMDL Implementation Plan through a MOU. There are funds remaining in this account. Upon execution of this WMP/EWMP and CIMP MOU, the previous Metals TMDL MOU shall be terminated and any remaining funds are to be used to fund this new MOU.

Section 10. <u>Letter of Intent</u>. Pursuant to Section V.C.4.b (page 55) of the MS4 Permit, the Watershed Permittees agree to jointly draft, execute and submit to the Regional Water Board by June 28, 2013, a "Letter of Intent" that complies with all applicable MS4 Permit provisions.

Section 11. Independent Contractor.

a) The GWMA is, and shall at all times remain, a wholly independent contractor for performance of the obligations described in this MOU. The GWMA's officers, officials, employees and agents shall at all times during the Term of this MOU be under the exclusive control of the GWMA. The Watershed Permittees cannot control the conduct of the GWMA or any of its officers, officials, employees or agents. The GWMA and its officers, officials, employees, and agents shall not be deemed to be employees of the Watershed Permittees.

b) The GWMA is solely responsible for the payment of salaries, wages, other compensation, employment taxes, workers' compensation, or similar taxes for its employees and consultants performing services hereunder.

Section 12. Indemnification and Insurance.

a) The GWMA shall include in the agreements with the Consultants an indemnification clause requiring the Consultants to defend, indemnify and hold harmless each of the Watershed Permittees and the GWMA, their officers, employees, and agents, from and against any and all liabilities, actions, suits, proceedings, claims, demands, losses, costs, and expenses, including legal costs and attorney's fees, for injury to or death of person(s), for damage to property (including property owned by the GWMA or any Permittee) resulting from negligent or intentional acts, errors and omissions committed by Consultants, their officers, employees, and other representatives and agents, arising out of or related to Consultants' performance under this MOU. This provision shall also apply to any subcontractors hired by the Consultant.

b) The Parties shall defend, indemnify and hold harmless each other as well as their officers, employees, and other representatives and agents from and against any and all liabilities, actions, suits proceedings, claims, demands, losses, costs, and expenses, including legal costs and attorney's fees, for injury to or death of person(s), for damage to property (including property owned by the GWMA and any Permittee) for negligent or intentional acts, errors and omissions committed by another member of the Parties, its officers, employees, and agents, arising out of or related to that Watershed Entity's performance under this MOU, except for such loss as may be caused by GWMA's or any other Permittee's gross negligence of its officers, employees, or other representatives and agents other than the Consultants.

c) The GWMA shall defend, indemnify and hold harmless the Watershed Permittees, their officers, employees, and other representatives and agents of the Watershed Permittees, from and against any and all liabilities, actions, suits proceedings, claims, demands, losses, costs, and expenses, including legal costs and attorney's fees, for injury to or death of person(s), for damage to property (including property owned by the Watershed Permittees) and for negligent or intentional acts, errors and omissions committed by GWMA, its officers, employees, and agents, arising out of or related to GWMA's performance under this MOU.

d) Consultant's Insurance. The GWMA shall require the Consultants to obtain and maintain throughout the term of their contracts with the GWMA insurance.

e) GWMA makes no guarantee or warranty that the reports prepared by GWMA and its Consultant shall be approved by the relevant governmental authorities. GWMA shall have no liability to the Watershed Permittees for the negligent or intentional acts or omissions of GWMA's Consultants. The Watershed Permittees' sole recourse for any negligent or intentional act or omission of the GWMA's Consultant shall be against the Consultant and its insurance.

Section 13. <u>Termination</u>.

a) A Permittee may terminate its participation in this MOU in whole or in part, for any reason, or no reason, by giving the other Watershed Permittees thirty (30) days written notice thereof. The terminating Permittee shall be responsible for its Proportional Costs, which the GWMA incurred or to which it became bound through the effective date of termination. Such MOU Costs shall include the remaining fees of any Consultant retained by the GWMA prior to the effective date of termination. Should any Permittee terminate the MOU, the remaining Watershed Permittees' Proportional Cost allocation shall be adjusted in accordance with the Cost Share Formula in Exhibit B.

b) The GWMA may, with a two-thirds (2/3) vote of the full GWMA Policy Board, terminate this MOU upon not less than thirty (30) days notice, effective on May 1 or December 1 of each year. Any remaining funds not due and payable or otherwise legally committed to Consultant shall be returned to the remaining Watershed Permittees in accordance with the Cost Allocation Formula set forth in Exhibit B.

Section 14. <u>Miscellaneous</u>.

a) <u>Notices</u>. All Notices which the Parties require or desire to give hereunder shall be in writing and shall be deemed given when delivered personally or three (3) days after mailing by registered or certified mail (return receipt requested) to the following address or as such other addresses as the Parties may from time to time designate by written notice in the aforesaid manner:

To GWMA:

Ms. Grace Kast
GWMA Executive Officer
c/o Gateway Cities Council of Governments
16401 Paramount Boulevard
Paramount, CA 90723

To the Watershed Permittees:

Mr. Carlos Alba
City Engineer
City of Artesia
18747 Clarkdale Avenue
Artesia, CA 90701

Mr. Jeffrey L. Stewart
City Manager
City of Bellflower,
16600 Civic Center Drive
Bellflower, CA 90706

Hal Arbogast
Director of Public Works
City of Cerritos
P.O. Box 3130
Cerritos, CA 90703-3130

Mr. James DeStefano
City Manager
City of Diamond Bar
21810 Copley Drive
Diamond Bar, CA 91765

Mr. John Oskoui
Assistant City Manager/Director of Public Works
City of Downey
11111Brookshire Avenue
Downey, CA 90241

Mr. Ernesto Marquez
City Manger
City of Hawaiian Gardens,
21815 Pioneer Blvd
Hawaiian Gardens, CA 90716

Mr. Thomas E. Robinson
City Manager
City of La Mirada
13700 La Mirada Blvd
La Mirada, CA 990638

Ms. Lisa A. Rapp,
Director of Public Works
City of Lakewood
5050 Clark Avenue
Lakewood, CA 90712

Mr. Anthony Arevalo
Storm Water/Environmental Compliance
Storm Water Management Division
City of Long Beach
333 West Ocean Boulevard, 9th Floor
Long Beach, CA 90802

Mr. Michael J. Egan
City Manger
City of Norwalk
12700 Norwalk Blvd
Norwalk, CA 90650

Mr. Arturo Cervantes, PE
Director of Public Works/City Engineer
City of Pico Rivera
6615 Passons Boulevard
Pico Rivera, CA 90660

Mr. Noe Negrete
Director of Public Works
City of Santa Fe Springs
11710 Telegraph Road
Santa Fe Springs, CA 90670

Mr. David Pelser
Director of Public Works
City of Whittier
13230 Penn Street
Whittier, CA 90602

Mr. Gary Hildebrand
Los Angeles County Flood Control District
County of Los Angeles Department of Public Works
Watershed Management Division, 11th Floor
900 S. Fremont Avenue
Alhambra, CA 91803-1331

b) <u>Separate Accounting and Auditing</u>. The GWMA will establish a separate account to track revenues and expenses incurred by the GWMA on behalf of the Watershed Permittees. Any Permittee may upon five (5) days written notice inspect the books and records of the GWMA to verify the cost of the services provided and billed by GWMA. GWMA shall prepare and provide to the Watershed Permittees annual financial statements and audits, after review and approval by the LSGR Watershed Committee.

c) <u>Amendment</u>. The terms and provisions of this MOU may not be amended, modified or waived, except by a written instrument signed by all Parties and approved by all Parties as substantially similar to this MOU.

d) <u>Waiver</u>. Waiver by either the GWMA or a Permittee of any term, condition, or covenant of this MOU shall not constitute a waiver of any other term, condition, or covenant. Waiver, by the GWMA or a Permittee, to any breach of the provisions of this MOU shall not constitute a waiver of any other provision or a waiver of any subsequent breach of any provision of this MOU.

e) <u>Law to Govern: Venue</u>. This MOU shall be interpreted, construed, and governed according to the laws of the State of California. In the event of litigation between the Parties, venue shall lie exclusively in the County of Los Angeles.

f) <u>No Presumption in Drafting</u>. The Parties to this MOU agree that the general rule than an MOU is to be interpreted against the Parties drafting it, or causing it to be prepared, shall not apply.

g) <u>Severability</u>. If any term, provision, condition or covenant of this MOU is declared or determined by any court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions of this MOU shall not be affected thereby and this MOU shall be read and construed without the invalid, void, or unenforceable provisions(s).

h) <u>Entire Agreement</u>. This MOU constitutes the entire agreement of the Parties with respect to the subject matter hereof and supersedes all prior or contemporaneous agreements, whether written or oral, with respect thereto.

i) <u>Counterparts</u>. This MOU may be executed in any number of counterparts, each of which shall be an original, but all of which taken together shall constitute but one and the same instrument, provided, however, that such counterparts shall have been delivered to all Parties to this MOU.

j) <u>Legal Representation</u>. All Parties have been represented by counsel in the preparation and negotiation of this MOU. Accordingly, this MOU shall be construed according to its fair language.

k) <u>Agency Authorization</u>. Each of the persons signing below on behalf of the Parties represents and warrants that he or she is authorized to sign this MOU on their respective behalf.

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE:____________________

LOS ANGELES GATEWAY REGION INTEGRATED REGIONAL WATER MANAGEMENT JOINT POWERS AUTHORITY

____
Christopher S. Cash
GWMA Chair

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________

CITY OF ARTESIA
Mr. William Rawlings
Interim City Manager
18747 Clarkdale Avenue
Artesia, CA 90701

____
William Rawlings, Interim City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________

CITY OF BELLFLOWER
Mr. Jeffrey L. Stewart
City Manager
City of Bellflower
16600 Civic Center Drive
Bellflower, CA 90706

____
Jeffrey L. Stewart, City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ______________________

CITY OF CERRITOS

Mr. Art Gallucci
City Manager
P.O. Box 3130
Cerritos, CA 90703-3130

____
Art Gallucci, City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________

CITY OF DIAMOND BAR
Mr. James DeStefano
City Manager
21810 Copley Drive
Diamond Bar, CA 91765

____
Jim DeStefano, City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________	CITY OF DOWNEY Mr. Gilbert A. Livas City Manager 11111 Brookshire Avenue Downey, CA 90241
	____________________________________ Gilbert A. Livas, City Manager
ATTEST:	APPROVED AS TO FORM:
___________________________	____________________________________
_____________________ City Clerk	____________________________________ City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________

CITY OF HAWAIIAN GARDENS
Mr. Ernesto Marquez
City Manager
21815 Pioneer Blvd
Hawaiian Gardens, CA 90716

____
Ernesto Marquez, City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ____________________

CITY OF LA MIRADA
Mr. Thomas E. Robinson
City Manager
13700 La Mirada Blvd
La Mirada, CA 90638

____
Thomas E. Robinson, City Manager

ATTEST:

APPROVED AS TO FORM:

____________________________ ______________________________________

____________________________ ______________________________________
City Clerk City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________

CITY OF LAKEWOOD
Mr. Howard L. Chambers
City Manager
5050 Clark Avenue
Lakewood, CA 90712

____
Howard L. Chambers, City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ____________________

CITY OF LONG BEACH
Mr. Patrick H. West
City Manager
333 West Ocean Boulevard, 13th Floor
Long Beach, CA 90802

____
Patrick H. West, City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________	CITY OF NORWALK Mr. Michael J. Egan City Manager 12700 Norwalk Blvd Norwalk, CA 90650
	________________________________ Michael J. Egan, City Manager
ATTEST:	APPROVED AS TO FORM:
___________________________	___________________________________
___________________________ City Clerk	___________________________________ City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________

CITY OF PICO RIVERA
Mr. Ronald Bates, Ph. D.
City Manager
6615 Passons Boulevard
Pico Rivera, CA 90660

____
Ronald Bates, Ph. D., City Manager

ATTEST:

____
____
City Clerk

APPROVED AS TO FORM:

____
____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________

CITY OF SANTA FE SPRINGS
Mr. Thaddeus McCormack
City Manager
11710 Telegraph Road
Santa Fe Springs, CA 90670

____
Thaddeus McCormack, City Manager

ATTEST:

____

____
City Clerk

APPROVED AS TO FORM:

____

____
City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

DATE: ___________________	CITY OF WHITTIER Mr. Jeffery W. Collier City Manager 13230 Penn Street Whittier, CA 90602
	________________________________ Jeffery W. Collier, City Manager
ATTEST:	APPROVED AS TO FORM:
___________________________	____________________________________
___________________________ Kathryn A. Marshall City Clerk-Treasurer	____________________________________ Richard D. Jones City Attorney

IN WITNESS WHEREOF, the Parties hereto have caused this MOU to be executed on their behalf, respectively, as follows:

By: ______________________________________

Chief Engineer

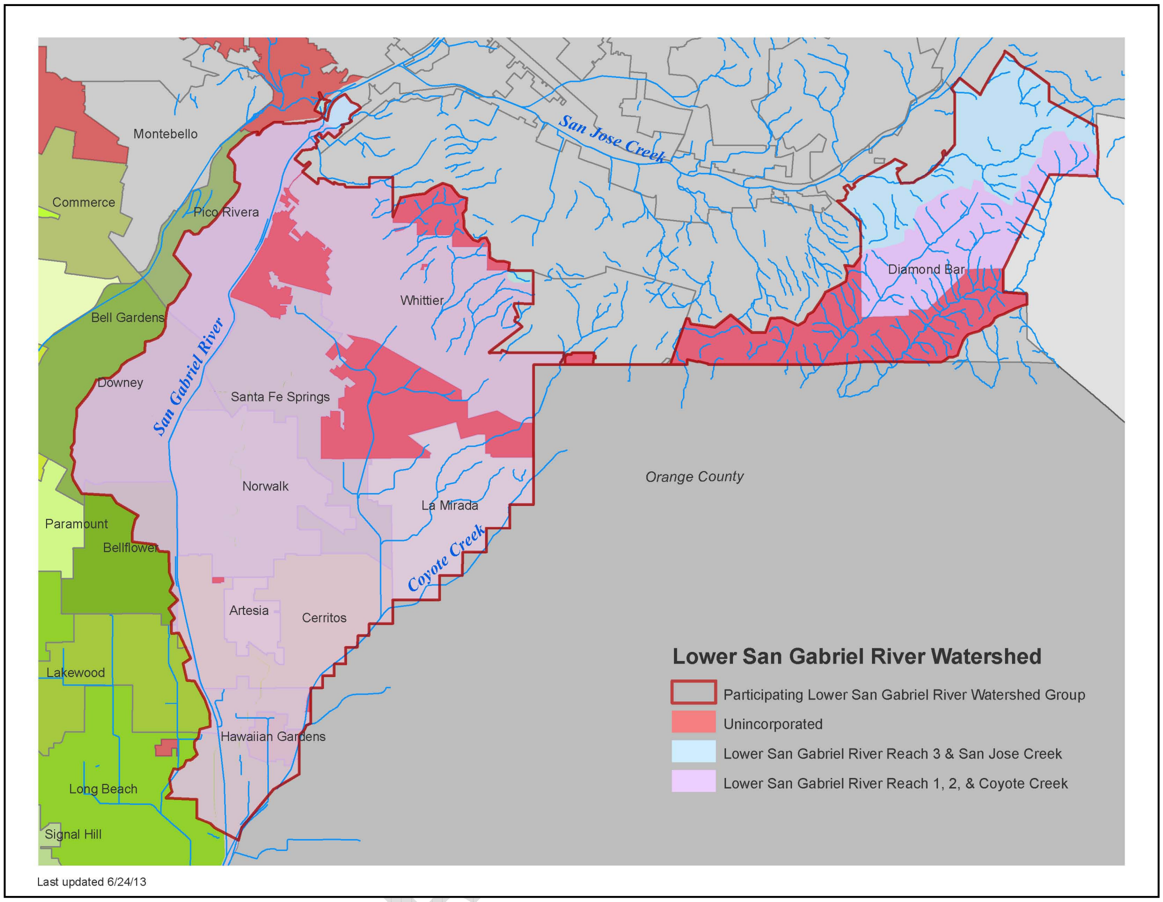
APPROVED AS TO FORM:

John F. Krattli _______________________________

County Counsel

Date______________________________

EXHIBIT A



Unincorporated Areas are not a part of this MOU

EXHIBIT B
Cost Sharing

The Watershed Permittees agree to pay for the cost of preparation of the WMP (or EWMP if subsequently designated by the parties) and the CIMP. The District will pay 10 percent (10%) of the cost of preparing the WMP (or EWMP) and CIMP. Each remaining Permittee will pay based upon the previously agreed upon cost sharing formula as approved in the MOU for the Coyote Creek Metals TMDL Implementation Plan. All Watershed Permittees shall pay the 3 percent (3%) GWMA administrative costs.

TABLE 1

Estimated cost share for WMP and CIMP development
and early action monitoring for FY 2013-14
Lower San Gabriel River Watershed

Reach 1, 2, 3 and Coyote Creek				
WMP/CIMP		***$600,000***	***TOTAL***	***$705,550***
Early Action Monitoring		***$85,000***		
GWMA Administration (3%)		***$20,550***		
LACFCD Allocation[1] *(10% Total less early action monitoring and early action administration)*				***$61,800***
Distributed Cost (Total – LACFCD Allocation)				***$643,750***
Agency	**Area (sq mi)**	**80 percent of Distributed Cost proportioned based on area**	**20 percent of Distributed Cost proportioned equally**	**TOTAL Per Agency**
Artesia	1.62	$10,474	$9,196	**$19,671**
Cerritos	8.82	$57,019	$9,196	**$66,216**
Diamond Bar	7.13	$46,071	$9,196	**$55,268**
Downey	6.62	$42,782	$9,196	**$51,979**
Hawaiian Gardens	0.96	$6,181	$9,196	**$15,377**
La Mirada	7.84	$50,667	$9,196	**$59,863**
Lakewood	2.02	$13,055	$9,196	**$22,252**
Long Beach	3.34	$21,585	$9,196	**$30,782**
Norwalk	9.76	$63,075	$9,196	**$72,271**
Pico Rivera	6.14	$39,680	$9,196	**$48,877**
Santa Fe Springs	8.88	$57,388	$9,196	**$66,584**
Whittier	14.66	$94,742	$9,196	**$103,938**
Caltrans[3]	TBD	TBD	$9,196	**$9,196**
TOTAL	**79.69**	**$515,000**	**$128,750**	**$643,750**
San Jose Creek[2]				
WMP/CIMP		***$75,000***	***TOTAL***	***$77,250***
GWMA Administration (3%)		***$2,250***		
LACFCD Allocation (10%)				***$7,725***
Distributed Cost (Total – LACFCD Allocation)				***$69,525***
Agency	**Area (sq mi)**	**80 percent of Distributed Cost proportioned based on area**	**20 percent of Distributed Cost proportioned equally**	**TOTAL Per Agency**
Diamond Bar	7.76	$55,620	$6,953	**$62,573**
Caltrans[3]	TBD	TBD	$6,953	**$6,953**
TOTAL	**7.76**	**$55,620**	**$13,905**	**$69,525**

NOTES:

- *[1] The Districts at this time has not committed to funding the early-action monitoring ($85,000).*
- *[2] The inclusion of the San Jose Creek drainage area has been estimated to be $75,000. The city of Diamond Bar shall be responsible for the portion of the city draining to San Jose Creek. Cost to be shared based upon above funding formula with the District and Caltrans.*
- *[3] Caltrans cost sharing will be determined at a later date. Each agency's total will be adjusted accordingly.*
- *Other agencies may participate upon approval of cost sharing agreements by the LSGR Watershed Committee and GWMA. Future participants shall be assessed a late entry cost as if they had been a participant from the beginning of the Metals TMDL MOU, as of March 1, 2012, unless otherwise determined by the LSGR Watershed Committee.*
- *Unincorporated areas of Los Angeles County and the city of La Habra Heights have areas within the watershed area but are not participants.*
- *Watershed Permittees and the cost share are subject to modifications due to, but not limited to, changes in the number of participating agencies, refinements in mapping, and changes in boundaries.*

Table 2

Estimated Cost Sharing Formula per $100,000 beginning June 29, 2014 through September 30, 2026.

Agency	Area (sq mi)	80 percent of cost proportioned based on area	20 percent of cost proportioned equally	TOTAL Per Agency
Artesia	1.62	$1,483	$1,429	**$2,911**
Bellflower	1.90	$1,738	$1,429	**$3,167**
Cerritos	8.82	$8,071	$1,429	**$9,500**
Diamond Bar	14.89	$13,621	$1,429	**$15,050**
Downey	6.62	$6,056	$1,429	**$7,485**
Hawaiian Gardens	0.96	$875	$1,429	**$2,303**
La Mirada	7.84	$7,172	$1,429	**$8,601**
Lakewood	2.02	$1,848	$1,429	**$3,277**
Long Beach	3.34	$3,055	$1,429	**$4,484**
Norwalk	9.76	$8,929	$1,429	**$10,357**
Pico Rivera	6.14	$5,617	$1,429	**$7,045**
Santa Fe Springs	8.88	$8,123	$1,429	**$9,552**
Whittier	14.66	$13,411	$1,429	**$14,840**
Caltrans[1]	TBD	TBD	$1,429	**$1,429**
TOTAL	**87.45**	**$80,000**	**$20,000**	**$100,000**

NOTES:

- *[1] Caltrans cost sharing will be determined at a later date. Each agency's total will be adjusted accordingly.*
- *Upon completion and approval or acceptance of the Plans by the Regional Water Board, the District's participation will be subject to an amendment to the MOU or equivalent agreement. The Districts at this time has not committed to funding the early-action monitoring ($85,000)*
- *Other agencies may participate upon approval of cost sharing agreements by the LSGR Watershed Committee and GWMA. Future participants may be assessed a late entry cost as if they had been a participant from the beginning of the Metals TMDL MOU, as of March 1, 2012, unless otherwise determined by the LSGR Watershed Committee.*
- *Watershed Permittees and the cost share are subject to modifications due to, but not limited to, changes in the number of participating agencies, refinements in mapping, and changes in boundaries.*

Exhibit C
Scope of Work

This proposed Scope of Services herein will be to develop a WMP and establish one early-action monitoring location. Implementation, unless specifically directed by the LSGR Technical Committee, is not included.

This will include:

- Identify and prioritize water quality issues,
- Identify strategies and control measures,
- Non-Stormwater control measures,
- Reasonable Assurance Analysis (computer modeling),
- Develop an Integrated Monitoring Program,
- A summary of available data demonstrating the current quality of the Watershed Permittees' MS4 discharges,
- A detailed description of BMPs that have been implemented,
- An assessment of the minimum control measures (MS4 Permit Part VI.D.8). Any individual Permittee annual reports are not a part of this scope of work.

The WMP being developed under this Scope of Work shall be a "living" document that can and should be modified as future monitoring data becomes available and the program develops following a strategy of adaptive management. At the request of the LSGR Technical Committee, the initial 6 months effort will keep open the possibility of converting the WMP to an Enhanced Watershed Management Program (EWMP) if permitted by the Regional Water Board and authorized by the LSGR Technical Committee.

The specific steps for this scope of work are described in the following section.

A final Draft WMP is to be ready for submittal to the Regional Water Board no later than June 28, 2014.

Specific Tasks

1. BACKGROUND / HISTORICAL DATA / HYDROLOGICAL SETTING

The data collection portion of this task was essentially completed during the TMDL Implementation Plan development. However, additional work will be necessary to include and Pico Rivera and incidental areas of Reach 3. This information will need to be analyzed and incorporated into the final draft WMP.

Deliverables:
- Source Assessment based on waterbody/pollutant combinations
- Review of applicable IRWMPs

Tasks that have previously been essentially completed, but will need to be incorporated into the WMP are:
- Baseline map
- Historical Water Quality Data
- Identification of water quality priorities
- Evaluation of existing water quality conditions
- Prioritization of the water quality issues
- Assemble available water quality reports
- Compilation of existing control measures (permittee surveys and annual reports)

2. MONITORING

This task will require coordination between several agencies, including, but not limited to, Orange County, Los Angeles County Flood Control and the Sanitation Districts of LA County.

Deliverables:
- Summary of outfall/receiving water /special study requirements
- Summary of existing Monitoring Programs
- Review past GIP site monitoring
- Receiving Water Monitoring – for this Scope of Work, it is assumed County Flood Control will continue monitoring at Mass Emission Station.
- Prepare Coordinated Integrated Monitoring Program (CIMP), including:
  - Wet-weather outfall based monitoring program
  - Non-stormwater Outfall based monitoring and screening plan
- Inspection of outfalls
- An approach to integrating MS4, TMDL and Special Study monitoring
- Set up shared database for new development/redevelopment Effectiveness Tracking
- Regional Studies (participate in Southern California Monitoring Coalition)

- Attend regular meetings of the Los Angeles River TMDL Monitoring Technical Committees
- Ongoing review of monitoring data as it becomes available

Establish an Early Action Monitoring site on North Coyote Creek (County Flood Control approval required) and conduct first year's sample collection and analysis.

3. REASONABLE ASSURANCE ANALYSIS (RAA)

Contact a minimum of four modeling consultants (including, but not limited to: Tetra Tech, Geosyntech, CWE and Pace Engineering) to provide cost estimates and scopes of works to conduct a Reasonable Assurance Analyses for each TMDL, 303(d) listed and receiving waste exceedances using a peer-reviewed, public domain, quantitative modeling system. The Technical Committee will select the consultant and modeling system.

<u>Deliverables:</u>

- Draft Technical Memorandum
- Final Technical Memorandum

4. REVIEW AND EVALUATE MINIMUM CONTROL MEASURES

The MS4 permit requires an evaluation and customization of the Minimum Control Measures (MCMs, formerly referred to as BMPs). Watershed Permittees not implementing a WMP or EWMP are required to implement all MCMs.

<u>Deliverables:</u>

- Develop list of potential EWMP project sites,
- Summarize scientific data supporting potential EWMP sites,
- Source control,
- Operational Controls,
- Identify potential opportunities for customization of the MS4's Minimum Control Measures (Part VI.D.8.D). Describe the modification, potential justifications for those modifications and provide materials for compilation.

5. WATERSHED MANAGEMENT PROGRAM PLAN

This task represents the analysis of the information developed in tasks 1 through 4 and compilation into a first draft for review by the Technical Committee, then preparation of a final draft for submittal to the Regional Water Board.

<u>Deliverables:</u>

- Communication with Regional Water Board and preparation of documents (December 28, 2013, for potential conversion to EWMP.
- First Draft Watershed Implementation Plan submitted to Technical Committee:
  - Target Date April 1, 2014
- Final Draft Watershed Implementation Plan for submittal to Regional Water Board:
  - Target date June 1, 2014

6. COORDINATION WITH TECHNICAL COMMITTEE

Regular meetings and communications with the Watershed Permittees will be critical during the preparation of the WMP. This will include:

<u>Deliverables:</u>

- Schedule and prepare agenda and summary notes for monthly meetings
- Attend and participate in the Technical Advisory Committee
- Attend and participate in Regional Water Board meetings
- Quarterly budget reports

Attachment B

Signed Letters of Intent

CITY OF ARTESIA
STATE OF CALIFORNIA
INCORPORATED 1959

"Service Builds Tomorrow's Progress"

THE CITY OF ARTESIA, CALIFORNIA

18747 CLARKDALE AVENUE, ARTESIA, CALIFORNIA 90701
Telephone 562 / 865-6262
FAX 562 / 865-6240

June 20, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Artesia submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18 month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

If you have any questions, please contact Carlos A. Alba at 714.856.6792.

Very truly yours,

William Rawlings
City Manager

The City of Bellflower

Families. Businesses. Futures.

16600 Civic Center Drive, Bellflower, CA 90706

Tel 562.804.1424 Fax 562.925.8660 www.bellflower.org

CITY OF BELLFLOWER "GROWING TOGETHER"

June 26, 2013

Mr. Samuel Unger
Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. Fourth Street, Suite 200
Los Angeles, CA 90013

Attn.: Renee Purdy

Re: Letter of Intent to Participate in the Development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) in Cooperation with the Lower San Gabriel River Watershed Group

Dear Mr. Unger:

The City of Bellflower (City) has voluntarily joined the Lower San Gabriel River Watershed Group (LSGR Group) in the development of a Watershed Management Program (WMP) and a Coordinated Integrated Monitoring Program (CIMP). We intend to comply with the requirements and provisions of the MS4 NPDES Permit (Order No. R4-2012-0175). The Watershed Group is comprised of the following permittees: the Cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

The City complied with Part VI.C.4.c.iv (1) through submission of a Notice of Intent letter dated December 27, 2012. We are complying with Part VI.C.4.c.iv (2) based on our Draft Green Streets Best Management Practices Policy and our adopted Stormwater Ordinance (City of Bellflower Ordinance No. 1099), which provides the City with authority to implement the Planning and Land Development Program requirements contained in Order No. R4-2012-0175, including Part VI.D.7.c.i.; Part VI.D.7.c.ii; Part VI.D.7.c.iii; and, if applicable, Part VI.D.7.c.iv, once the L.A. Regional Water Quality Control Board approves the WMP.

CITY OF CERRITOS

CIVIC CENTER • 18125 BLOOMFIELD AVENUE
P.O. BOX 3130 • CERRITOS, CALIFORNIA 90703-3130
PHONE: (562) 916-1301 • FAX: (562) 468-1095
WWW.CERRITOS.US

Cerritos
All-America City
2008

June 27, 2013

OFFICE OF THE CITY MANAGER
ART GALLUCCI

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Cerritos submits this Letter of Intent as notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). While continued participation in the Lower San Gabriel River Watershed Group is contingent upon the Cerritos City Council's approval of a Memorandum of Understanding, the City will comply with the requirements of the MS4 Permit. The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

The City of Cerritos has developed a draft Green Streets Policy and a draft Low Impact Development (LID) Ordinance. These documents will be presented to the Cerritos City Council, along with a Memorandum of Understanding with the Lower San Gabriel River Watershed Group for consideration at an upcoming meeting.

While maintaining the 18-month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

If you have any questions, please contact the City's Environmental Services Manager, Mike O'Grady, at (562) 916-1226.

Sincerely,

Art Gallucci
City Manager

City of Diamond Bar

21810 Copley Drive • Diamond Bar, CA 91765-4178

(909) 839-7000 • Fax (909) 861-3117
www.DiamondBarCA.gov

June 24, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Diamond Bar submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

The City of Diamond Bar is located in two sub-watersheds, Coyote Creek and San Jose Creek, both of which are tributaries of the San Gabriel River. At their June 20, 2013 meeting, the Lower San Gabriel River Watershed Committee approved the inclusion of Diamond Bar's San Jose Creek drainage area in the Lower San Gabriel River WMP.

While maintaining the 18 month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

June 24, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

Subject: LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Downey submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18 month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change. .

If you have any questions, please contact Jason Wen at 562-904-7201.

Very truly yours,

CITY OF DOWNEY

Gilbert A. Livas

Gilbert A. Livas
City Manager

"Our Youth - Our Future"

CITY OF HAWAIIAN GARDENS

June 25, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Hawaiian Gardens submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18-month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop a EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

At their meeting on June 25, 2013, the City Council introduced the draft Low Impact Development Ordinance (LID). The adoption of the Ordinance is scheduled for July 9, 2013 meeting of the City Council. It is also expected that the City Council will approve a Green Streets Policy Manual at this meeting.

If you have any questions, please contact Ismile Noorbaksh, City Engineer at 562-420-2641 ext. 216.

Sincerely,

Samuel Aceduz

for Ernesto Marquez
City Manager

cc: Renee Purdy, Los Angeles Regional Water Quality Control Board

21815 PIONEER BOULEVARD, HAWAIIAN GARDENS, CA 90716-1237 TEL: (562) 420-2641 FAX: (562) 496-3708

CITY OF LA MIRADA
DEDICATED TO SERVICE

13700 La Mirada Boulevard
La Mirada, California 90638
P.O. Box 828
La Mirada, California 90637-0828
Phone: (562) 943-0131 Fax: (562) 943-1464
www.cityoflamirada.org

June 26, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of La Mirada submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18-month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

If you have any questions, please contact Marlin A. Munoz, Senior Administrative Analyst, at (562) 902-2372.

Sincerely,

Thomas E. Robinson
City Manager

cc: Renee Purdy, Los Angeles Regional Water Quality Control Board

June 26, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Lakewood submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18 month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

At their meeting on June 25, 2013, the City Council authorized the submittal of this letter of intent. In addition, the City Council has approved a draft Green Streets Policy Manual and draft Low Impact Development (LID) Ordinance.

If you have any questions, please contact Konya Vivanti, Sr. Management Analyst at (562) 866-9771 ext. 2507.

Sincerely,

Howard L. Chambers
City Manager

Lakewood

5050 Clark Avenue, Lakewood, CA 90712 • (562) 866-9771 • Fax (562) 866-0505 • www.lakewoodcity.org • Email: service1@lakewoodcity.org

CITY OF LONG BEACH
DEPARTMENT OF PUBLIC WORKS

STORM WATER MANAGEMENT
CITY OF LONG BEACH

333 W. Ocean Blvd., 9th Floor | Long Beach, CA 90802 | (562) 570-66023 FAX: (562) 570-6501

STORM WATER/ENVIRONMENTAL COMPLIANCE DIVISION

June 25, 2013

Samuel Unger, Executive Office
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Long Angeles, California 90013

Attn: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Long Beach (City) intends to participate in the development of the Lower San Gabriel River Watershed Group Watershed Management Program (WMP) and in a Coordinated Integrated Monitoring Program (CIMP). Information developed in this regional participation of the subject WMP can be use in the City's future NPDES Permit.

Should you have any questions please contact me at your convenience at 562-570-6023.

Sincerely,

Anthony Arevalo
Storm Water Environmental/Compliance Officer

AA:la
LOI_LSGRWG.doc

City of NORWALK

12700 NORWALK BLVD., P.O. BOX 1030, NORWALK, CA 90651-1030 * PHONE: 562/929-5700 * FACSIMILE: 562/929-5773 * WWW.NORWALKCA.GOV

June 24, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Norwalk submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18-month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

At their meeting on June 18, 2013, the City Council authorized the submittal of this letter of intent. In addition, the City Council reviewed and approved a draft Green Streets Policy Manual and draft Low Impact Development (LID) Ordinance.

If you have any questions, please contact Adriana Figueroa, Administrative Services Manager, at (562) 929-5760.

Sincerely,

Michael J. Egan
City Manager

cc: Renee Purdy, Los Angeles Regional Water Quality Control Board

City of Pico Rivera
OFFICE OF THE CITY MANAGER
6615 Passons Boulevard · Pico Rivera, California 90660
(562) 801-4379
Web: www.pico-rivera.org · e-mail: rbates@pico-rivera.org

Ronald Bates, Ph. D.
City Manager

City Council
Gustavo V. Camacho
Mayor
Brent A. Tercero
Mayor Pro Tem
Bob J. Archuleta
Councilmember
David W. Armenta
Councilmember
Gregory Salcido
Councilmember

June 24, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

SUBJECT: LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Pico Rivera submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District . The WMP and CIMP will be drafted to meet the requirements by the MS4 Permit for the aforementioned permittee's respective watersheds. .

While maintaining the 18-month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

If you have any questions, please contact Arturo Cervantes, Director of Public Works/ City Engineer at (562) 801-4225.

Very truly yours,

Ronald Bates, Ph.D.
City Manager

cc: Mayor and City Council
Director of Public Works/ City Engineer

CITY OF
SANTA FE SPRINGS

11710 Telegraph Road · CA · 90670-3679 · (562) 868-0511 · Fax (562) 868-7112 · www.santafesprings.org
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June 27, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

Subject: Letter of Intent to Participate in the Development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) in Cooperation with the Lower San Gabriel River Watershed Group.

Dear Mr. Unger:

The City of Santa Fe Springs submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18 month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

Should you have any questions, please contact Sarina Morales-Choate at (562) 868-0511 extension 7367.

Sincerely,

Noe Negrete
Director of Public Works

City of Whittier
13230 Penn Street, Whittier, California 90602-1772
(562) 567-9999

June 21, 2013

Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attention: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

The City of Whittier submits this Letter of Intent as our written notification to participate and share the cost for the development of a Watershed Management Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) for the Lower San Gabriel River Watershed and to satisfy the CIMP notification requirement of Section IV.C.1 of Attachment E of Order No. R4-2012-0175 (MS4 Permit). The Lower San Gabriel River Watershed Group is comprised of the following permittees: Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, Whittier and the Los Angeles County Flood Control District.

While maintaining the 18-month schedule for development of the WMP, the Lower San Gabriel River Watershed Group intends to continue to evaluate and consider the Enhanced-WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter prior to any such change.

Please note the City of Whittier's participation in the Lower San Gabriel River Watershed Group WMP and CIMP is for the entirety of the incorporated City including two (2) very small areas within the City limits that drain into the Reach 3 San Gabriel River watershed. These two (2) areas combined are approximately 80 acres. One of these areas is an "island" of incorporated Whittier in the Whittier Narrows area north of the Whittier Narrows Dam and consists of the well field for our groundwater supply. The other is a small area in the northeast corner of Whittier adjacent to unincorporated County area on the north and the City of La Habra Heights on the east. At their

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

GAIL FARBER, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: WM-7

June 24, 2013

Mr. Samuel Unger, P.E.,
Executive Officer
California Regional Water Quality
Control Board – Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Attention Ms. Renee Purdy

Dear Mr. Unger:

LETTER OF INTENT – LOS ANGELES COUNTY FLOOD CONTROL DISTRICT
LOWER SAN GABRIEL RIVER WATERSHED
WATERSHED MANAGEMENT PROGRAM
AND COORDINATED INTEGRATED MONITORING PROGRAM

The Los Angeles County Flood Control District (LACFCD) submits this Letter of Intent to participate in and share the cost of the development of a Watershed Management Program (WMP) and a Coordinated Integrated Monitoring Program (CIMP) with the Lower San Gabriel River Watershed Group. This Letter of Intent serves to satisfy the WMP/EWMP notification requirements of Section VI.C.4.b of Order No. R4-2012-0175 (Municipal Separate Storm Sewer System Permit) and the CIMP requirements of Section IV.C.1 of Attachment E of the Municipal Separate Storm Sewer System Permit.

The Lower San Gabriel River Watershed Group is comprised of the following agencies: LACFCD and cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, and Whittier. The Lower San Gabriel River Watershed Group has included a final draft Memorandum of Understanding in the Notice of Intent. The LACFCD intends to submit a final Memorandum of Understanding to the County of Los Angeles Board of Supervisors (which is the LACFCD's governing body) for approval prior to December 28, 2013.

If you have any questions, please contact Ms. Terri Grant at (626) 458-4309 or tgrant@dpw.lacounty.gov.

Very truly yours,

GAIL FARBER
Chief Engineer of the Los Angeles County Flood Control District

LM:jht
P:\wmpub\Secretarial\2013 Documents\Letter\LOI - Lower SGR LACFCD.doc\C13203

cc: City of Artesia (Carlos Alba)
City of Bellflower (Bernardo Iniguez)
City of Cerritos (Mike O'Grady)
City of Diamond Bar (David Liu)
City of Downey (Jason Wen)
City of Hawaiian Gardens (Ismile Noorbaksh)
City of La Mirada (Marlin Munoz)
City of Lakewood (Konya Vivanti)
City of Long Beach (Anthony Arevalo)
City of Norwalk (Adriana Figueroa)
City of Pico Rivera (Gladis Deras)
City of Santa Fe Springs (Frank Beach)
City of Whittier (David Pelser)

DEPARTMENT OF TRANSPORTATION
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June 18, 2013

Samuel Unger, Executive Office
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Attn.: Renee Purdy

LETTER OF INTENT TO PARTICIPATE IN THE DEVELOPMENT OF A WATERSHED MANAGEMENT PROGRAM (WMP) AND COORDINATED INTEGRATED MONITORING PROGRAM (CIMP) IN COOPERATION WITH THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

Dear Mr. Unger:

Caltrans intends to voluntarily join the Lower San Gabriel River Watershed Group in the Development of the Watershed Management Program (WMP) and a Coordinated Integrated Monitoring Program (CIMP) to meet the intent of Caltrans TMDL requirements as part of the Caltrans Statewide NPDES Permit and the goals of watershed collaboration.

Caltrans recognizes that while maintaining the 18-month schedule for development of the WMP, the Watershed Group intends to continue to evaluate and consider the Enhanced WMP (EWMP) option. If the group decides to develop an EWMP prior to the December 28, 2013 deadline, your office will be notified in a separate letter and confirm whether Caltrans intends to participate in development of the EWMP.

Should you have any questions, please contact Keith Jones at (916) 653-4947. Thank you.

Sincerely,

G. SCOTT McGOWEN
Chief Environmental Engineer
California Department of Transportation

ORDINANCE NO.___________________________

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF [CITY NAME], CALIFORNIA, AMENDING [CITY NAME] MUNICIPAL CODE CHAPTER [MUNICIPAL CODE CHAPTER REFERENCE(S)], TO EXPAND THE APPLICABILITY OF THE EXISTING [NAME OF POST-CONSTRUCTION REQUIREMENTS] BY IMPOSING RAINWATER LOW IMPACT DEVELOPMENT (LID) STRATEGIES ON PROJECTS THAT REQUIRE BUILDING, GRADING AND ENCROACHMENT PERMITS

WHEREAS, the City is authorized by Article XI, Section 5 and Section 7 of the State Constitution to exercise the police power of the State by adopting regulations to promote public health, public safety and general prosperity; and

WHEREAS, the federal Clean Water Act establishes Regional Water Quality Control Boards in order to prohibit the discharge of pollutants in stormwater runoff to waters of the United States; and

WHEREAS, the City is a permittee under the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, issued on November 08, 2012 which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach MS4; and

WHEREAS, Order No. R4-2012-0175 contains requirements for municipalities to establish an LID Ordinance in order to participate in a Watershed Management Program and/or Enhanced Watershed Management Program; and

WHEREAS, the Regional Board has adopted Total Maximum Daily Loads (TMDLs) for pollutants which are numerical limits that must be achieved effectively through LID implementation; and

WHEREAS, the City has the authority under the California Water Code to adopt and enforce ordinances imposing conditions, restrictions and limitations with respect to any activity that might degrade waters of the State; and

WHEREAS, the City is committed to a stormwater management program that protects water quality and water supply by employing watershed-based approaches that balance environmental and economic considerations; and

WHEREAS, urbanization has led to increased impervious surface areas resulting in increased water runoff and less percolation to groundwater aquifers causing the transport of pollutants to downstream receiving waters; and

WHEREAS, is it the intent of the City to expand the applicability of the existing LID requirements by providing stormwater and rainwater LID strategies for all projects for Development and Redevelopment projects as defined under “Applicability.”

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF [CITY NAME], CALIFORNIA, DOES HEREBY ORDAIN AS FOLLOWS:

[MUNICIPAL CODE SECTION REFERENCE(S)] of the [CITY NAME] Municipal Code is shall be amended to add the following definitions in alphabetical order, and to renumber all existing definitions accordingly in alphabetical order. If the definition of any term contained in this chapter conflicts with the definition of the same term in Order No. R4-2012-0175, then the definition contained in Order No. R4-2012-0175 shall govern:

"Automotive Service Facility" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539 provided that these facilities have no outside activities or materials that may be exposed to stormwater (Order No. R4-2012-0175).

"Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments (Order No. R4-2012-0175).

"Best Management Practice (BMP)" means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water (Order No. R4-2012-0175).

"Biofiltration" means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this Ordinance is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales (Order No. R4-2012-0175).

"Bioretention" means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this Ordinance, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by Order No. R4-2012-0175 as biofiltration (Order No. R4-2012-0175).

"Bioswale" means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes (Order No. R4-2012-0175).

"City" means the City of [City Name].

"Clean Water Act (CWA)" means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

"Commercial Development" means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes (Order No. R4-2012-0175).

"Commercial Malls" means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers (Order No. R4-2012-0175).

"Construction Activity" means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that result in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan (Order No. R4-2012-0175).

"Control" means to minimize, reduce or eliminate by technological, legal, contractual, or other means, the discharge of pollutants from an activity or activities (Order No. R4-2012-0175).

"Development" means construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail, and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety (Order No. R4-2012-0175).

"Directly Adjacent" means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area (Order No. R4-2012-0175).

"Discharge" means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation (Order No. R4-2012-0175).

"Flow-through treatment BMPs" means a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain (Order No. R4-2012-0175).

"Full Capture System" means any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage area (Order No. R4-2012-0175).

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from construction activities under certain conditions (Order No. R4-2012-0175).

"General Industrial Activities Storm Water Permit (GIASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions (Order No. R4-2012-0175).

"Green Roof" means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain (Order No. R4-2012-0175).

"Hillside" means a property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes (Order No. R4-2012-0175).

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition (Order No. R4-2012-0175).

"Industrial Park" means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry (Order No. R4-2012-0175).

"Infiltration BMP" means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement (Order No. R4-2012-0175).

"Low Impact Development (LID)" consists of building and landscape features designed to retain or filter stormwater runoff (Order No. R4-2012-0175).

"Municipal Separate Storm Sewer System (MS4)" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

(ii) Designed or used for collecting or conveying stormwater;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Section 122.2.

(40 CFR Section 122.26(b)(8)) (Order No. R4-2012-0175)

“**National Pollutant Discharge Elimination System (NPDES)”** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA Section 307, 402, 318, and 405. The term includes an “approved program” (Order No. R4-2012-0175).

“Natural Drainage System” means a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system (Order No. R4-2012-0175).

“New Development” means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision (Order No. R4-2012-0175).

“Non-Stormwater Discharge” means any discharge to a municipal storm drain system that is not composed entirely of stormwater (Order No. R4-2012-0175).

“Outfall” means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR Section 122.26(b)(9)) (Order No. R4-2012-0175).

“Parking Lot” means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces (Order No. R4-2012-0175).

“Pollutant” means any “pollutant” defined in Section 502(6) of the Federal Clean Water Act or incorporated into the California Water Code Section 13373 (Order No. R4-2012-0175).

“Project” means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code Section 21065) (Order No. R4-2012-0175).

“Rainfall Harvest and Use” means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department (Order No. R4-2012-0175).

“Receiving Water” means “water of the United States” into which waste and/or pollutants are or may be discharged (Order No. R4-2012-0175).

“Redevelopment” means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety (Order No. R4-2012-0175).

"Regional Board" means the California Regional Water Quality Control Board, Los Angeles Region.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812) (Order No. R4-2012-0175).

"Retail Gasoline Outlet" means any facility engaged in selling gasoline and lubricating oils (Order No. R4-2012-0175).

"Routine Maintenance" includes, but is not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.
2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.
4. Update existing lines* and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
5. Repair leaks

Routine maintenance does not include construction of new** lines or facilities resulting from compliance with applicable codes, standards and regulations.

* Update existing lines includes replacing existing lines with new materials or pipes.

** New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines (Order No. R4-2012-0175).

"Significant Ecological Areas (SEAs)" means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan. Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.
4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.

6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.
8. Special areas (Order No. R4-2012-0175).

"Site" means land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity (Order No. R4-2012-0175).

"Storm Drain System" means any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City.

"Storm Water or Stormwater" means runoff and drainage related to precipitation events (pursuant to 40 CFR Section 122.26(b)(13); 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990)).

"Urban Runoff" means surface water flow produced by storm and non-storm events. Non-storm events include flow from residential, commercial or industrial activities involving the use of potable and non-potable water.

[MUNICIPAL CODE SECTION REFERENCE(S)] LOW IMPACT DEVELOPMENT MEASURES FOR NEW DEVELOPENT AND/OR REDEVELOPENT PLANNING AND CONSTRUCTION ACTIVITIES.

A. Objective. The provisions of this Section establish requirements for construction activities and facility operations of Development and Redevelopment projects to comply with the current "Order No. R4-2012-0175," lessen the water quality impacts of development by using smart growth practices, and integrate LID practices and standards for stormwater pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use. LID shall be inclusive of new development and/or redevelopment requirements.

B. Scope. This Section contains requirements for stormwater pollution control measures in Development and Redevelopment projects and authorizes the City to further define and adopt stormwater pollution control measures, and to develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies, grant waivers from the LID requirements, and collect funds for projects that are granted waivers. Except as otherwise provided herein, the City shall administer, implement and enforce the provisions of this Section.

C. Applicability. Development projects subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution, prior to completion of the project(s), are:

(1) All development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.

(2) Industrial parks 10,000 square feet or more of surface area.

(3) Commercial malls 10,000 square feet or more of surface area.

(4) Retail gasoline outlets with 5,000 square feet or more of surface area.

(5) Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of surface area.

(6) Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

(7) Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

(8) Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.

(9) Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:

a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

b. Create 2,500 square feet or more of impervious surface area

(10) Single-family hillside homes.

(11) Redevelopment Projects

a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

e. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

D. Effective Date. The Planning and Land Development requirements contained in Section 7 of Order No. R4-2012-0175 shall become effective 90 days from the adoption of the Order (February 6, 2013). This includes Planning Priority Projects that are discretionary permit projects or project phases that have not been deemed complete for processing, or discretionary permit projects without vesting tentative maps that have not requested and received an extension of previously granted approvals within 90 days of adoption of the Order. Projects that have been deemed complete within 90 days of adoption of the Order are not subject to the requirements Section 7.

E. Specific Requirements. The Site for every Planning Priority Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use.

(1) A new single-family hillside home development shall include mitigation measures to:

a. Conserve natural areas;

b. Protect slopes and channels;

c. Provide storm drain system stenciling and signage;

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

e. Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

(2) Street and road construction of 10,000 square feet or more of impervious surface shall follow USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009) to the maximum extent practicable.

(3) The remainder of Planning Priority Projects shall prepare a LID Plan to comply with the following:

a. Retain stormwater runoff onsite for the Stormwater Quality Design Volume (SWQDv) defined as the runoff from:

i. The 85th percentile 24-hour runoff event as determined from the Los Angeles County 85th percentile precipitation isohyetal map; or

ii. The volume of runoff produced from a 0.75 inch, 24-hour rain event, whichever is greater.

b. Minimize hydromodification impacts to natural drainage systems as defined in Order No. R4-2012-0175.

c. To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Technical infeasibility may result from conditions including the following:

i. The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv onsite.

ii. Locations where seasonal high groundwater is within five to ten feet of surface grade;

iii. Locations within 100 feet of a groundwater well used for drinking water;

iv. Brownfield development sites or other locations where pollutant mobilization is a documented concern;

v. Locations with potential geotechnical hazards;

vi. Smart growth and infill or redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.

d. If partial or complete onsite retention is technically infeasible, the project Site may biofiltrate 1.5 times the portion of the remaining SWQDv that is not reliably retained onsite. Biofiltration BMPs must adhere to the design specifications provided in Order No. R4-2012-0175.

i. Additional alternative compliance options such as offsite infiltration and groundwater replenishment projects may be available to the project Site. The project Site should contact the [APPROVING AGENCY] to determine eligibility.

e. The remaining SWQDv that cannot be retained or biofiltered onsite must be treated onsite to reduce pollutant loading. BMPs must be selected and designed to meet pollutant-specific benchmarks as required per Order No. R4-2012-0175. Flow-through BMPs may be used to treat the remaining SWQDv and must be sized based on a rainfall intensity of:

i. 0.2 inches per hour, or

ii. The one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, whichever is greater.

Optional

F. Additional Requirements. The site for projects not classified with general applicability listed in Section C of this Ordinance, but resulting in the creation or addition or replacement of 500 square feet or more of impervious surface area shall be designed to control pollutants, pollutant loads, and runoff volume per the [SPECIFIC GOVERNING MANUAL].

G. Validity. If any provision of this Ordinance is found to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect remaining provisions of this Ordinance are declared to be severable.

PASSED, APPROVED, AND ADOPTED at a regular meeting of the City Council of the City of [City Name], California, on this [DAY] day of [MONTH] 2013.

____

[NAME]

MAYOR

ATTEST:

____

[NAME]

CITY CLERK

STATE OF CALIFORNIA

COUNTY OF LOS ANGELES

CITY OF [CITY NAME]

I, [CITY CLERK NAME], City Clerk of the City of [CITY NAME], California, hereby certify that Ordinance No. [ORDINANCE NO] was introduced at a regular meeting of the City Council of the City of [CITY NAME] held on the [DAY] of [MONTH] 2013, and thereafter was adopted by the City Council at a regular meeting held on the [DAY] of [MONTH], 2013, and that the same was adopted by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

____

CITY CLERK

POLICY NO. xxxx

Optional Alternative

RESOLUTION NO. 2013-02-xxxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF [CITY NAME], CALIFORNIA, APPROVING A GREEN STREETS POLICY

The City Council of the City of [CITY NAME], California, hereby resolves, determines and orders as follows:

Section 1. The Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012. Municipalities electing to prepare a Watershed Management Program or an Enhanced Watershed Management Program under this Permit are required to demonstrate that Green Street policies are in place that specify the use of green street strategies for transportation corridors.

Section 2. Green Streets are enhancements to street and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways and tree lined streets.

Optional Language – Include if applicable

Section 3. That on [DATE PRIOR TO FEBRUARY 26, 2013], the City notified the Gateway Water Management Authority that development of a Green Street Policy has been initiated.

Section 4. That the City Council of the City of [CITY NAME], California, hereby directs the Public Works Director to implement Green Streets for transportation corridors for publicly owned street and road projects that add 10,000 square feet or more of impervious area. The USEPA's Wet Weather with Green Infrastructure guidance (December 2008 EPA-833-F-08-009) shall be followed to the maximum extent practicable.

Alternative Language

Section 4. That the City Council of the City of [CITY NAME], California, hereby directs the [PROPER DIRECTOR TITLE] to implement Green Streets for transportation corridors as described in the City of [CITY NAME] Green Street Manual. The Green Street Manual is described on Exhibit "A" (Staff Report) and shown on Exhibit "B," attached hereto.

Section 5. Routine maintenance including but not limited to: slurry seals, grind and overlay and reconstruction to maintain original line are grade are excluded from the Green Street Policy.

Section 6. At its regular meeting held on [DATE], 2013, after holding a duly noticed Public Hearing and passing upon all protests, the City Council determined that the public interest and necessity justify the adoption of the Green Street Policy.

Section 7. This policy [OR resolution] was posted in [NUMBER] public places in the City of [CITY NAME], California.

Optional Language

Section 8. The [RESPONSIBLE DEPARTMENT] shall incorporate aspects of green streets into internal annual staff trainings.

PASSED, APPROVED, AND ADOPTED at a regular meeting of the City Council of the City of [CITY NAME], California, on this [DAY] day of [MONTH] 2013.

____

[NAME]

MAYOR

ATTEST:

____

[NAME]

CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.
CITY OF [CITY NAME])

I, [CITY CLERK NAME], City Clerk of the City of [CITY NAME], California, hereby certify that Resolution No. 2013-02-xxxx was adopted by the City Council of the City of [CITY NAME], California, at a regular meeting held on the [DAY] day of [MONTH] 2013, and that the same was adopted by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN

____

[CITY CLERK NAME]
CITY CLERK

[CITY NAME]

Green Streets Manual

June 2013

RB-AR13206

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SECTION 1 – INTRODUCTION

1.1 WHAT ARE GREEN STREETS?

Roads present many opportunities for green infrastructure application. One principle of green infrastructure involves reducing and treating stormwater close to its source. Urban transportation right-of-ways integrated with green techniques are often called "green streets." Green streets provide source controls for stormwater runoff and pollutant loads. In addition, green infrastructure approaches complement street facility upgrades, street aesthetic improvements, and urban tree canopy efforts that also make use of the right-of-way and allow it to achieve multiple goals and benefits. Using the right-of-way for treatment of stormwater runoff links green with grey infrastructure by making use of the engineered conveyance of roads and providing connections to conveyance systems when needed.

Green streets are beneficial for new road construction and retrofits. They can provide substantial economic benefits when used in transportation applications. Coordinating green infrastructure installation with broader transportation improvements can reduce the cost of stormwater management by including it within larger infrastructure improvements. A large municipal concern regarding green infrastructure use is maintenance access; using roads and right-of-ways as locations for green infrastructure not only addresses a significant pollutant source, but also alleviates access and maintenance concerns by using public space. Also, right-of-way installations allow for easy public maintenance.

Green streets can incorporate a wide variety of design elements including street trees, permeable pavements, bioretention, and swales. Although the design and appearance of green streets will vary, the functional goals are the same; provide source control of stormwater, limit its transport and pollutant conveyance to the collection system, restore pre-development hydrology to the maximum extent practicable, and provide environmentally enhanced roads. Successful application of green techniques will encourage soil and vegetation contact and infiltration and retention of stormwater.

1.2 WHY ARE GREEN STREETS BEING REQUIRED?

This Green Streets Manual provides guidance to comply with the MS4 Permit (Order Number R4-2012-0175) which requires that jurisdictions in Los Angeles County reduce contaminants in runoff to improve water quality in waterways. These requirements stem from the National Pollutant Discharge Elimination System (NPDES) requirements of the Clean Water Act (CWA).

The MS4 Permit requires Green Streets strategies to be implemented for transportation corridors. Transportation corridors represent a large percentage of the impervious area within Los Angeles and therefore generate a substantial amount of runoff from storm events. The altered flow regime from traditional roadways, increased runoff volume, and high runoff peak flows, are damaging to the environment and a risk to property downstream.

Traditionally, street design has focused on removing water from the street as quickly as possible and transferring it to storm drains, channels, and water bodies. Stormwater runoff can contain bacteria and other pollutants, and is thereby regulated at the state and local level (refer to *Table 1* for a list of pollutants typical of roads). Green Streets will help to transform the design of streets from the conventional method of moving water off-site as quickly as possible to a method of storing and treating water on-site for a cleaner discharge into the waters of the U.S.

Street and road construction applies to major arterials, state routes, highways, or rail lines used for the movement of people or goods by means of bus services, trucks, and vehicles, and transportation corridors within larger projects. Projects which are required to follow this Green Streets Guidance Manual include the following:

1. Street and road construction of 10,000 square feet or more of impervious surface area.
2. Street and road redevelopment resulting in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.
3. Street and road improvement with a cost of $500,000 or more.

Table 1: Examples of Stormwater Pollutants Typical of Roads (*Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets, 2008*).

Pollutant	Source	Effects
Trash	Littering	Physical damage to aquatic animals and fish, release of poisonous substances
Sediment/solids	Construction, unpaved areas	Increased turbidity, increased transport of soil bound pollutants, negative effects on aquatic organisms reproduction and function
Metals (Copper, Zinc, Lead, Arsenic)	Vehicle brake pads, vehicle tires, motor oil, vehicle emissions and engines, vehicle emissions, brake linings, automotive fluids	Toxic to aquatic organisms and can accumulate in sediments and fish tissues
Organics associated with petroleum (e.g., PAHs)	Vehicle emissions, automotive fluids, gas stations	Toxic to aquatic organisms
Nutrients	Vehicle emissions, atmospheric deposition	Promotes eutrophication and depleted dissolved oxygen concentrations

1.3 PLANNING AND DEVELOPMENT

Ideally, a site would be designed to capture and use or infiltrate the entire runoff volume of a storm, however site and design constraints make it difficult to achieve that goal. This Green Streets Manual is designed to provide guidance with BMP selection based on site constraints typical to street design. Streetscape geometry, topography, and climate determine the types of controls that can be implemented. The initial step in selecting a stormwater tool is determining the available open space and constraints. Stormwater controls should be selected using the hierarchy represented in *Figure 1*, the site guidelines represented in *Table 2*, and the location opportunities listed in *Table 3*.

1.3.1 Site Considerations

Specific elements which should be given special consideration in the site assessment process for applicable Green Streets include:

- **Ownership of land adjacent to right of ways.** The opportunity to provide stormwater treatment may depend on the ownership of land adjacent to the right-of-way. Acquisition of additional right-of-way and/or access easements may be more feasible if land bordering the project is owned by relatively few land owners.

- **Location of existing utilities.** The location of existing storm drainage utilities can influence the opportunities for Green Streets infrastructure. For example, stormwater planters can be designed to overflow along the curb-line to an existing storm drain inlet, thereby avoiding the infrastructure costs associated with an additional inlet. The location of other utilities may limit the allowable placement of BMPs to only those areas where a clear pathway to the storm drain exists.
- **Grade differential between road surface and storm drain system.** Some BMPs require more head from inlet to outlet than others; therefore, allowable head drop may be an important consideration in BMP selection. Storm drain elevations may be constrained by a variety of factors in a roadway project (utility crossings, outfall elevations, etc.) that cannot be overcome and may override stormwater management considerations.
- **Longitudinal slope.** The suite of BMPs which may be installed on steeper road sections is more limited. Specifically, permeable pavement and swales are more suitable for gentle grades. Other BMPs may be more readily terraced to be used on steeper slopes.
- **Soil suitability.** Infiltration BMPs require specific types of soil. The site assessment should determine the type of soils on the site and the infiltration rate of the soils if infiltration BMPs are proposed.
- **Potential access opportunities.** A significant concern with installation of BMPs in major right of ways is the ability to safely access the BMPs for maintenance considering traffic hazards. Vehicle travel lanes and specific areas potentially hazardous for maintenance crews should be identified during the site assessment. The Green Streets WQMP should provide subsequent steps to avoid placing BMPs in the identified hazardous areas.

1.3.2 Design Considerations

The drainage patterns of the project should be developed so that drainage can be routed to areas with BMP opportunities before entering storm drains. For example, if a median strip is present, a reverse crown should be considered, where allowed, so that stormwater can drain to a median swale. Likewise, standard peak-flow curb inlets should be located downstream of areas with potential for stormwater planters so that water can first flow into the planter, and then overflow to the downstream inlet if capacity of the planter is exceeded. It is more difficult to apply green infrastructure after water has entered the storm drain.

Green Streets projects are not required to treat off-site runoff; however treatment of comingled off-site runoff may be used to off-set the inability to treat areas within the project for which significant constraints prevent the ability to provide treatment.

Applicable Green Streets projects should apply the following site design measures to the maximum extent practicable and as specified in the local permitting agency's codes:

- Minimize street width where feasible while maintaining traffic flow and public safety.
- Add tree canopy by planting or preserving trees/shrubs.
- Use porous pavement or pavers for low traffic roadways, on-street parking, shoulders or sidewalks.
- Integrate traffic calming measures in the form of bioretention curb extensions.

1.3.3 BMP Sizing for Applicable Green Streets Projects

An 85th percentile standard design storm should be used to determine the appropriate size, slope, and materials of each facility. After identifying the appropriate stormwater facilities for a site, an integrated approach using several BMPs is encouraged. To increase water quality and functional hydrologic benefits, several stormwater management BMPs can be used in succession. This is called a treatment train approach. The control measures should be designed using available topography to take advantage of gravity for conveyance to and through each facility. All Green Streets designs must be based off of a published design standard.

The following steps should be used to size BMPs for applicable Green Streets projects:

1. Delineate drainage areas tributary to BMP locations and compute imperviousness.
2. Look up the recommended sizing method for the BMP selected in each drainage area and calculate target sizing criteria.
3. Design BMPs per a published design standard.
4. Attempt to provide the calculated sizing criteria for the selected BMPs.
5. If sizing criteria cannot be achieved, document the constraints that override the application of BMPs and provide the largest portion of the sizing criteria that can be reasonably provided given constraints. If BMPs cannot be sized to provide the calculated volume for the tributary area, it is still essential to design the BMP inlet, energy dissipation, and overflow capacity for the full tributary area to ensure that flooding and scour is avoided. It is strongly recommended that BMPs which are designed to less than their target design volume be designed to bypass peak flows.

1.3.4 Alternative Compliance Options for Applicable Green Streets Projects

Alternative compliance programs should be considered for applicable Green Streets projects if on-site green infrastructure approaches cannot practicably treat the design volume. The primary alternative compliance option for applicable Green Streets projects is the completion of off-site mitigation projects. The proponent would implement a project to reduce stormwater pollution for other portions of roadway or similar land uses when being reconstructed to the project in the same hydrologic unit, ideally as close to the project as possible and discharging to the same outfall.

1.3.5 Infiltration Considerations

Appropriate soils, infiltration media, and infiltration rates should be used for infiltration BMPs. If infiltration is proposed, a complete geotechnical or soils report should be undertaken to determine infiltration rates, groundwater depth, soil toxicity and stability, and other factors that will affect the ability and the desirability of infiltration. At a minimum, the infiltration capacity of the underlying soils shall be deemed suitable for infiltration (0.3 inches per hour or greater), appropriate media should be used in the BMP itself, the groundwater shall be located at a depth of ten feet or greater.

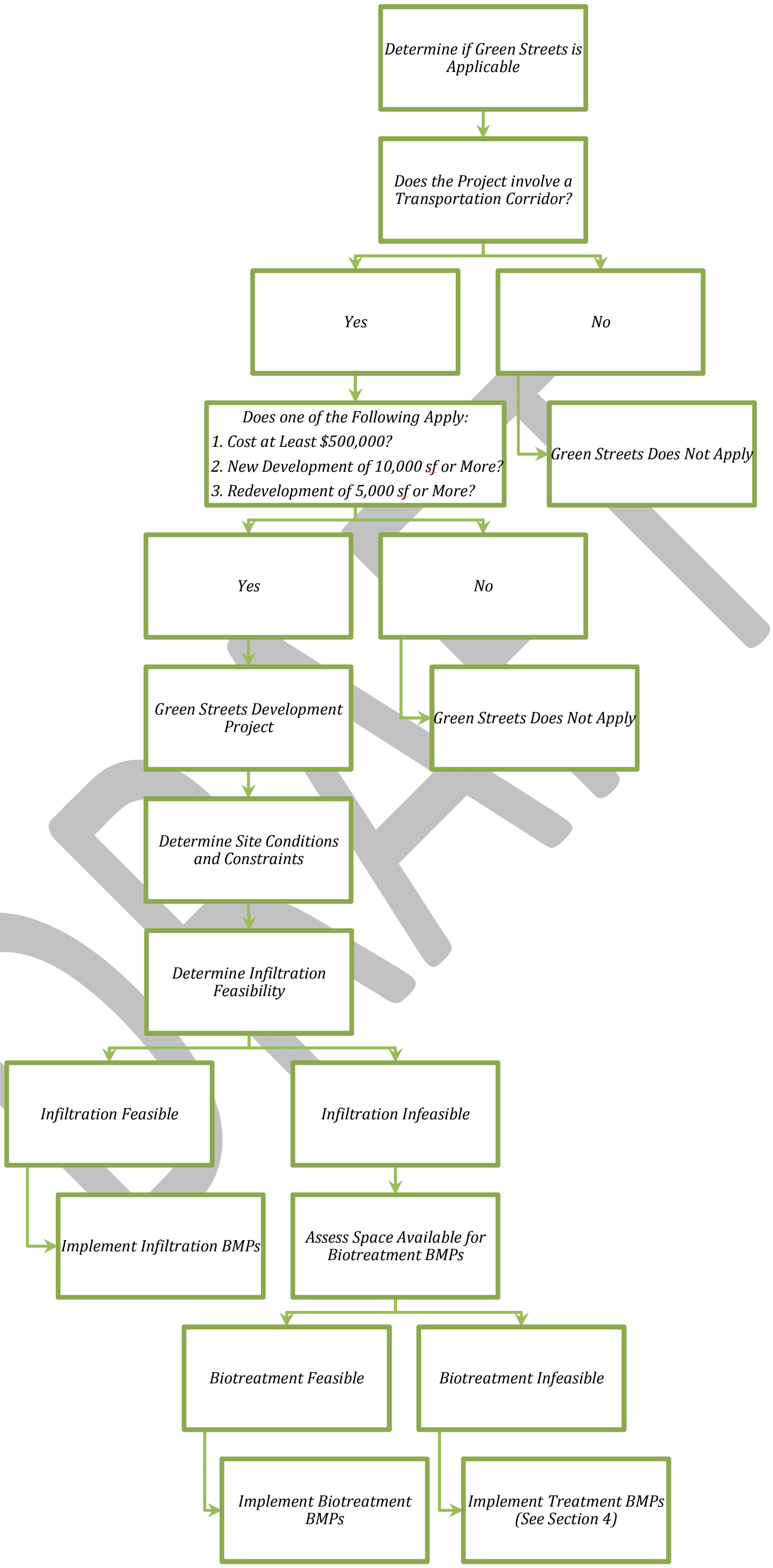

Figure 1: BMP Selection Flow Chart.

Table 2: BMP Selection by Street Context (*Model for Living Streets Design Manual, 2011*).

		BIORETENTION			DETENTION		PAVING	INLET PROTECTIONS		
	STREET CONTEXT	Swales	Planters	Vegetated Buffer Strips	Rain Gardens	Infiltration Trenches & Dry Wells	Permeable Pavement	Storm Drain Inlet Screens	Storm Drain Filter Inserts	Pipe Filter Inserts
Commercial	Downtown Commercial		✔			✔	✔	✔	✔	✔
	Commercial Throughway		✔	✔		✔	✔	✔	✔	✔
	Neighborhood Commercial		✔	✔	✔	✔	✔	✔	✔	✔
Residential	Downtown Residential	✔	✔		✔	✔	✔	✔	✔	✔
	Residential Throughway	✔	✔		✔	✔	✔	✔	✔	✔
	Neighborhood Residential	✔	✔		✔	✔	✔	✔	✔	✔
Industrial And Mixed-Use	Industrial	✔	✔		✔	✔	✔	✔	✔	✔
	Mixed-Use		✔	✔	✔	✔	✔	✔	✔	✔
Special	Sidewalk Furniture Zone	✔	✔		✔	✔	✔	✔	✔	✔
	Park Edge	✔	✔		✔	✔	✔	✔	✔	✔
	Boulevard	✔	✔		✔	✔	✔	✔	✔	✔
	Ceremonial (Civic)						✔	✔	✔	✔
Small	Alley		✔			✔	✔	✔	✔	✔
	Shared Public Way		✔			✔	✔	✔	✔	✔
	Walk Street		✔	✔		✔	✔	✔	✔	✔

Table 3: BMP Location Opportunity Summary.

BMP	Location Opportunity Summary

Bioretention	• Adjacent to traveled way and in frontage or furniture sidewalk zones • Can be located in curb extensions, medians, traffic circles, roundabouts, and any other landscaped area • Suitable for constrained locations
Infiltration Trench/Dry Well	• Can be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians
Rain Gardens	• Can be integrated medians, islands, circles, street ends, chicanes, and curb extensions • Can be located at the terminus of swales in the landscape
Permeable Pavement	• Suitable for parking or emergency access lanes • Can be located in furniture zones of sidewalks especially adjacent to tree wells • Cannot be placed in areas with large traffic volume or heavy load lanes • Avoid steep streets • Cannot be placed within 20 feet of sub-sidewalk basements • Cannot be within 50 feet of domestic water wells
Flow-Through Planters	• Above-grade planters should be structurally separate from adjacent sidewalks • At-grade planter systems can be installed adjacent to curbs within the frontage and/or furniture zones
Vegetated Swales	• Can be located adjacent to roadways, sidewalks, or parking areas • Can be integrated into traffic calming devices such as chicanes and curb extensions • Can be placed in medians where the street drains to the median • Can be placed alongside streets and pathways • Should be designed to work in conjunction with the street slope
Vegetated Buffer Strips	• Can be located in multi-way boulevards, park edge streets, or sidewalk furniture zones

	• Can serve as pre-treatment
Treatment BMPs	• Can be located in a catch basin, manhole, or vault • Can be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow • Can be placed on existing curbside catch basins and flush grate openings • Can be installed on the existing wall of a catch basin and on the curb side wall of a catch basin • Minimum set-backs from foundations and slopes should be observed if the BMP is not lined
Street Trees	• Can be placed on sidewalks, in furniture zones, and on medians • Adequate spacing must be provided between trees and street lights, pedestrian lights, accessible parking spaces, bus shelters, awnings, canopies, balconies, and signs

SECTION 2 – INFILTRATION

Infiltration systems utilize rock, gravel, and other highly permeable materials for on-site infiltration. In these systems, stormwater runoff is directed to the system and allowed to infiltrate into the soils for on-site retention and groundwater recharge. During small storm events, infiltration systems can result in significant or even complete volume reduction of stormwater runoff.

Infiltration should be used to the maximum extent practicable. Biotreatment BMPs should be considered if infiltration is found to be infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

Infiltration BMPs may become damaged by stormwater carrying high levels of sediment, therefore pre-treatment features should be designed to treat street runoff prior to discharging to infiltration features. Media filters, filter inserts, vortex type units, bioretention devices, sumps, and sedimentation basins are several pre-treatment tools effective at removing sediment.

2.1 INFILTRATION TRENCHES AND DRY WELLS

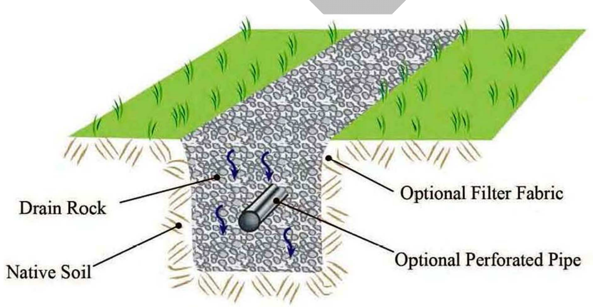

Figure 2: Infiltration Trench (*Model for Living Streets Design Manual, 2011*).

Description

Infiltration trenches are linear, rock-filled features that promote infiltration by providing a high ratio of sub-surface void space in permeable soils. They provide on-site stormwater retention and may contribute to groundwater recharge. Infiltration trenches may accept stormwater from sheet flow, concentrated flow from a swale or other surface feature, or piped flow from a catch basin. Because they are not flow-through BMPs, infiltration trenches do not have outlets but may have overflow outlets for large storm events.

Dry wells are typically distinguished from infiltration trenches by being deeper than they are wide. They are usually circular, resembling a well, and are backfilled with the same materials as infiltration trenches. Dry wells typically accept concentrated flow from surface features or from pipes and do not have outlets.

Infiltration trenches and dry wells are typically designed to infiltrate all flow they receive. In large storm events, partial infiltration of runoff can be achieved by providing an overflow outlet. In these systems, significant or even complete volume reduction is possible in smaller storm events. During large storm events, these systems may function as detention facilities and provide a limited amount of retention and infiltration.

Location and placement guidelines

Infiltration trenches and dry wells typically have small surface footprints so they are potentially some of the most flexible elements of landscape design. However, because they involve sub-surface excavation, these features may interfere with surrounding structures. Care needs to be taken to ensure that surrounding building foundations, pavement bases, and utilities are not damaged by infiltration features. Once structural soundness is ensured, infiltration features may be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians. When located in medians, they are most effective when the street is graded to drain to the median. Dry wells require less surface area than trenches and may be more feasible in densely developed areas.

Infiltration features should be sited on uncompacted soils with acceptable infiltration capacity. They are best used where soil and topography allow for moderate to good infiltration rates (0.3 inches per hour or better) and the depth to groundwater is at least 10 feet. Prior to design of any retention or infiltration system, proper soil investigation and percolation testing shall be conducted to determine appropriate infiltration design rates, depth to groundwater, and if soil will exhibit instability as a result of infiltration. Any site with potential for previous underground contamination shall be investigated. Infiltration trenches and dry wells can be designed as stand-alone systems when water quality is not a concern or may be combined in series with other stormwater tools.

Perforated pipes and piped inlets and outlets may be included in the design of infiltration trenches. Cleanouts should be installed at both ends of any piping and at regular intervals in long sections of piping, to allow access to the system. Access ports are recommended for both trenches and wells and can be combined with clean-outs. If included, the overflow inlet from the infiltration trench should be properly designed for anticipated flows.

2.2 RAIN GARDENS

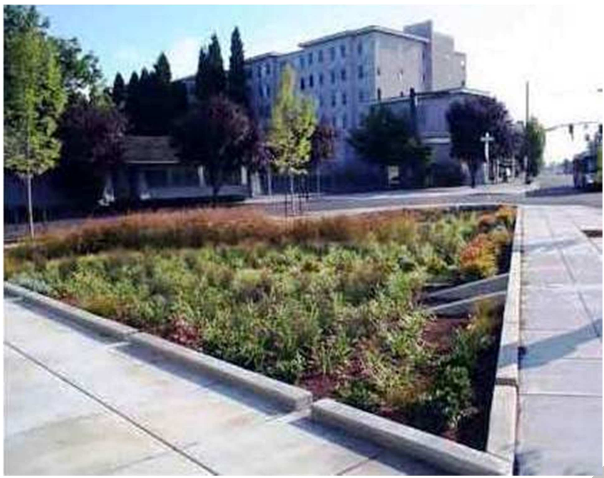

Figure 3: Rain garden (*Model for Living Streets Design Manual, 2011*).

Description

Rain gardens are vegetated depressions in the landscape. They have flat bottoms and gently sloping sides. Rain gardens can be similar in appearance to swales, but their footprints may be any shape. Rain gardens hold water on the surface, like a pond, and have overflow outlets. The detained water is infiltrated through the topsoil and subsurface drain rock unless the volume of water is so large that some must overflow. Rain gardens can reduce or eliminate off-site stormwater discharge while increasing on-site recharge.

Location and Placement Guidelines

Rain gardens may be placed where there is sufficient area in the landscape and where soils are suitable for infiltration. Rain gardens can be integrated with traffic calming measures installed along streets, such as medians, islands, circles, street ends, chicanes, and curb extensions. Rain gardens are often used at the terminus of swales in the landscape.

2.3 PERMEABLE PAVEMENT

Figure 4: Permeable pavement during a storm event (*Model for Living Streets Design Manual, 2011*).

Description

Permeable pavement is a system with the primary purpose of slowing or eliminating direct runoff by absorbing rainfall and allowing it to infiltrate into the soil. Permeable pavement also filters and cleans pollutants such as petroleum deposits on streets, reduces water volumes for existing overtaxed pipe systems, and decreases the cost of offsite or onsite downstream infrastructure. This BMP is impaired by sediment-laden run-on which diminishes its porosity. Care should be taken to avoid flows from landscaped areas reaching permeable pavement. Permeable pavement is, in certain situations, an alternative to standard pavement. Conventional pavement is designed to move stormwater off-site quickly. Permeable pavement, alternatively, accepts the water where it falls, minimizing the need for management facilities downstream.

Location and Placement Guidelines

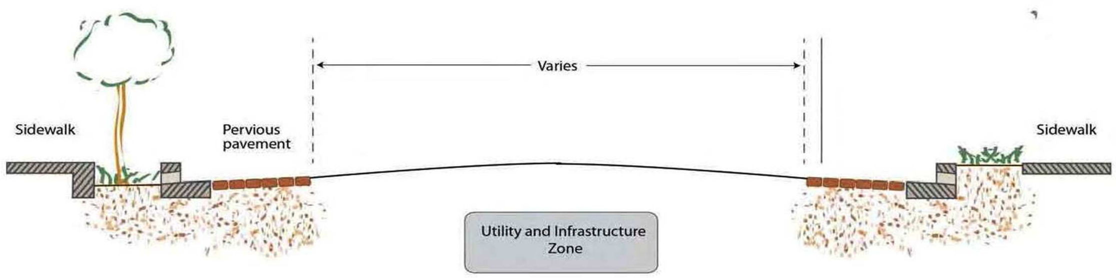

Figure 5: Possible pervious pavement design layout (*Model for Living Streets Design Manual, 2011*).

Conditions where permeable pavement should be encouraged include:

- Sites where there is limited space in the right-of-way for other BMPs;
- Parking or emergency access lanes; and
- Furniture zones of sidewalks especially adjacent to tree wells

Conditions where permeable pavement should be avoided include:

- Large traffic volume or heavy load lanes;
- Where runoff is already being harvested from an impervious surface for direct use, such as irrigation of bioretention landscape areas;
- Steep streets;
- Gas stations, car washes, auto repair, and other sites/sources of possible chemical contamination;
- Areas with shallow groundwater;
- Within 20 feet of sub-sidewalk basements; and
- Within 50 feet of domestic water wells.

Material and Design Guidelines

A soil or geotechnical report should be conducted to provide information about the permeability rate of the soil, load-bearing capacity of the soil, the depth to groundwater (10 feet or more required), and if soil will exhibit instability as a result of implementation. Infiltration rate and load capacity are key factors in the functionality of this BMP. Permeable pavement generally does not have the same load-

RB-AR13219

bearing capacity as conventional pavement, so this BMP may have limited applications depending on the underlying soil strength and pavement use. Permeable pavement should not be used in general traffic lanes due to the possible variety of vehicles weights and heavy volumes of traffic.

When used as a road paving, permeable pavement that carries light traffic loads typically has a thick drain rock base material. Pavers should be concrete as opposed to brick or other light-duty materials. Other possible permeable paving materials include porous concrete and porous asphalt. These surfaces also have specific base materials that detain infiltrated water and provide structure for the road surface. Base material depths should be specified based on design load and the soils report.

Plazas, emergency roads, and other areas of limited vehicular access can also be paved with permeable pavement. Paving materials for these areas may include open cell paver blocks filled with stones or grass and plastic cell systems. Base material specifications may vary depending on the product used, design load, and underlying soils.

When used for pedestrian paths, sidewalks, and shared-use paths, appropriate materials include those listed above as well as rubber pavers and decomposed granite or something similar (washed or pore-clogging fine material). Pedestrian paths may also use broken concrete pavers as long as ADA requirements are met. Paths should drain into adjoining landscapes and should be higher than adjoining landscapes to prevent run-on. Pavement used for sidewalks and pedestrian paths should be ADA compliant, especially smooth, and not exceed a 2 percent slope or have gaps wider than 0.25 inches. In general, tripping hazards should be avoided.

Design considerations for permeable pavement include:

- The location, slope and load-bearing capacity of the street, and the infiltration rate of the soil;
- The amount of storage capacity of the base course;
- The traffic volume and load from heavy vehicles;
- The design storm volume calculations and the quality of water; and
- Drain rock, filter fabrics, and other subsurface materials.

Maintenance Guidelines

Maintenance of permeable pavement systems is essential to their continued functionality. Regular vacuuming and street sweeping should be performed to remove sediment from the pavement surface. The bedding and base material should be selected for long life and sufficient infiltration rates.

SECTION 3 – BIOTREATMENT

Biotreatment BMPs are landscaped, shallow depressions that capture and filter stormwater runoff. These types of BMPs are an increasingly common type of stormwater treatment device that are installed at curb level and filled with a bioretention type soil. They are designed as soil and plant-based filtration devices that remove pollutants through a variety of physical, biological, and chemical treatment processes. They typically consist of a ponding area, mulch layer, planting soils, and plants. Stormwater is directed to the system and pollutants are treated as the stormwater drains through the planting soil and either infiltrated or collected by an underdrain and directed to a collection system.

Biotreatment should only be used in cases where infiltration has been proven infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

3.1 BIORETENTION

Figure 6: Bioretention system (*Model for Living Streets Design Manual, 2011*).

Description

Bioretention is a stormwater management process that cleans stormwater by mimicking natural soil filtration processes as water flows through a bioretention BMP. It incorporates mulch, soil pores, microbes, and vegetation to reduce and remove sediment and pollutants from stormwater. Bioretention is designed to slow, spread, and, to some extent, infiltrate water. Each component of the bioretention BMP is designed to assist in retaining water, evapotranspiration, and adsorption of pollutants into the soil matrix. As runoff passes through the vegetation and soil, the combined effects of filtration, absorption, adsorption, and biological uptake of plants remove pollutants.

For areas with low permeability or other soil constraints, bioretention can be designed as a flow-through system with a barrier protecting stormwater from native soils. Bioretention areas can be designed with an underdrain system that directs the treated runoff to infiltration areas, cisterns, or the storm drain system, or may treat the water exclusively through surface flow. Examples of bioretention BMPs include swales, planters, and vegetated buffer strips.

Location and Placement Guidelines

Bioretention facilities can be included in the design of all street components; adjacent to the traveled way and in the frontage or furniture sidewalk zones. They can be designed into curb extensions, medians, traffic circles, roundabouts, and any other landscaped area. Depending on the feature, maintenance and access should always be considered in locating the device. Bioretention systems are also appropriate in constrained locations where other stormwater facilities requiring more extensive subsurface materials are not feasible.

If bioretention devices are designed to include infiltration, native soil should have a minimum permeability rate of 0.3 inches per hour and at least 10 feet to the groundwater table. Sites that have more than a 5 percent slope may require other stormwater management approaches or special engineering.

3.2 FLOW-THROUGH PLANTERS

Figure 7: Flow-through planter (*Model for Living Streets Design Manual, 2011*).

Description

Flow-through planters are typically above-grade or at-grade with solid walls and a flow-through bottom. They are contained within an impermeable liner and use an underdrain to direct treated runoff back to the collection system. Where space permits, buildings can direct roof drains first to building-adjacent planters. Both underdrains and surface overflow drains are typically installed with building-adjacent planters.

At-grade street-adjacent planter boxes are systems designed to take street runoff and/or sidewalk runoff and incorporate bioretention processes to treat stormwater. These systems may or may not include underdrains.

Location and Placement Guidelines

Above-grade planters should be structurally separate from adjacent sidewalks to allow for future maintenance and structural stability per local department of public works' standards. At-grade planter systems can be installed adjacent to curbs within the frontage and/or furniture zones.

All planters should be designed to pond water for less than 48 hours after each storm. Flow-through planters designed to detain roof runoff can be integrated into a building's foundation walls, and may be either raised or at grade.

For at-grade planters, small localized depressions may be included in the curb opening to encourage flow into the planter. Following the inlet, a sump (depression) to capture sediment and debris may be integrated into the design to reduce sediment loadings.

3.3 VEGETATED SWALES

Figure 8: Vegetated swale (*Signal Hill, CA*).

Description

Swales are linear, vegetated depressions that capture rainfall and runoff from adjacent surfaces. The swale bottom should have a gradual slope to convey water along its length. Swales can reduce off-site stormwater discharge and remove pollutants along the way. In a swale, water is slowed by traveling through vegetation on a relatively flat grade. This gives particulates time to settle out of the water while contaminants are removed by the vegetation.

Location and Placement Guidelines

Swales can easily be located adjacent to roadways, sidewalks, or parking areas. Roadway runoff can be directed into swales via flush curbs or small evenly-spaced curb cuts into a raised curb. Swale systems can be integrated into traffic calming devices such as curb extensions.

Swales can be placed in medians where the street drains to the median. Placed alongside streets and pathways, vegetated swales can be landscaped with native plants which filter sediment and pollutants and provide habitat for wildlife. Swales should be designed to work in conjunction with the street slope to maximize filtration and slowing of stormwater.

Swales are designed to allow water to slowly flow through the system. Depending on the landscape and design storm, an overflow or bypass for larger storm events may be needed. Curb openings should be designed to direct flow into the swale. Following the inlet, a sump may be built to capture sediment and debris.

3.4 VEGETATED BUFFER STRIPS

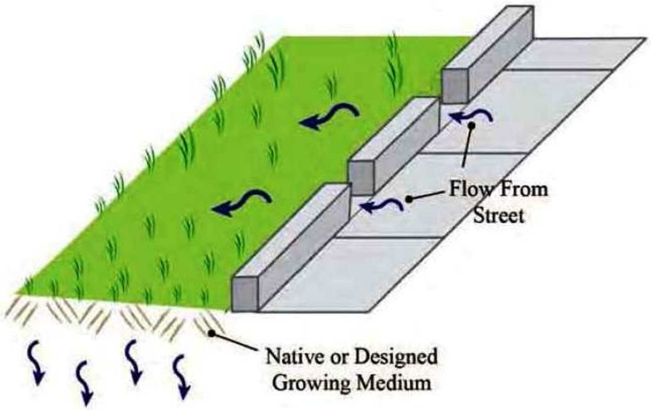

Figure 9: Vegetated buffer strip detail (*Model for Living Streets Design Manual, 2011*).

Description

Vegetated buffer strips are sloping planted areas designed to treat and absorb sheet flow from adjacent impervious surfaces. These strips are not intended to detain or retain water, only to treat it as a flow-through feature. They should not receive concentrated flow from swales or other surface features, or concentrated flow from pipes.

Location and Placement Guidelines

Vegetated buffer strips are well-suited to treating runoff from roads and highways, small parking lots, and pervious surfaces. They may be commonly used on multi-way boulevards, park edge streets, or sidewalk furniture zones with sufficient space. When selecting potential placement the need for supplemental irrigation should be considered. Vegetated buffers can also be situated so they serve as pre-treatment for another stormwater management feature, such as an infiltration BMP.

SECTION 4 – TREATMENT BMPS

4.1 SAND FILTERS & STORM DRAIN INLET PROTECTIONS

As described in Section 1 of this Green Streets Manual, it may be infeasible for specific projects to apply infiltration or biotreatment BMPs. In these cases, sand filters or filter inserts as treatment BMPs can be considered as an alternative. Sand filters and filter inserts can be designed to prevent particulates, debris, metals, and petroleum-based materials conveyed by stormwater from entering the storm drain system. All treatment BMP units should have an overflow system that allows the storm drain to remain functional if the filtration system becomes clogged during rainstorms. All storm drain inlet protections must be of a style and configuration approved by the agency with ownership of the inlet.

Typical maintenance of catch basins includes scheduled trash removal if a screen or other debris capturing device is used. Street sweeping should be performed by vacuum sweepers with occasional weed and large debris removal. Maintenance should include keeping a log of the amount of sediment collected and the data of removal.

The following are examples of acceptable treatment BMPs:

- **Sand Filters:** Sand filters are designed to filter stormwater through a constructed media bed and to an underdrain system. As stormwater flows through the media pollutants are filtered out of the water. The filtered water is conveyed through the underdrain to a collection system. Pretreatment is necessary to eliminate significant sediment load or other large particles which would clog the system. Minimum set-backs from foundations and slopes should be observed if the facility is not lined. Filters should be designed and maintained such that ponded water should not persist for longer than 48 hours following a storm event.
- **Cartridge Media Filters:** Cartridge media filters contain multiple modular filters which contain engineered media. The filters can be located in a catch basin, manhole, or vault. The manhole or vault may be divided into multiple chambers so that the first chamber may act as a pre-settling basin for removal of coarse sediment while the next chamber may act as the filter chamber. Cartridge media filters are recommended for drainage areas with limited available surface area or where surface BMPs would restrict uses. Depending on the number of cartridges, maintenance events can have long durations. Locations should be chosen so that maintenance events will not significantly disrupt businesses or traffic. Inlet inserts should be sized to capture all debris and should therefore be selected to match the specific size and shape of each catch basin and inlet. Filter media should be selected to target pollutants of concern. A combination of media may be used to remove a variety of pollutants. Systems with lower maintenance requirements are preferred.
- **Storm Drain Inlet Screens:** Inlet screens are designed to prevent large litter and trash from entering the storm drain system while allowing smaller particles to pass through. The screens function as the first preventive measure in removing pollutants from the storm water system. The city's street sweeping department should be consulted to ensure compliance with local specifications and to schedule regular maintenance. Annual inspection of the screen is recommended to ensure functionality. Note that most LA River drainage areas are already protected using connector pipe screens through collective systems.
- **Storm Drain Pipe Filter Insert:** The storm drain outlet pipe filter is designed to be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow. This filter removes debris, particulates, and other pollutants from stormwater as it leaves the storm drain system. This BMP is less desirable than a protection system that prevents debris from entering the storm drain system because the system may become clogged with debris. Outlet pipe filters can be placed on existing curbside catch basins and flush grate openings. Regular maintenance is required and inspection should be performed rigorously. Because this filter is located at the outlet of a storm drain system, clogging with debris is not as apparent as with filters at street level. This BMP may be used as a supplemental filter with an inlet screen or inlet insert unit.

SECTION 5 – STREET TREES

5.1 STREET TREES

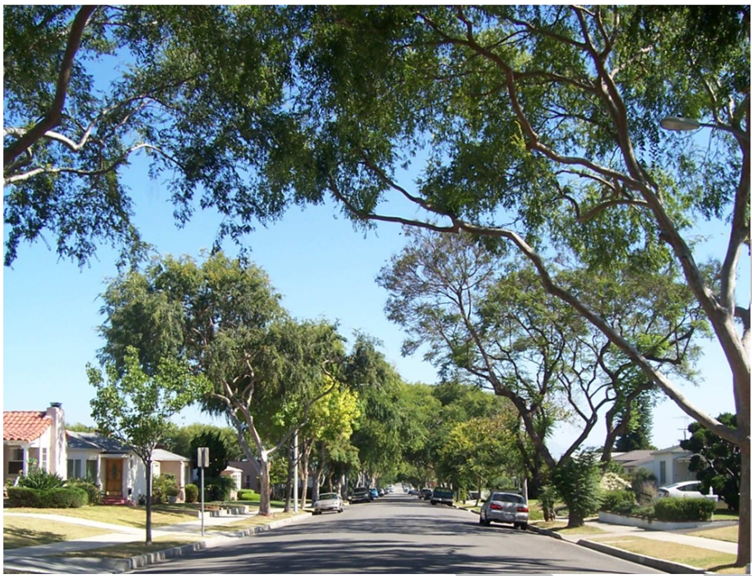

Figure 10: Street trees (*Signal Hill, CA*).

Description

Healthy urban trees are powerful stormwater management tools. Leaves and branches catch and slow rain as it falls, helping it to soak into the ground. The plants themselves take up and store large quantities of water that would otherwise contribute to surface runoff. Part of this moisture is then returned to the air through evaporation to further cool the city. As an important element along sidewalks, street trees must be provided with conditions that allow them to thrive, including adequate uncompacted soil, water, and air.

The goal of adding street trees is to increase the canopy cover of the street, the percentage of its surface either covered by or shaded by vegetation. The selection, placement, and management of all elements in the street should enhance the longevity of a city's street trees and healthy, mature plantings should be retained and protected whenever possible.

Benefits to adding street trees include:

- Creation of shade to lower temperatures in a city, reduces energy use, and makes the street a more pleasant place in which to walk and spend time
- Slowing and capture of rainwater, helping it soak into the ground to restore local hydrologic functions and aquifers
- Improving air quality by cooling air, producing oxygen, and absorbing and storing carbon in woody plant tissues

SECTION 6 – DEFINITIONS

Best Management Practice (BMP)
Operating methods and/or structural devices used to reduce stormwater volume, peak flows, and/or pollutant concentrations of stormwater runoff through evapotranspiration, infiltration, detention, filtration, and/or biological and chemical treatment.

Bioretention
Soil and plant-based retention practice that captures and biologically degrades pollutants as water infiltrates through sub-surface layers containing microbes that treat pollutants. Treated runoff is then slowly infiltrated and recharges the groundwater.

Conveyance
The process of water moving from one place to another.

Design Storm
A storm whose magnitude, rate, and intensity do not exceed the design load for a storm drainage system or flood protection project.

Detention
Stormwater runoff that is collected at one rate and then released at a controlled rate. The volume difference is held in temporary storage.

Filtration
A treatment process that allows for removal of solid (particulate) matter from water by means of porous media such as sand, soil, vegetation, or a man-made filter. Filtration is used to remove contaminants.

Furniture Zone
The furniture zone is the area which lies between the curb and pedestrian zones and is intended to house utilities and pedestrian amenities.

Hardscape
Impermeable surfaces, such as concrete or stone, used in the landscape environment along sidewalks or in other areas used as public space.

Infiltration
The process by which water penetrates into soil from the ground surface.

Permeability/Impermeability
The quality of a soil or material that enables water to move through it, determining its suitability for infiltration.

Retention
The reduction in total runoff that results when stormwater is diverted and allowed to infiltrate into the ground through existing or engineered soil systems.

Runoff
Water from rainfall that flows over the land surface that is not absorbed into the ground.

Sedimentation
The deposition and/or settling of particles suspended in water as a result of the slowing of the water.

Stormwater
Water runoff from rain or snow resulting from a storm.

Transportation Corridor
A major arterial, state route, highway, or rail line used for the movement of people or goods by means of bus services, trucks, and vehicles.

SECTION 7 – REFERENCES

1. Los Angeles County. *Model for Living Streets Design Manual*. 2011.
2. U.S. Environmental Protection Agency (EPA). *Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets*. December 2008.
3. Orange County. *Technical Guidance Document*. May 2011.

September 25, 2013

Lower San Gabriel River Watershed Management Group
(See Distribution List)

APPROVAL OF NOTIFICATION OF INTENT (NOI) TO DEVELOP A WATERSHED MANAGEMENT PROGRAM (WMP), PURSUANT TO THE LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NPDES PERMIT NO. CAS004001; ORDER NO. R4-2012-0175)

Dear Lower San Gabriel River Watershed Management Group Participants:

Regional Board staff received and reviewed the NOI to prepare a WMP that the Lower San Gabriel River Watershed Management Group submitted to the Regional Board on June 27, 2013. According to the NOI, the participants in the Lower San Gabriel River Watershed Management Group are the Los Angeles County Flood Control District, Caltrans and the Cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, and Whittier. Upon review, Regional Board staff determined the NOI meets the notification requirements of Part VI.C of Order No. R4-2012-0175, *Waste Discharge Requirements for MS4 Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach* (hereafter, Order).

As you are aware, the Order allows permittees the option to submit to the Regional Board for approval an NOI to prepare a WMP. Preparing a WMP allows permittees to implement the requirements of the Order on a watershed scale through customized strategies, control measures, and best management practices (BMPs). Implementing a WMP allows permittees to address the highest watershed priorities, including complying with the requirements of Part V.A (Receiving Water Limitations), Part VI.E (Total Maximum Daily Load Provisions) and Attachments L through R, by customizing the control measures in Parts III.A (Prohibitions – Non-Storm Water Discharges) and VI.D (Minimum Control Measures) of the Order.

The Lower San Gabriel River Watershed Management Group must submit to the Regional Board for review and approval a draft WMP for the Lower San Gabriel River watershed no later than June 28, 2014. Until Regional Board staff approves the Lower San Gabriel River Watershed Management Group WMP, each Lower San Gabriel River Watershed Management Group participant must do the following:

1. Continue to implement all the watershed control measures in their corresponding storm water management programs, including actions within each of the six categories of minimum control measures consistent with Title 40 Code of Federal Regulations Section 122.26(d)(2)(iv) and Part VI.C.4.d.i of the Order.
2. Continue to implement watershed control measures to eliminate non-storm water discharges through the MS4 that are a source of pollutants to receiving waters consistent with Clean Water Act Section 402(p)(3)(B)(ii) and Part VI.C.4.d.ii of the Order.
3. Target implementation of watershed control measures listed above to address known contributions of pollutants from MS4 discharges to receiving waters.
4. Meet all interim and final deadlines for development of a WMP.

The Regional Board understands that the Lower San Gabriel River Watershed Management Group may opt to develop an enhanced watershed management program (EWMP) instead of a WMP, after further evaluation. Regional Board staff determined the NOI the Lower San Gabriel River Watershed Management Group submitted met most of the requirements specific to an EWMP but lacked sufficiently detailed information about the structural best management practice(s) the Lower San Gabriel River Watershed Management Group participants will implement to provide meaningful water quality improvement. If the Lower San Gabriel River Watershed Management Group decides to develop an EWMP, please notify the Regional Board in writing no later December 28, 2013. Along with this written notification, submit a copy of the executed memorandum of understanding describing the mechanism to fund the development of the EWMP, and detailed technical information on the structural best management practice (BMP) or suite of BMPs the Lower San Gabriel River Watershed Management Group will implement, including the BMPs to quantifiably reduce pollutant loads, the size of the drainage area, the volume of storm water addressed, and the estimated pollutant load reduction.

If you have any questions, please contact Ms. Pavlova Vitale of the Storm Water Permitting Unit by electronic mail at Pavlova.Vitale@waterboards.ca.gov or by phone at (213) 576-6761. Alternatively, you may also contact Mr. Ivar Ridgeway, Chief of the Storm Water Permitting Unit, by electronic mail at Ivar.Ridgeway@waterboards.ca.gov or by phone at (213) 620-2150.

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer

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Lower San Gabriel River Watershed Management Program

June 27, 2014

Prepared For:

Lower San Gabriel River Watershed Group

Prepared By:

John L. Hunter and Associates, Inc.

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EXECUTIVE SUMMARY

This Watershed Management Program (WMP) sets forth a path to achieve reductions in the pollutants in the waterbodies of the Lower San Gabriel River and its tributaries. The WMP includes: a discussion of existing and planned watershed control measures; a Reasonable Assurance Analysis (RAA) based upon the Watershed Management Modeling System previously developed by the Los Angeles County Flood Control District in collaboration with the USEPA; and a Coordinated Integrated Monitoring Program (CIMP) being implemented over a four year period which began in 2013 with the installation of an early action monitoring site.

The agencies of the Lower San Gabriel River (SGR) Watershed have been working cooperatively towards the goal of a cleaner watershed for several years. In 2011 the cities tributary to Coyote Creek (a major tributary of the San Gabriel River) formed a Technical Committee to address the USEPA's Metals TMDL. As the Regional Board neared completion of the current fourth term MS4 Permit, and as many of the Technical Committee agencies also had areas tributary to the San Gabriel River and in some cases San Jose Creek, the Technical Committee rapidly expanded to include these areas. Funding for the Technical Committee was originally approved by City Councils and agency governing boards through a Memorandum of Understanding (MOU) for the TMDL, which was quickly superseded by a second MOU with funding through December 31, 2022, for selected activities pertaining to the WMP and CIMP provisions of the fourth term MS4 permit. Through this cooperative effort, the Technical Committee requested and supported the Regional Board's effort to adopt a Basin Plan Amendment for a Metals TMDL implementation schedule which was accomplished in June of 2013. This cooperative effort continues and in 2014, the Watershed Group was notified of their successful multi-city grant application (as part of a larger Gateway effort) to install 17 LID BMPs along selected major thoroughfares.

Prior to 2012, MS4 permits required cities and agencies to implement a series of best management practices such as street sweeping and catch basin cleaning to demonstrate compliance. With the adoption of the fourth term MS4 permit by the Los Angeles Regional Water Quality Control Board on November 8, 2012, the emphasis shifted to a more watershed based effort that includes the goals of achieving specific pollutant targets as runoff leaves the storm drain system and enters the main river channels. This WMP and the accompanying RAA and CIMP constitute the first step in that watershed based effort.

The jurisdictional boundaries of the Lower San Gabriel River Watershed are complex. Coyote Creek has a larger drainage area in Orange County which is under a separate MS4 Permit issued by a different Regional Board. Efforts to coordinate activities between the areas of Orange and Los Angeles County are in their infancy and would benefit from a realignment of the two MS4 Permits. Many Cities have drainage areas in multiple watersheds. To facilitate the implementation of control measures and minimize the impact of multiple watershed implementation plans within a single city, the Cities have combined the efforts of the Lower Los Angeles River Watershed and the Los Cerritos Channel to create similar Watershed Management Programs. Two cities have areas that drain to San Jose Creek, also tributary to the San Gabriel River – these areas have been included in this WMP.

This WMP is a long-term planning document that takes a comprehensive look at the Lower SGR Watershed, including its land uses, MS4 system, existing and planned control measures (both structural and nonstructural), existing storm water treatment systems, historical monitoring data and the various segments of the San Gabriel River and its tributaries that have been identified as impaired by various pollutants. Using that data, the Watershed Management Modeling System, one of the three modeling system authorized by the MS4 Permit, is used to generate a Reasonable Assurance Analysis (RAA) which predicts an optimal combination of structural treatment systems and construction timelines to achieve the goals of the MS4 Permit. The RAA spreads responsibility for implementation of future treatment systems amongst all Participating Agencies.

The RAA identifies wet weather zinc as the primarily pollutant of concern[1]. This means that by designing treatment systems and other nonstructural controls measures for zinc, the targets for other pollutants of concern will also be met. The first target for zinc occurs in 2017, when 10 percent wet weather reduction of zinc must be demonstrated. The next targets specified in the MS4 Permit occur in 2020, 2023 and 2026 when 35, 65 and 100 percent respectively of the wet weather zinc reductions must be demonstrated. This WMP establishes milestones that are to be met through the implementation of enhanced nonstructural control measures (such as the City of Whittier's existing vacant parcel sediment ordinance that targets sediment reduction) and construction of structural treatment projects (such as the City of Downey's Discovery Park infiltration system and over 500 existing individual treatment systems).

The RAA provides a recommended volume of runoff on a city-by-city basis that must be treated in order to meet the milestones. In total, the RAA establishes a final (2026) goal of capturing and treating a cumulative 37 acre feet in the San Gabriel and 81.6 acre feet in the Coyote Creek portions of the Lower SGR Watershed. The ultimate cost will vary considerably depending on the availability and configuration of suitable treatment locations and effectiveness of nonstructural watershed control measures but is estimated to be cumulatively in the range of $33 to $65 million. The treatment volumes recommended by the RAA are estimates based on current land used data, historical monitoring and assumed treatment system efficiencies. The WMP also incorporates an adaptive management strategy to adjust and modify the various control measures as necessary.

A Coordinated Integrated Monitoring Program (CIMP) has been developed at a part of this WMP and greatly expands the monitoring of water quality in the Lower SGR Watershed. The CIMP goals are in part to measure the overall effectiveness of the control measures the Participating Agencies are implementing. Currently the Mass Emission Station operated by the Los Angeles County Flood Control District near the mouth of Coyote Creek is the only regularly monitored station in the watershed. A second Mass Emission Station located in the upstream section of the San Gabriel River near the Whittier Narrow Dam is conducting regular monitoring but due to its upstream location is only providing background and general health of the river monitoring information for the downstream portions of the San Gabriel River into which the Participating Agencies discharge.

[1] The discharge of copper is anticipated to be reduced as copper is removed from brake pads over the next decade.

The CIMP identifies five new monitor sites that will be phased in over a multi-year period and will include outfall and TMDL monitoring. The first of these sites has already been installed and is in operation at the base of the North Fork of Coyote Creek. Upon approval of the CIMP, a second station will be installed along the downstream portion of the San Gabriel River as it enters the estuary. Two stations will be added the following year and three potential sites have been identified for the year following that.

This WMP and its components, including Chapter 3 *Selection of Watershed Control Measures*, Chapter 4 *RAA* and Chapter 8 *CIMP* outline a path to achieve significantly improved water quality in the Lower SGR Watershed. The WMP outlines a path based on the optimal placement of treatment systems determined by the RAA, but this is not the only viable path. The agencies of the LSGR can follow the adaptive management strategy described in Chapter 9 to adjust the number, locations and sizes of future treatment systems as long as the timelines and goals of this WMP are followed. While this WMP has been developed to establish treatment and capture goals on an agency-by-agency basis, it does not preclude those agencies from collaborating (in actuality, collaboration is encouraged) on a regional and multi-agency basis.

As part of the overall collaborative and inclusive effort, this Draft Watershed Management Program was presented at a public stakeholder meeting at the Lakewood City Hall on April 30, 2014. The Watershed Control Measures, Reasonable Assurance Analysis and Coordinated Integrated Monitoring Programs were discussed and comments from interested members of the public were solicited.

1 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This Watershed Management Program (WMP) has been developed to implement the requirements of Los Angeles Regional Water Quality Control Board Order Nos. R4-2012-0175 and R4-2014-0024 (National Pollutant Discharge Elimination System (NPDES) Permit Nos. CA004001, CA004003 respectively) on a watershed scale. In addition, elements of this WMP relating to Total Maximum Daily Loads (TMDLs) address requirements of California State Water Resources Control Board Order No. 2012-0011-DWQ (the Caltrans Stormwater Permit) for those TMDLs within the watershed area as described in the Section 1.1.4. Combined, the Orders set forth waste discharge requirements for the Municipal Separate Storm Sewer (MS4) discharges by Caltrans, the Los Angeles County Flood Control District (LACFCD), the County of Los Angeles and 85 cities within the coastal watersheds of Los Angeles County (Permittees). The goal of these requirements is to reduce the discharge of pollutants from MS4s to the maximum extent practicable.[1]

1.1.1 PARTICIPATING AGENCIES

This WMP is a collaborative effort of fourteen participating agencies with MS4 facilities within the subwatersheds[2] of Coyote Creek, Reaches 1, 2 and 3 of the San Gabriel River and San Jose Creek. For the purposes of this WMP, the area defined by the boundaries of the participating agencies with these subwatersheds is referred to as the Lower San Gabriel River Watershed (Lower SGR Watershed). The participating agencies and their respective MS4 stormwater Permits addressed by this WMP are listed in Table 1-1.

1.1.2 MS4 PERMITS ADDRESSED

As noted in Table 1-1, Caltrans and the City of Long Beach are regulated under their own MS4 Permits, separate from the Los Angeles MS4 Permit. The extent to which this impacts the contents of this WMP is explained in this section.

LONG BEACH AND LOS ANGELES MS4 PERMITS

The Long Beach and Los Angeles MS4 Permits, adopted by the Los Angeles Regional Water Quality Control Board (Regional Board) within 15 months of each other, contain similar language and requirements. Specifically, both Permits include an optional WMP approach to compliance. These similarities allow for the preparation of one WMP to address the requirements of both permits. Except where otherwise noted, the term *MS4 Permit* will refer exclusively to the Los Angeles and Long Beach MS4 Permits.

[1] Reference: http://www.swrcb.ca.gov/water_issues/programs/stormwater/municipal.shtml
[2] Subwatersheds within this WMP are the "HUC-12 Equivalent" drainage areas as defined in 1.1.4.

Table 1-1: Participating Agencies of the Lower SGR Watershed

Agency	Permit Order No.	Permit Name
Artesia	R4-2012-0175	Los Angeles County NPDES MS4 Permit (LA MS4 Permit)
Bellflower		
Cerritos		
Diamond Bar		
Downey		
Hawaiian Gardens		
La Mirada		
LACFCD[3]		
Lakewood		
Norwalk		
Pico Rivera		
Santa Fe Springs		
Whittier		
Long Beach	R4-2014-0024	Long Beach NPDES MS4 Permit (LB MS4 Permit)
Caltrans[3]	2012-0011-DWQ	Caltrans Stormwater Permit (Caltrans MS4 Permit)

CALTRANS STORMWATER PERMIT

Discharges to Caltrans' MS4 are regulated through the Caltrans MS4 Permit. Although the Caltrans Permit does not include a WMP compliance approach like the Los Angeles and Long Beach MS4 Permits, its TMDL provisions do require cooperation with agencies subject to the same TMDLs. As such, Caltrans' participation is restricted to those sections of the WMP related to TMDL requirements. Caltrans has acknowledged their intent to participate.

1.1.3 NON-PARTICIPATING AGENCIES

All other NPDES MS4 permitted agencies within these subwatersheds that are not listed in Table 1-1 have developed either individual or collaborative draft WMPs or draft EWMPs separately and are not participating in this WMP. Non-participating agencies include the County of Los Angeles (unincorporated areas), the City of La Habra Heights, multiple cities within and upstream of Reach 3 of the San Gabriel River and San Jose Creek and the agencies draining to Coyote Creek located within Orange County. Figure 1-1 shows the participating agencies within the Lower SGR.

[3] LACFCD and Caltrans participation is restricted to their land and stormwater facilities within the Lower SGR Watershed.

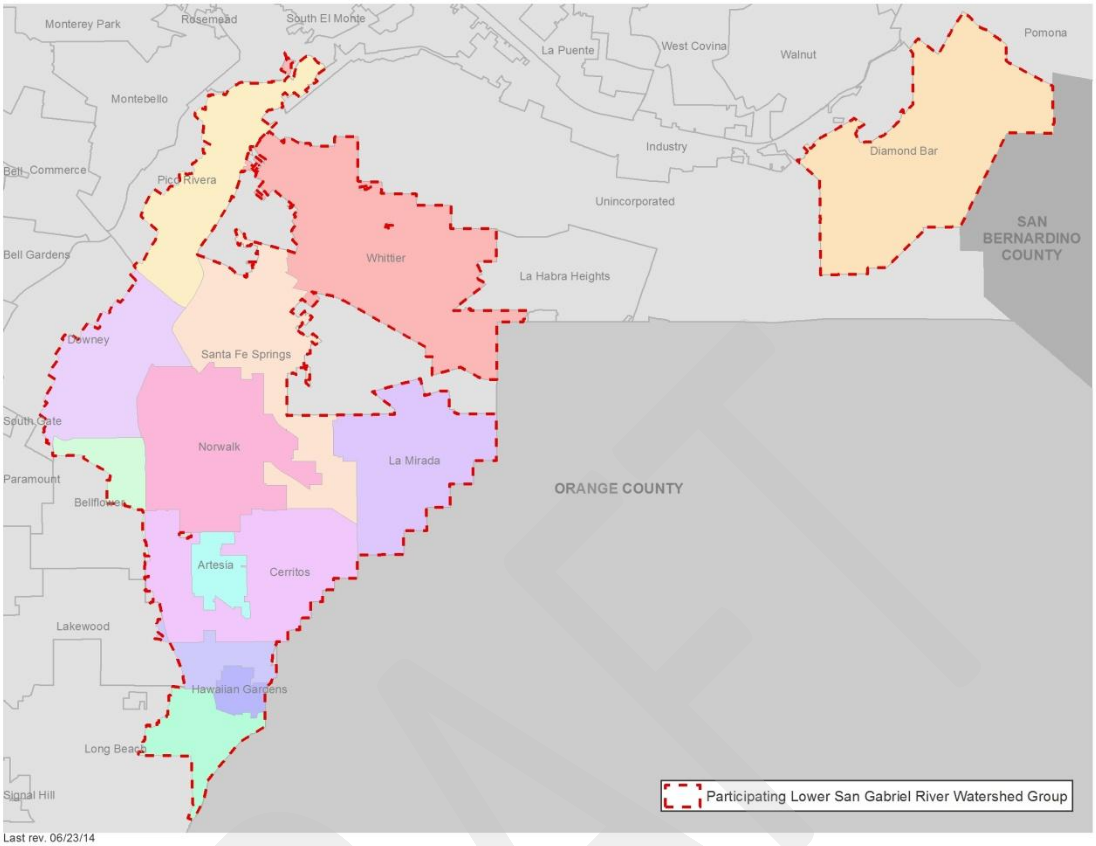

Figure 1-1: Participating Agencies map

1.1.4 THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

DESIGNATION

Prior to the adoption of the MS4 permit, the participating agencies – with the exception of Caltrans, the LACFCD and the City of Pico Rivera – were under a Memorandum of Understanding to develop an Implementation Plan for the San Gabriel River Metals TMDL. After Permit adoption, this group decided to continue their collaborative efforts to develop a WMP. Caltrans, the LACFCD and the City of Pico Rivera decided to participate in this joint effort. The agencies' intent was to focus collective resources on water quality prioritization and implementation efforts to their shared receiving waters. The fourteen agencies submitted a Notice of Intent to develop a WMP to the Regional Board prior to the June 28, 2013[4], deadline and each signed a MOU to develop the WMP. Neighboring Los Angeles MS4 Permittees within the San Gabriel WMA chose to develop separate WMPs, either individually or collaboratively.

BOUNDARIES

The boundaries of the Lower SGR Watershed are both hydrological and jurisdictional. The jurisdictional boundaries, located in the east region, are primarily a consequence of the division of Coyote Creek

[4] The Notice of Intent was approved by the Regional Board on September 25, 2013

between the Counties of Los Angeles, Orange and San Bernardino. The Coyote Creek subwatershed is also split between Whittier and Diamond Bar, separated by the communities of La Habra Heights (incorporated) and Rowland Heights (unincorporated County), which are not participating in this WMP. In addition, the northeast boundary within the San Jose Creek subwatershed is defined by the jurisdictional boundaries of Diamond Bar. This WMP also applies to approximately 400 acres within Diamond Bar that does not have an MS4 draining to the San Gabriel River Watershed. The hydrological boundaries of Reach 1 and 2 of the San Gabriel River and Coyote Creek define the west region and most of the north region.

The Lower SGR Watershed is located within the San Gabriel River Watershed Management Area (WMA) as designated in the Los Angeles MS4 Permit (Figure B-5). The water bodies located within the Lower SGR Watershed - Coyote Creek, Reaches 1, 2 and 3 of the San Gabriel River and San Jose Creek - are defined by the Regional Board as inland Surface Waters of the State (A-9). As part of the main stem of the San Gabriel River, Reaches 1, 2 and 3 are considered Waters of the United States. By definition its tributaries are also Waters of the United States, which includes Coyote Creek and San Jose Creek (A-9). The drainage areas of these five water bodies in turn define five subwatersheds.

The main channels of the San Gabriel River, Coyote Creek and San Jose Creek and most of their tributaries are owned by the LACFCD, with the exception of a small area within the City of Pico Rivera owned by the Army Corps of Engineers. Figure 1-2 shows this area. Additionally, there are privately owned and maintained drains and open channels.

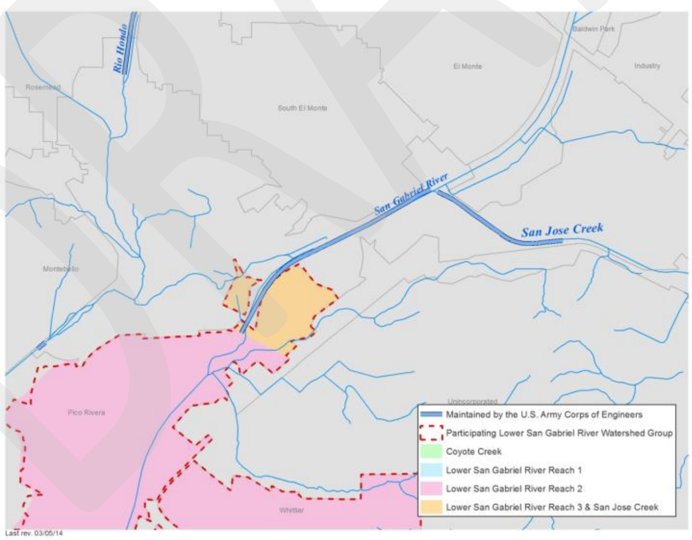

Figure 1-2: Extent of channel ownership by the Army Corps of Engineers

HYDROLOGIC UNIT CODES (HUC)

The United States Geological Survey's (USGS) Hydrologic Unit Codes (HUCs) are referenced in the MS4 Permits. The HUC system divides the United States into a hierarchical classification of defined, hydrologically-based watersheds. The LACFCD found that some of the HUC boundaries within the Los Angeles Basin were incorrect and have since developed more accurate "HUC equivalents". Following the

HUC Equivalent system, San Gabriel River Reach 1, 2 and 3 are within subwatershed 18070160606, Coyote Creek is within subwatersheds 180701060602, 180701060603 and 180701060606 and San Jose Creek is within subwatersheds 180701060501 and 180701060502. The subwatersheds of the Lower SGR Watershed are shown in Figure 1-3 and listed in Table 1-2.

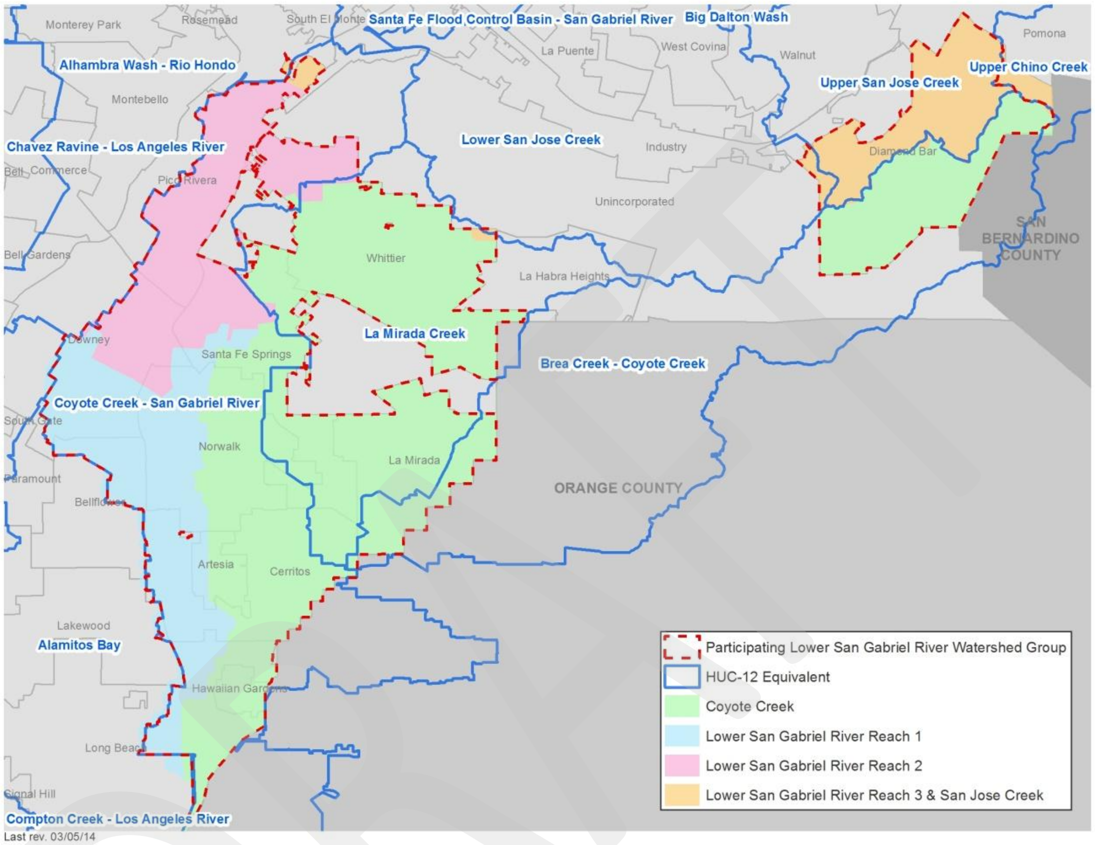

Figure 1-3: Watershed map with HUC-12 equivalent subwatershed

The subwatersheds defined by these 12 digit numbers are referred to as HUC-12. Groups of subwatersheds that share a common downstream waterbody form a watershed. A watershed is designated by the first 10 digits of a HUC-12 and as such is referred to as HUC-10. In the case of the Lower San Gabriel River Watershed, Coyote Creek and San Gabriel River Reach 1, 2 and 3 are within the Lower San Gabriel River HUC-10 watershed and San Jose Creek is itself a HUC-10 watershed. Both watersheds are within the San Gabriel HUC-08 subbasin, which shares most of its borders with the San Gabriel River WMA (Figure B-4).

WATERSHED AUTHORITY GROUP

Watershed Authority Groups (WAGs) as described in State Assembly Bill 2554, which in 2010 amended the Los Angeles County Flood Control District Act, are referenced in the MS4 Permits. The purpose of the WAGs is to implement collaborative water quality improvement projects and services, with the goal of improving water quality and reducing stormwater and urban runoff pollution. The creation and

funding of the WAGs has not yet occurred - it is dependent upon voter approval of the LACFCD's Water Quality Funding Initiative (a countywide parcel fee). AB 2554 divides the County into 9 WAGs - the LSGRW is located within the Lower San Gabriel River WAG, which shares borders with the Lower San Gabriel River HUC-10 watershed. Figure 1-4 is a complete map of the WAG groups.

Table 1-2: Subwatersheds/waterbodies within the Lower SGR Watershed

Subwatershed/ Waterbody	HUC 12 Equivalent	HUC Name	Area within Lower SGR Watershed (mi^2)
Coyote Creek	180701060602	La Mirada Creek	68.05
	180701060603	Brea Creek-Coyote Creek	
	180701060606	Coyote Creek-San Gabriel River	
San Gabriel Reach 1	180701060606	Coyote Creek-San Gabriel River	16.31
San Gabriel Reach 2	180701060606	Coyote Creek-San Gabriel River	15.45
San Gabriel Reach 3	180701060606	Coyote Creek-San Gabriel River	0.51
San Jose Creek	180701060501	Upper San Jose Creek*	7.7

* The USGS Hydrologic Unit Code Equivalent HUC boundaries created by LACFCD included the City of Diamond Bar in the Upper SJC HUC (180701060501); however, this designation does not coincide with the LA Basin Plan Reach designations that commence the Upper SJC (Reach 2) at Temple Avenue in Pomona. According to this designation, Diamond Bar drains solely to SJC Reach 1.

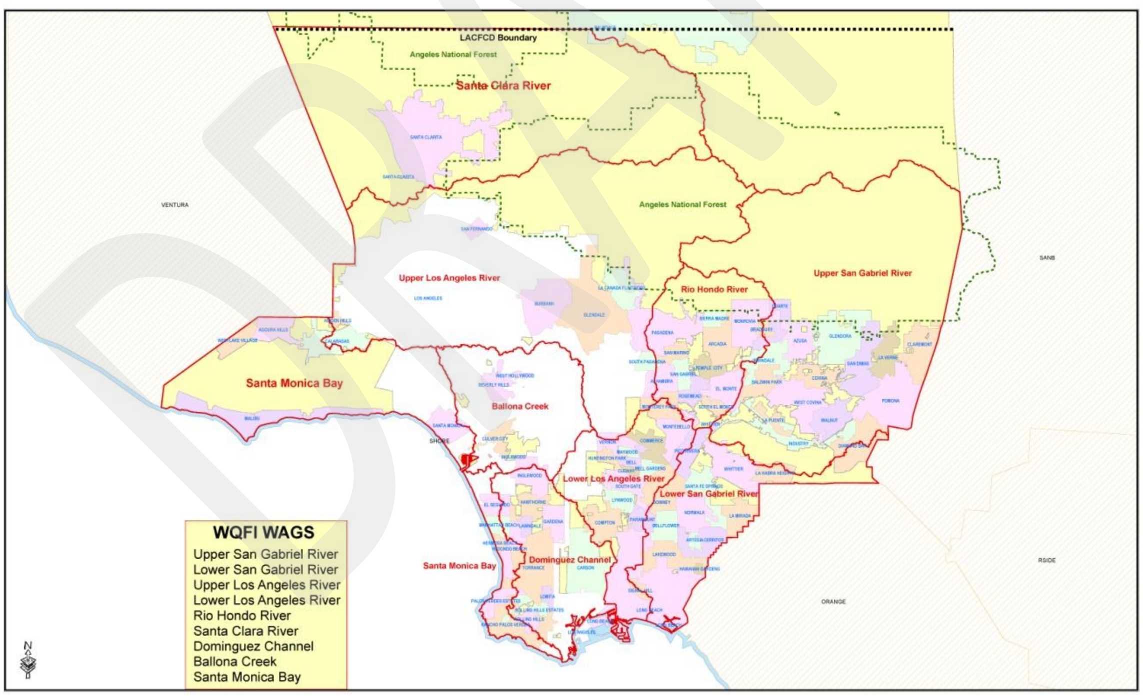

Figure 1-4: WAG map

1.2 THE WATERSHED MANAGEMENT PROGRAM

1.2.1 PURPOSE OF THE MS4 PERMIT

MS4s receive stormwater and non-stormwater discharges from various sources, including municipal MS4s and other public agencies, discharges under NPDES permits or authorized by the USEPA[5], groundwater and natural flow. As the discharges flow over the urban landscape, they may pick up pollutants generated by urban activities, such as metals, bacteria, pesticides, fertilizers and trash. Polluted stormwater and non-stormwater discharges conveyed through the MS4 ultimately reach receiving waters, resulting in adverse water quality impacts.[6]

The goal of the MS4 Permit is to reduce the discharge of these pollutants from MS4s to the maximum extent practicable.

1.2.2 WATERSHED MANAGEMENT EMPHASIS

The watershed management approach to permit implementation - described in the current MS4 Permits as a voluntary approach to compliance - is a departure from previous permit structures. The previous MS4 Permits (Order Nos. 01-182 and 99-060) addressed implementation through jurisdictional Stormwater Quality Management Programs (SQMPs). The Los Angeles countywide SQMP, prepared jointly by the Permittees and approved by the Regional Board in 2001, described the controls to be implemented in order to comply with the special provisions (now referred to as the Minimum Control Measures, or MCMs) of the MS4 Permit. These controls were identical for each Permittee and did not: 1) differentiate between watersheds or agencies or 2) target or identify priority pollutants.

The emphasis of the prior SQMP approach was rote program development and implementation. In contrast, management actions under the WMP are driven by the water quality conditions of the receiving waters and outfalls within the watershed.

The Regional Board outlines several reasons for this shift in emphasis from the prior MS4 permit. A watershed based structure for permit implementation is consistent with TMDLs developed by the Los Angeles Water Board and USEPA, which are established at a watershed or subwatershed scale and are a prominent part of the MS4 Permit. Many of the Permittees have already begun collaborating on a watershed scale to develop monitoring and implementation plans required by TMDLs.

[5] Including discharges subject to a decision document approved pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

[6] MS4 Permit Fact Sheet (pg. F7)

1.2.3 WATERSHED MANAGEMENT GOALS

Addressing MS4 discharges on a watershed scale focuses on water quality results by emphasizing the receiving waters and outfalls within the watershed[7]. The conditions of the receiving waters drive management actions, which in turn focus on the measures to address pollutant contributions from MS4 discharges.

The ultimate goals of the Watershed Management Programs is to ensure that discharges from the MS4:

1. Achieve applicable Water Quality Based Effluent Limitations (WQBELs) that implement TMDLs,
2. Do not cause or contribute to exceedances of receiving water limitations,
3. Non-stormwater discharges from the MS4 are not a source of pollutants to receiving waters.

1.2.4 WATERSHED MANAGEMENT APPROACH

In order to achieve the goals listed in the previous section, the approach of the WMP is to:

- Prioritize water quality issues resulting from stormwater and non-stormwater discharges from the MS4 to receiving waters,
- Identify and implement strategies, control measures, and BMPs that:
    - Achieve applicable water quality-based effluent limitations[8]
    - Do not cause or contribute to exceedances of receiving water limitations[9]
    - Do not include non-stormwater discharges that are effectively prohibited[10]
    - Ensure that controls are implemented to reduce the discharge of pollutants to the maximum extent practicable[11]
- Execute an integrated monitoring program and assessment program[12] to determine progress towards achieving applicable limitations and/or action levels
- Modify strategies, control measures, and BMPs as necessary based on analysis of monitoring data collected pursuant to the Monitoring and Reporting Program (MRP) to ensure that applicable water quality-based effluent limitations and receiving water limitations and other milestones set forth in the WMP are achieved in the targeted timeframes.
- Provide opportunity for meaningful stakeholder input. This includes participation in a permit-wide WMP technical advisory committee (TAC) that advises and participates in the development of the WMP from month six through the date of program approval.

[7] MS4 compliance is measured at 1) Receiving water monitoring, 2) Stormwater outfall based monitoring, 3) Non-storm water outfall based monitoring, and 4) New Development/Re-development effectiveness tracking
[8] Pursuant to Part VI.E and Attachments L through R pursuant to corresponding compliance schedules
[9] Pursuant to Parts V.A and VI.E and Attachments L through R of the Permit
[10] Pursuant to Part III.A of the Permit
[11] Pursuant to Part IV.A.1 of the Permit
[12] Pursuant to Attachment E – MRP, Part IV of the Permit

The overall approach is adaptive, whereby BMPs will be implemented, their effectiveness monitored and modifications to this WMP will be made as needed. These modifications will maintain consistency with the assumptions and requirements of applicable TMDL Waste Load Allocations.

1.2.5 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The goals and objectives of the WMP may be achieved by development of stormwater structural controls that may require discretionary approval subject to review under the California Environmental Quality Act (CEQA). The participating agencies intend to comply with CEQA when implementing structural BMPs. Public agencies responsible for carrying out or approving stormwater structural controls are identified as the lead agency. The environmental review required imposes both procedural and substantive requirements. At a minimum, the lead agency must adhere to the consultation and public notice requirements set forth in the CEQA Guidelines, make determinations whether the proposed stormwater treatment control is a "project", and if so, conduct an initial review of the project and its environmental effects. The lead agency must identify and document the potential environmental impacts of the proposed project in accordance with CEQA, (Public Resources Code Section 21000 et seq.), and the CEQA Guidelines (Title 14 of the California Code of Regulations, Section 15000, et seq.).

Certain classes of projects have been determined not to have significant effect on the environment and are exempt from the provisions of CEQA by statute or category. When a public agency decides that a project is exempt from CEQA, and the public agency approves or determines to carry out the project, the agency may file a Notice of Exemption. For projects deemed not exempt, the lead agency will prepare and Initial Study and decide whether a Negative Declaration will be required for the project, or depending on the potential effects, a further, and more substantial review may be conducted in the form of an Environmental Impact Report (EIR). A project may not be approved as submitted if feasible alternatives or Mitigation Measures are able to substantially lessen the significant environmental effects of the project. Moreover, environmental review must include provisions for wide public involvement, formal and informal, in order to receive and evaluate public reactions to environmental issues, and when deciding the matter, the lead agency must consider all comments it receives (Cal. Pub. Res. Code § 21091(d)(1); 14 CCR § 15074(b)). The lead agency will use the EIR in determining the environmental effects of the proposed storm water structural control project, and whether or not to approve the proposed project. If the proposed project is approved, all conditions and mitigations made in the adopted EIR will become part of any subsequent actions taken by the lead agency. The EIR will also be used by permitting agencies, funding agencies and the public to support proposed project decisions.

The National Environmental Quality Act (NEPA) comes into play less often than CEQA, but may be included for storm water treatment control projects involving federal funding. A joint NEPA and CEQA review process is encouraged to improve coordination and avoid redundancies. Like CEQA, NEPA process provides opportunities to address issues related to proposed projects early in the planning stages. NEPA was codified under Title 42 of the United States Code sections 4331 et seq. (42 U.S.C. 4331 et seq.).

1.3 LOWER SAN GABRIEL RIVER WATERSHED

1.3.1 OVERVIEW OF THE SAN GABRIEL RIVER WATERSHED

The San Gabriel River Watershed drains a watershed of 689 square miles. The main channel of the San Gabriel River is approximately 58 miles long. Its headwaters originate in the San Gabriel Mountains with the East, West, and North Forks. The river empties to the Pacific Ocean at the Los Angeles and Orange Counties boundary in Long Beach. The main tributaries of the river are Big and Little Dalton Wash, San Dimas Wash, Walnut Creek, San Jose Creek, Fullerton Creek, and Coyote Creek. Part of the Coyote Creek subwatershed is in Orange County and is under the authority of the Santa Ana Water Board. Land use in the watershed is diverse and ranges from predominantly open space in the upper watershed to urban land uses in the middle and lower parts of the watershed.

The remaining discussion on the watershed will solely refer to the specific characteristics of the Lower San Gabriel River Watershed.

1.3.2 LOWER SAN GABRIEL RIVER WATERSHED AREA

REGIONAL AND LOCAL SETTING

The Lower SGR Watershed encompasses an approximately 78.5 square miles (50,240 acres) within Los Angeles County and comprises 11.4% drainage area for the San Gabriel River Watershed. There are aproximately 150 stream miles located in the watershed. The boundaries of the watershed are shown in Figure 1-1 and further explained in Section 1.1.

CLIMATE

Average annual precipitation for the watershed area is highly variable and terrain-dependent, averaging fifteen (15) inches annually and mainly occurring during the winter months (November through April). Due to the dominance of the stable marine layer, significant precipitation is rare between May and October.

During the winter months Pacific storms often push cold fronts across California from northwest to southeast. These storms and frontal systems account for the vast bulk of the area's annual rainfall. Such rainy season storms are migratory, with wet and dry periods alternating during the winter and early spring with irregularity in timing and duration. Rainfall patterns average 3.68 inches of rainfall in February to 0.01 inches of rainfall in July[13].

With the highly developed conditions within the watershed, most stormwater flows generated by the rainfall is routed to the ocean through the curb and gutters along the streets, catch basins and storm drains into the San Gabriel River. The velocity of the storm flows within this watershed ranges up to 20 feet per second within the waterways.

[13] National Climatic Data Center, http://lwf.ncdc.noaa.gov

RAINFALL AND FLOW CHARACTERISTICS

Historical rainfall records from 3 existing rain gauges located adjacent to the LSGR watershed were obtained and utilized in this analysis. These meteorological stations and resulting rain gauge data are maintained by National Climatic Data Center. The gauges were chosen due to their active status and the duration of available data. These locations are shown in Figure 1-5 with detailed location information provided in Table 1-3.

Table 1-3: Rainfall data summary

Station ID	Station	Period	Latitude	Longitude	Elevation (ft)	Mean Annual Precipitation (in)	85th Percentile Storm (in)
GHCND: USC00042494	Downey Fire Station	1949 - 2012	33.929	-118.145	110	12.32	0.22
GHCND: USW00023129	Long Beach Daugherty Field	1949 - 2014	33.811	-118.1463	30.84	11.20	0.18
GHCND: USC00049660	Whittier City Yard	1998 - 2014	33.9758	-118.0222	445.87	9.86	0.03

(1) National Climatic Data Center, http://lwf.ncdc.noaa.gov

Average monthly rainfall for the historical record has been calculated for each rain gauge and is provided in Table 1-3. The monthly values are similar among the two rain gauges.

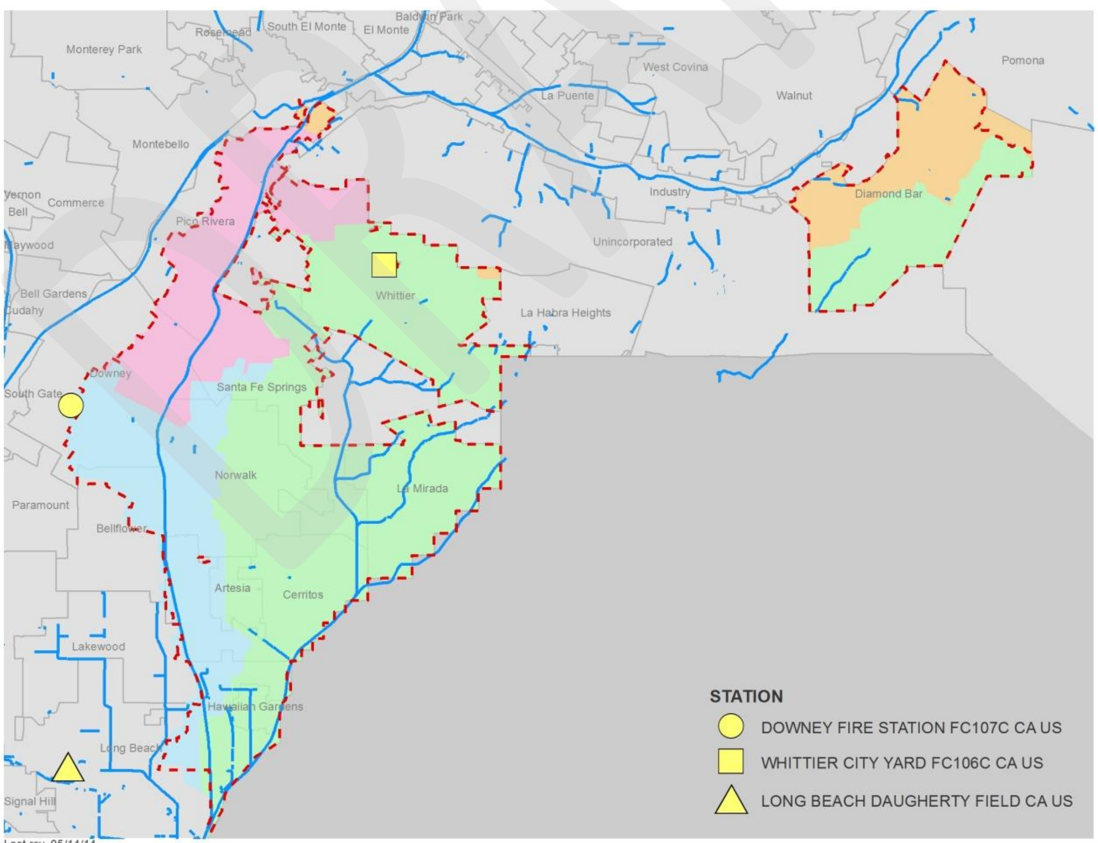

Figure 1-5: Rainfall gauge stations in Downey and Long Beach (yellow squares)

Table 1-4: Summary of average monthly rainfall (in)

Month	Downey Fire Station	Long Beach Daugherty Field	Whittier City Yard
January	3.3	2.8	2.8
February	3.3	3.6	3.7
March	2.4	2.2	2.2
April	1.0	0.6	0.7
May	0.3	0.3	0.3
June	0.1	0.2	0.1
July	0.0	0.0	0.0
August	0.1	0.1	0.1
September	0.3	0.3	0.3
October	0.4	0.4	0.4
November	1.5	1.0	0.9
December	2.0	2.0	2.0
Total Average Monthly Rainfall	1.2	1.1	1.1

(1) National Climatic Data Center, http://lwf.ncdc.noaa.govhttp://lwf.ncdc.noaa.gov/

Dry Weather Flows to the Lower San Gabriel River

Dry weather flow in the San Gabriel River comes predominantly from effluent discharges and groundwater inflow. Sources of effluent discharges in the Lower San Gabriel River watershed include the Sanitation Districts of Los Angeles County, urban runoff such as irrigation overflows and car wash water, and various industrial discharges.

The Sanitation Districts of Los Angeles County maintain a regional, interconnected sewerage system called the Joint Outfall System. The Joint Outfall System includes five satellite water reclamation plants (WRPs) that discharge effluent into the San Gabriel River during dry weather:

The Long Beach WRP is located at 7400 E. Willow Street in the City of Long Beach. The plant occupies 17 acres west of the San Gabriel River (605) Freeway and began operation in 1973. The Long Beach WRP provides primary, secondary and tertiary treatment for 25 million gallons of wastewater per day, and serves a population of approximately 250,000 people. Almost 6 million gallons per day of the reclaimed water is reused at over 60 reuse sites, including landscape irrigation of schools, golf courses, parks, and greenbelts by the City of Long Beach. The remaining water is discharged directly to Coyote Creek at one effluent discharge point directly above the confluence with the San Gabriel River. The average monthly effluent discharge from the Long Beach WRP was 11.97 MGD in 2012, with the average monthly max being 17.50 MGD and the average monthly minimum flows measured at 7.84 MGD.

The Los Coyotes WRP is located at 16515 Piuma Avenue in the city of Cerritos and occupies 34 acres at the northwest junction of the San Gabriel River (605) and the Artesia (91) Freeways. The Los Coyotes WRP provides primary, secondary and tertiary treatment for 37.5 million gallons of wastewater per day, and serves a population of approximately 370,000 people. Over 5 million gallons per day of the reclaimed water is reused at over 270 reuse sites, including landscape irrigation of schools, golf courses, parks, nurseries, and greenbelts. The remaining water is discharged directly to the San Gabriel River at one effluent discharge point above the confluence

with Coyote Creek. The average monthly effluent discharge from the Los Coyotes WRP was 18.85 MGD in 2012, with the average monthly max being 22.62 MGD and the average monthly minimum flows measured at 15.58 MGD.

THE POMONA WRP is located at 295 Humane Way in the City of Pomona. The plant occupies 14 acres northeast of the intersection of the Pomona (60) and Orange (57) Freeways. The Pomona WRP provides primary, secondary and tertiary treatment for 15 million gallons of wastewater per day, and serves a population of approximately 130,000 people. Approximately 8 million gallons per day of the reclaimed water is reused at over 190 different reuse sites, including landscape irrigation of parks, schools, golf courses, greenbelts. The remaining water is discharged to the San Jose Creek channel at 1 effluent discharge point, where it is allowed to percolate into the groundwater in the unlined portions of the San Gabriel River before flowing into the ocean. The average monthly effluent discharge from the Pomona WRP was 4.22 MGD in 2012, with the average monthly max being 7.42 MGD and the average monthly minimum flows measured at 2.09 MGD.

THE SAN JOSE CREEK WRP is located at 1965 Workman Mill Road, in unincorporated Los Angeles County, next to the City of Whittier. The plant occupies 39 acres north of the Pomona (60) Freeway on both sides of the San Gabriel (605) Freeway and consists of an East WRP and a West WRP. The San Jose Creek WRP provides primary, secondary and tertiary treatment for 100 million gallons of wastewater per day, and serves a large residential population of approximately one million people. Approximately 42 million gallons per day of the reclaimed water is reused at over 130 different reuse sites, including groundwater recharge and irrigation of parks, schools, and greenbelts. The remainder is discharged to the San Gabriel River at 5 discharge points. The average monthly effluent discharge from the East San Jose Creek WRP was 31.64 MGD in 2012, with the average monthly max being 44.34 MGD and the average monthly minimum flows measured at 9.03 MGD. The average monthly effluent discharge from the West San Jose Creek WRP was 9.65 MGD in 2012, with the average monthly max being 18.00 MGD and the average monthly minimum flows measured at 1.28 MGD.

THE WHITTIER NARROWS WRP is located at 301 N. Rosemead Boulevard in the City of El Monte. The plant occupies 27 acres south of the Pomona (60) Freeway, and provides primary, secondary and tertiary treatment for 15 million gallons of wastewater per day. Most of the reclaimed water is reused as groundwater recharge into the Rio Hondo and San Gabriel Coastal Spreading Grounds, or for irrigation at an adjacent nursery. Remaining effluent is discharged directly into the San Gabriel River at 1 effluent discharge point above Whittier Narrows Dam. The average monthly effluent discharge from the Whittier Narrows WRP was 6.44MGD in 2012, with the average monthly max being 8.05MGD and the average monthly minimum flows measured at 4.97MGD.

WET WEATHER FLOWS TO THE LOWER SAN GABRIEL RIVER

In addition to stormwater flows within the Los Angeles Basin, wet weather flows from the San Gabriel River Mountains also contribute to flows in the San Gabriel River.

WATERSHED CATCHMENT HYDROLOGIC CONNECTIVITY

The main reach through the watershed is the San Gabriel River, with Coyote Creek and San Jose Creek as major tributaries. The stretch of the San Gabriel River within the watershed consists of a concrete lined channel spanning 140 to 200 feet in width. Coyote Creek and San Jose Creek also have concrete channels at their confluence with the San Gabriel River. Figure 1-6 shows the LACFCD storm drain system within the LSGRW as well as its main channels and tributaries.

The Coyote Creek subwatershed drains approximately 185 square miles to its confluence with the San Gabriel River. The subwatershed is almost entirely developed.

The San Jose Creek subwatershed drains approximately 7.29 square miles to its confluence with the San Gabriel River.

The Lower SGR Watershed drains runoff directly from urbanized area totaling approximately 78.5 square miles. From its upstream beginning in Whittier (in Reach 3 of the San Gabriel River) to its downstream confluence with the San Gabriel River Estuary, the Lower SGR stretches approximately 17.1 miles. The Los Angeles County Department of Public Works provided the delineation of the catchments within each subwatershed. Approximately 107 catchments are located within this watershed[14]. These delineations are based on a combination of contour information and existing underground storm sewer systems.

The watershed is predominately served by storm drain systems, extending across 15 agency jurisdictions, connecting drainage in urbanized areas with the main tributaries. Although most agencies are not directly adjacent to the LSGR, their runoff ultimately reaches the SGR through its tributaries and connected storm sewer systems.

[14] Los Angeles County Watershed Management Modeling System, http://dpw.lacounty.gov/wmd/wmms/

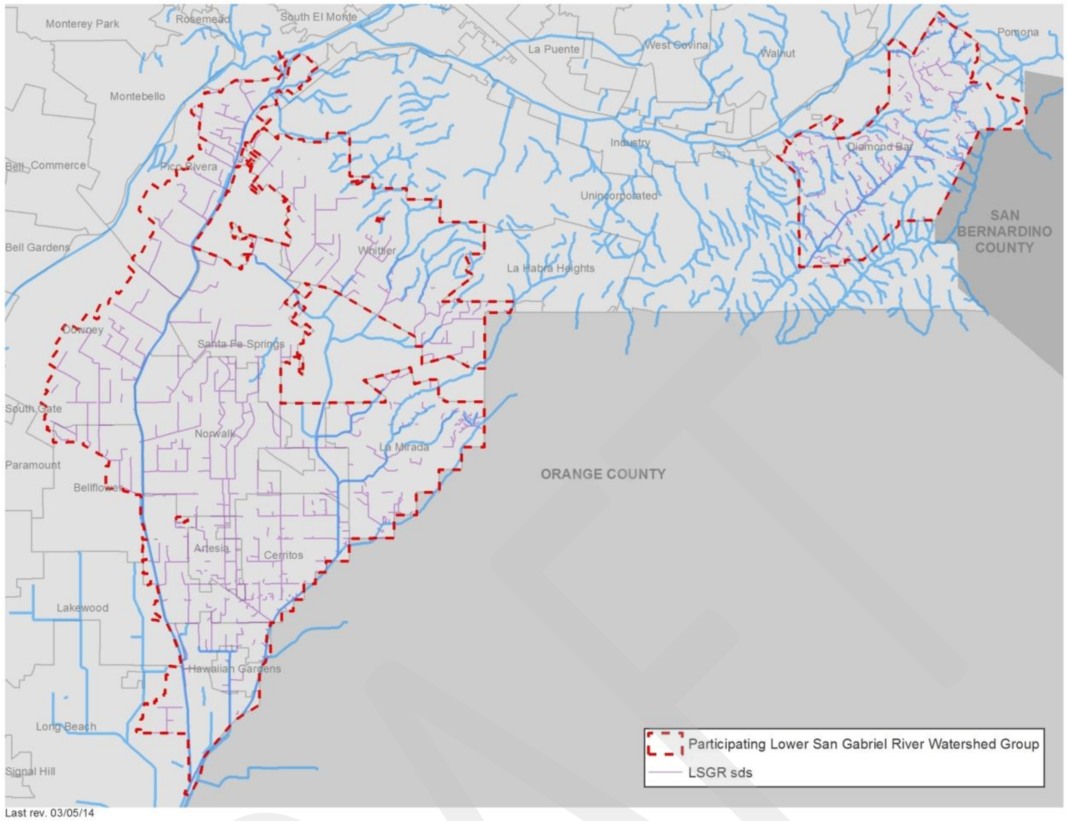

Figure 1-6: LACFCD storm drains

Geophysical Setting

Topography

Natural topography is comprised of the existing soils, ground elevation/slope, vegetation, stream network, and groundwater. These features impact each other in both the natural and built environments, and therefore should not be analyzed independently when evaluating BMP location options.

Soils

The Lower SGR Watershed can be characterized as having seven soil types. Figure 1-7 shows the various soil types underlying the watershed. Soils range from sandy loam to clay loam, having a varying range of saturated hydraulic conductivity.

Groundwater

Groundwater flow in the Lower SGR Watershed generally mimics surface topography. Depth to the groundwater varies from 11 feet to greater than 40 feet. Figure 1-8 shows the groundwater basin for the Lower SGR Watershed.

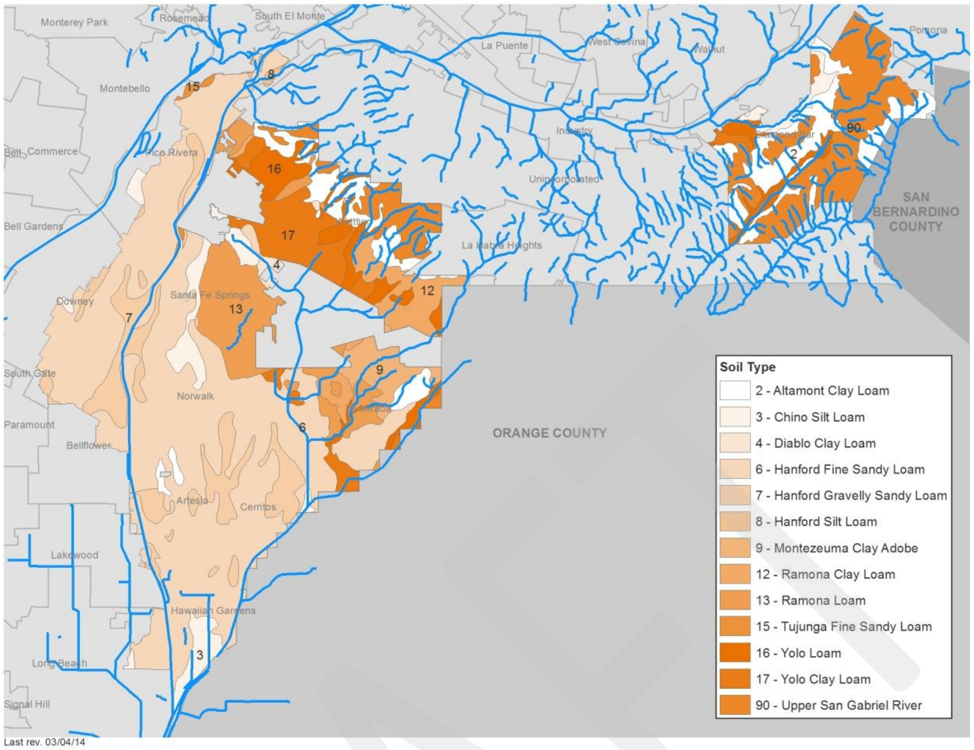

Figure 1-7: Soil types

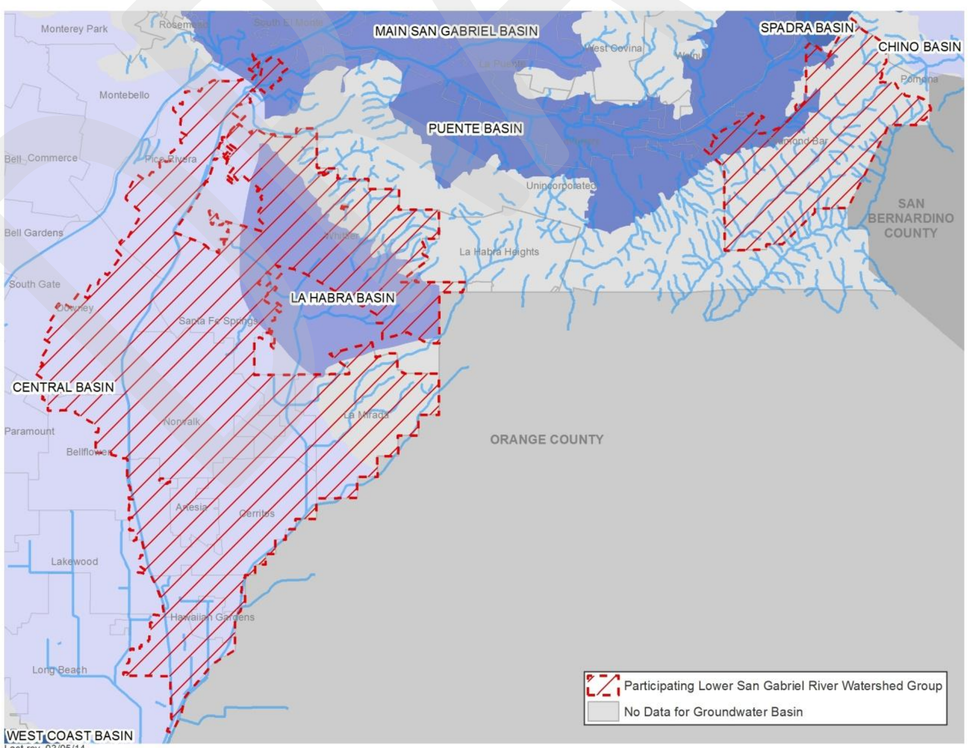

Figure 1-8: Groundwater basins

WATERSHED LAND AREA

Table 1-5 lists the percent land area within the Lower SGR for each participant. In addition to the areas listed in Table 1-5, the WMP will also cover the portions of the cities of Diamond Bar and Whittier do not drain to San Gabriel River Reach 1 and Reach 2 or Coyote Creek.

Table 1-5: Watershed land area

Permittee	Land Area (Acres)	Percent of Total Area
Artesia	1,037	2%
Bellflower	1,216	2%
Cerritos	5,645	11%
Diamond Bar	4,563	9%
Downey	4,237	8%
Hawaiian Gardens	614	1%
La Mirada	5,018	10%
Lakewood	1,293	3%
Long Beach	2,138	4%
Norwalk	6,246	11%
Pico Rivera	3,929	8%
Santa Fe Springs	5,683	11%
Whittier	9,382	16%
Caltrans	Caltrans owns and operates approximately 4% of the watershed	
LACFCD	N/A	N/A

LAND USES

Table 1-6 lists and Figure 1-9 shows the developed and undeveloped land within the Lower SGR Watershed.

Table 1-6: Developed and undeveloped land

Jurisdiction	Acres Developed	Acres Undeveloped	% Developed Lands
Artesia	***1,053***	15.90	99%
Bellflower	830	115	88%
Cerritos	4,600	250	95%
Diamond Bar	26,100	960	97%
Downey	4,090	166	96%
Hawaiian Gardens	1,650	2	100%
La Mirada	10,090	320	97%
LACFCD	ND	ND	ND
Lakewood	3,970	218	95%
Long Beach	4,330	700	86%
Norwalk	7,380	115	99%
Pico Rivera	3,770	283	93%
Santa Fe Springs	5,000	140	97%
Whittier	7,680	1,860	81%
Caltrans	ND	ND	ND

ND - Not delineated

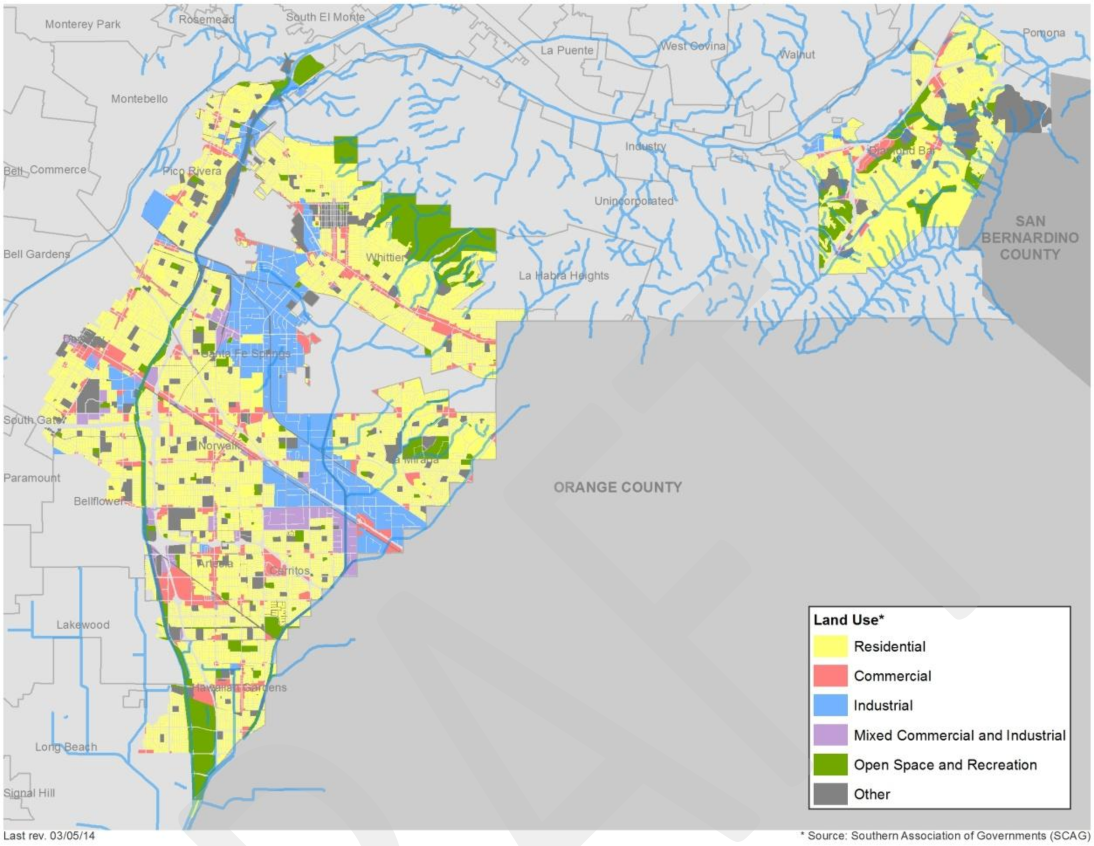

Figure 1-9: Land use map

Disadvantaged Community

The Lower SGR Watershed is in a geographic area encompassing all or part of thirteen cities. This area is a high-minority and economically disadvantaged region. Of the thirteen cities participating in this WMP, twelve are categorized as disadvantaged communities in part (see Table 1-7)[15], meaning that the median income levels in the city as a whole are less than 80% of the state's median household income ($48,706).

[15] United States Census Bureau, as accessed at *http://www.census.gov/*. February 2014.

Table 1-7: Income statistics by City

City	DAC Percentage
Artesia	14%
Bellflower	30%
Cerritos	6%
Diamond Bar	0%
Downey	29%
Hawaiian Gardens	40%
La Mirada	7%
Lakewood	3%
Norwalk	23%
Pico Rivera	34%
Santa Fe Springs	80%
Whittier	16%
Long Beach	49%

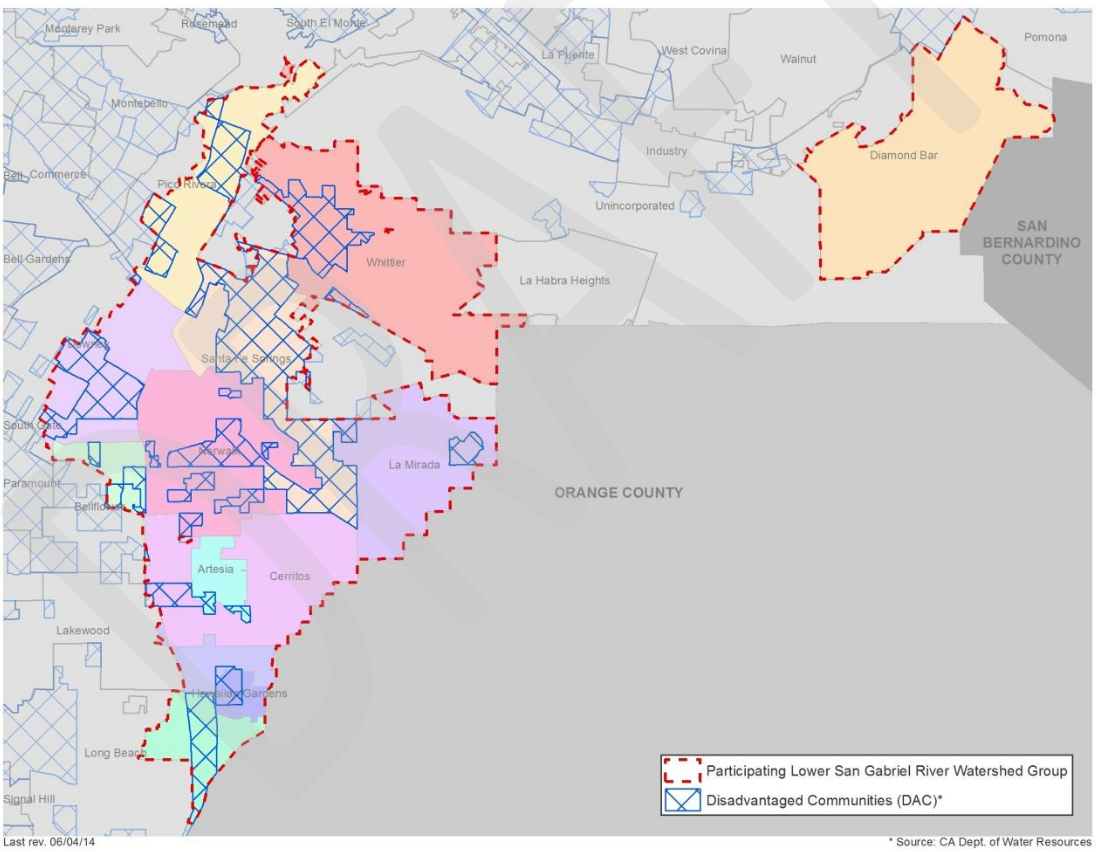

Figure 1-10: Disadvantage Community (DAC) map

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1.4 WATER QUALITY IMPAIRMENTS

1.4.1 HISTORY OF IMPAIRMENTS IN THE LOWER SGR WATERSHED

Various reaches of the Lower SGR Watershed are on the 2010 CWA Section 303(d) List of impaired water bodies due to metals (copper, lead, selenium, and zinc). Segments of the San Gabriel River and its tributaries are listed as exceeding water quality objectives for copper, lead, selenium, and zinc. Metals loadings to San Gabriel River have the potential to cause impairments of the WILD, WARM, COLD, RARE, EST, MAR, MIGR, SPWN, WET, MUN, IND, AGR, GWR, and PROC beneficial uses. The San Gabriel River metals and selenium TMDL found that the MS4 contributes a large percentage of the metals loadings during dry weather because although their flows are typically low, concentrations of metals in urban runoff may be quite high. During wet weather, most of the metals loadings are in the particulate form and are associated with wet-weather stormwater flow.

1.4.2 ORGANIZING TO ADDRESS TMDLS

TMDLs represent large-scale efforts crossing jurisdictional boundaries and often encompassing the entire drainage of a major regional waterbody (e.g., San Gabriel River). These TMDLs involve coordinated participation from multiple agencies to address the impairments. Several agencies participating in the development of this WMP have already worked in a coordinated effort to address water quality issues throughout the San Gabriel River. This includes the Coyote Creek/San Gabriel River Metals TMDL Committee, which organized several cities under a Memorandum of Agreement in 2012 to develop an Implementation Plan for that TMDL. This effort has now been incorporated into this WMP approach in 2013 and development and adoption of a Basin Plan Amendment by the Regional Board in June 2013. Additional efforts included the cities of Downey, Norwalk, Pico Rivera, Santa Fe Springs and Whittier jointly applied for a Proposition 84 grant to install Low Impact Development (LID) BMPs along high traffic transportation corridors.

1.5 WATER QUALITY ISSUES AND THE HISTORY OF WATER QUALITY REGULATIONS

1.5.1 FEDERAL AND STATE LAW

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for all inland surface waters, estuaries, and coastal waters. The federal Environmental Protection Agency (EPA) is ultimately responsible for implementation of the CWA and its associated regulations. However, the CWA allowed EPA to authorize the NPDES Permit Program to state governments, enabling states to perform many of the permitting, administrative, and enforcement aspects of the NPDES Program. California, like other states, implements the CWA by promulgating its own water quality protection laws and regulations. As long as this authority provides equivalent protections as the federal CWA, EPA can delegate CWA

responsibilities to the state while retaining oversight responsibilities. In some cases, California has established requirements that are more stringent than federal requirements.

The 1970 Porter-Cologne Water Quality Control Act granted the California State Water Resources Control Board (SWRCB) and nine California Regional Water Quality Control Boards (Regional Boards) broad powers to protect water quality. This Act and its governing regulations provide the basis for California's implementation of CWA responsibilities. The Los Angeles Regional Water Quality Control Board (Regional Board) is the governing regulatory agency for the Lower SGR Watershed.

Section 303(d) of the CWA requires waterbodies not meeting water quality objectives even after all required effluent limitations have been implemented (e.g. through wastewater or stormwater discharge permits) to be regularly identified. These waters are often referred to as "303(d) listed" or "impaired" waters. Waterbodies that are listed on the 303(d) list typically require development of a Total Maximum Daily Load (TMDL) for the pollutant(s) impairing the use of the water. Development and approval of the 303(d) list is a lengthy state and federal process. A list is not effective until the EPA approves the list. The current EPA-approved 303(d) list for California is the 2010 list; this list can be found in APPENDIX X.

A TMDL establishes the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. Depending on the nature of the pollutant, TMDL implementation requires limits on the contributions of pollutants from point sources (waste load allocation), nonpoint sources (load allocation), or both. The Regional Board is responsible for TMDL development in the LSGRW.

Adoption of a TMDL requires an amendment to the Water Quality Control Plan (known as the Basin Plan) for the Los Angeles Region. The Regional Board's Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of regional waters. Specifically, the Basin Plan (i) designates beneficial uses for surface and ground waters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and (iii) describes implementation programs to protect all waters in the Region. The Basin Plan is reviewed and updated as necessary (Regional Board 1994, as amended). Following adoption by the Regional Board, the Basin Plan and subsequent amendments are subject to approval by the State Board, the State Office of Administrative Law (OAL), and the Environmental Protection Agency (EPA).

1.5.2 WATER QUALITY REQUIREMENTS

The Regional Board designates "beneficial uses" for waterbodies in the watersheds that it governs and adopts water quality objectives to protect these uses[16]. In some cases, EPA may also promulgate objectives where it makes a finding that the state's objectives are not protective enough to protect the beneficial use. The nature of the objectives is directly related to the type of beneficial use. For example, the freshwater warm habitat beneficial use protects aquatic organisms resident in warm-water streams. The associated water quality objectives are for those constituents known to affect both the growth and reproduction of aquatic life. These objectives range from physical characteristics such as temperature,

[16] see Regional Board’s 1994 Los Angeles Region Basin Plan, as amended

dissolved oxygen, and pH to potential toxic constituents including metals and organics. In California, the objectives for metals and a number of organic compounds have been established by the federal EPA rather than the state (California Toxics Rule, 2000). The EPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions based on the determination that the numeric criteria were necessary (since the state had been without numeric water quality criteria for many priority toxic pollutants as required by the CWA) to protect human health and the environment. These Federal criteria are legally applicable in the state for inland surface waters, enclosed bays and estuaries for all purposes and programs under the CWA.

1.6 MS4 Permit Requirements

The development of this WMP is a compliance option of the MS4 Permit held by the Permittees[17]. The WMP includes an evaluation of existing water quality conditions, including characterization of stormwater and non-stormwater discharges from the MS4 and receiving water quality to support identification and prioritization/sequencing of management actions. At a minimum, water quality priorities within each Watershed Management Area must include achieving applicable water quality based effluent limitations and/or receiving water limitations established.

The MS4 permit requires that this WMP identify strategies, control measures, and BMPs to implement through the stormwater management programs on a watershed scale, with the goal of creating an efficient program to focus collective resources on watershed priorities and effectively eliminate the source of pollutants. This WMP has identified strategies, control measures, and BMPs to be implemented on a watershed scale. Customization of the BMPs to be implemented, or required to be implemented, has been done with the goal of creating an efficient program to focus individual and collective resources on watershed priorities.

On the basis of the evaluation of existing water quality conditions, water body-pollutant combinations were classified into one of the following three categories:

- Category 1 (Highest Priority): Waterbody-pollutant combinations for which water quality based effluent limitations and/or receiving water limitations are included in the MS4 permit to implement TMDLs.

[17] The Cities of Pico Rivera, Downey, Norwalk, La Mirada and Artesia (hereinafter "the Cities") submitted Administrative Petitions (Petitions) to the California State Water Resources Control Board (SWRCB) pursuant to section 13320(a) of the California Water Code requesting that the SWRCB review various terms and requirements set forth in the 2012 MS4 Permit, Order No. R4-2012-0175 (2012 Permit) adopted by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board)." These Cities have participated in good faith in the development of this Lower San Gabriel River Watershed Management Program (WMP). Nothing in this WMP shall affect those cities' administrative petitions, nor shall anything in this WMP constitute a waiver of any positions or rights therein.

- CATEGORY 2 (HIGH PRIORITY): Pollutants for which data indicate water quality impairment in the receiving water according to the State's Listing Policy and for which MS4 discharges may be causing or contributing to the impairment.
- CATEGORY 3 (MEDIUM PRIORITY): Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in the MS4 permit and for which MS4 discharges may be causing or contributing to the exceedance.

Sources for the waterbody-pollutant combinations are identified by considering the following:

- Review of available data, including historical findings from the participating agencies' Minimum Control Measure and TMDL programs, watershed model results and other pertinent information, data or studies.
- Locations of major MS4 outfalls and major structural controls for stormwater and nonstormwater that discharge to receiving waters.
- Other known and suspected sources of pollutants from the MS4 to receiving waters.

Based on the findings of the source assessment, the issues within the watershed are prioritized and sequenced. Factors considered in establishing watershed priorities include:

1. Pollutants for which there are water quality based effluent limitations and/or receiving water limitations with interim or final compliance deadlines within the permit term.
2. Pollutants for which there are water quality based effluent limitations and/or receiving water limitations with interim or final compliance deadlines between October 26, 2012 and October 25, 2017.
3. Pollutants for which data indicate impairment in the receiving water and the findings from the source assessment implicates discharges from the MS4, but no TMDL has been developed.

1.6.1 REASONABLE ASSURANCE ANALYSIS AND WATERSHED CONTROL MEASURES

As part of the WMP plan, a Reasonable Assurance Analysis (RAA) is conducted for each waterbody-pollutant combination. The RAA consists of an assessment, through quantitative analysis or modeling, to demonstrate that the activities and control measures (i.e. BMPs) identified in the Watershed Control Measures section of the WMP are performed to demonstrate that applicable water quality based effluent limitations and/or receiving water limitations with compliance deadlines during the permit term will be achieved. Watershed Control Measures are subdivided into 1) Minimum Control Measures, 2) Non-Stormwater Discharge Measures 3) TMDL Control Measures and 4) other control measures for water-body pollutant Categories 1, 2 and 3.

Schedules are developed for strategies, control measures and BMPs to be implemented by each individual Permittee within its jurisdiction and for those that will be implemented by multiple

Permittees on a watershed scale. The schedule will measure progress and incorporate 1) Compliance deadlines occurring within the permit term for all applicable interim and/or final water quality based effluent limitations and/or receiving water limitations to implement TMDLs, 2) Interim deadlines and numeric milestones within the permit term for any applicable final water quality based effluent limitation and/or receiving water limitation to implement TMDLs, where deadlines within the permit term were not otherwise specified, and 3) For watershed priorities related to addressing exceedances of receiving water limitations.

1.6.2 ADAPTIVE MANAGEMENT

An adaptive management process will be implemented every two years from the date of program approval, adapting the WMP to become more effective, based on, but not limited to the following:

1. Progress toward achieving the outcome of improved water quality in MS4 discharges and receiving waters through implementation of the watershed control measures,
2. Progress toward achieving interim and/or final water quality based effluent limitations and/or receiving water limitations, or other numeric milestones where specified, according to established compliance schedules,
3. Re-evaluation of the highest water quality priorities identified for the Watershed Management Area based on more recent water quality data for discharges from the MS4 and the receiving water(s) and a reassessment of sources of pollutants in MS4 discharges,
4. Availability of new information and data from sources other than the Permittees' monitoring program(s) within the Watershed Management Area that informs the effectiveness of the actions implemented by the Permittees,
5. Regional Water Board recommendations; and
6. Recommendations for modifications to the WMP solicited through a public participation process

Based on the results of the iterative process, modifications necessary to improve the effectiveness of the WMP will be reported in the Annual Report, and as part of the Report of Waste Discharge (ROWD). Any necessary modifications to the WMP will be implemented upon acceptance by the Regional Water Board Executive Officer or within 60 days of submittal if the Regional Water Board Executive Officer expresses no objections.

2 IDENTIFICATION OF WATER QUALITY PRIORITIES

2.1 WATERBODY POLLUTANT CLASSIFICATION

One of the goals of this Watershed Management Program (WMP) is to identify and address water quality priorities within the Lower San Gabriel River Watershed (Lower SGR Watershed). In order to begin prioritizing water quality issues within the Lower SGR Watershed, an evaluation of existing water quality conditions, including characterization of stormwater and nonstormwater discharges from the Municipal Separate Storm Sewer System (MS4) and receiving waters has been completed per section VI.C.5.a of the MS4 Permit.

The existing water quality conditions of the Lower SGR Watershed were used to classify pollutants into three categories each with specific subcategories. These categories outline watershed priorities, which include, at a minimum, achieving applicable water quality-based effluent limitations and/or receiving water limitations established pursuant to TMDLs. The categories and subcategories are described below:

- Category 1: Waterbody-pollutant combinations for which water quality-based effluent limitations and/or receiving water limitations are established in Part VI.E TMDL Provisions and Attachments L through R of the MS4 Permit.
    - Category 1A: **Final** deadlines within permit term (after approval of WMP[1] & prior to December 28, 2017)
    - Category 1B: **Interim** deadlines within permit term (after approval of WMP[2] & prior to December 28, 2017)
    - Category 1C: **Final** deadlines between December 29, 2017 - December 28, 2022
    - Category 1D: **Interim** deadlines between December 29, 2017 - December 28, 2022
    - Category 1E: **Interim & final** deadlines after December 28, 2022
    - Category 1F: **Past final** deadlines (final deadlines due prior to approval of WMP)
- Category 2: Pollutants for which data indicate water quality impairment in the receiving water according to the State Board's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment.
    - Category 2A: Non-legacy pollutants
    - Category 2B: Bacterial indicators
    - Category 2C: Legacy pollutants
    - Category 2D: Water quality indicators
- Category 3: Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in this Order and for which MS4 discharges may be causing or contributing to the exceedance.

[1] Upon approval and no later than April 28, 2015.

[2] *Ibid.*

- Category 3A: Non-legacy pollutants
- Category 3B: Bacterial indicators
- Category 3C: Legacy pollutants
- Category 3D: Water quality indicators

The Lower SGR Watershed encompasses Reaches 1, 2, and 3 of the San Gabriel River, Coyote Creek, and the lower portions of the San Jose Creek (SJC Reach 1)[3]. A small portion of the watershed in the Diamond Bar area drains primarily through natural drainage to Chino Creek and the jurisdiction of the Santa Ana Region (Region 8). This area will be addressed through watershed control measures discussed in later chapters of this WMP. The pollutants for which the Lower SGR Watershed is listed as impaired for are shown on Figure 1-1.

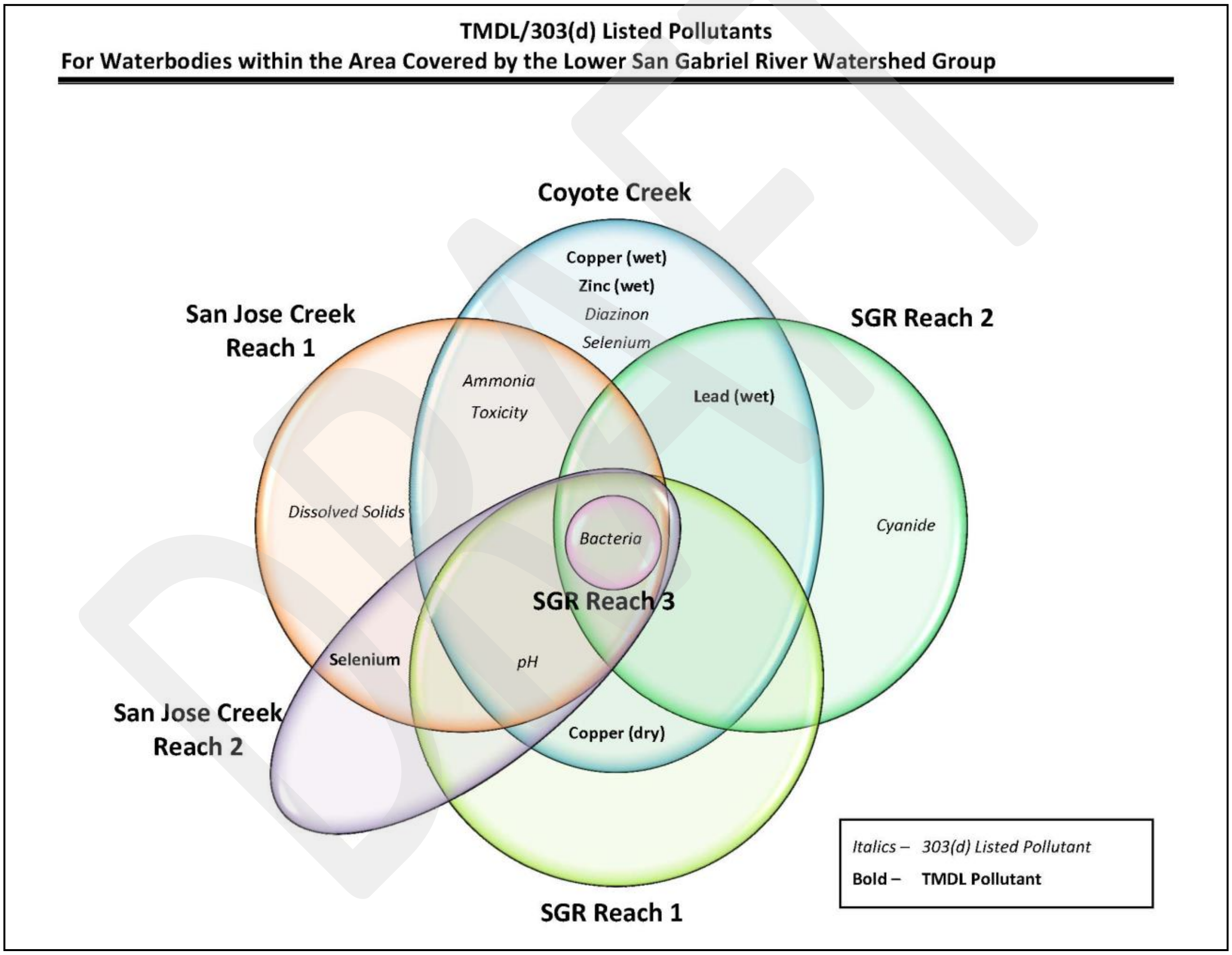


Figure 2-1: Lower San Gabriel River Watershed pollutant Venn diagram

[3] The USGS Hydrologic Unit Code Equivalent HUC boundaries created by LACFCD included the City of Diamond Bar in the Upper SJC HUC (180701060501); however, this designation does not coincide with the LA Basin Plan Reach designations that commence the Upper SJC (Reach 2) at Temple Avenue in Pomona. According to this designation, Diamond Bar drains solely to SJC Reach 1.

The pollutant categories are summarized below including the weather condition for which impairment was determined:

Category 1 B

- ***Copper*** *– San Gabriel River Reach 1 (Dry), Coyote Creek (Wet & Dry), North Fork Coyote Creek (Wet)*
- ***Lead*** *– San Gabriel River Reach 2 (Wet), Coyote Creek (Wet), San Jose Creek Reach 1 (Wet)*
- ***Zinc*** *– Coyote Creek (Wet), North Fork Coyote Creek (Wet)*
- ***Selenium*** *– San Jose Creek Reach 1 (Dry)*

Category 2A

- ***Ammonia*** *– Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Cyanide*** *– Coyote Creek (Wet & Dry), San Gabriel River Reach 2 (Wet & Dry)*
- ***Diazinon*** *– Coyote Creek (Wet & Dry)**PAHs** – San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet and Dry)*Category 2B
- ***Bacteria*** *– San Gabriel River Reach 1 (Wet & Dry), San Gabriel River Reach 2 (Wet & Dry), Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry), North Fork Coyote Creek (Wet & Dry)*

Category 2C

- ***Copper*** *– San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Lead*** *– Coyote Creek (Dry)*
- ***Mercury*** *– North Fork Coyote Creek (Wet & Dry)*
- ***Nickel*** *– Coyote Creek (Dry)*
- ***Selenium*** *– North Fork Coyote Creek (Wet & Dry)*
- ***Zinc*** *–San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry), Coyote Creek (Dry)*

Category 2D

- ***Chloride*** *– San Jose Creek Reach 1 (Dry)*
- ***pH*** *– San Gabriel River Reach 1 (Wet & Dry), Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Total Dissolved Solids*** *– San Jose Creek Reach 1 (Dry)*
- ***Toxicity*** *– Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*

Category 3A

- ***Cyanide*** *– North Fork Coyote Creek (Wet and Dry), San Jose Creek Reach 1 (Wet and Dry)*
- ***Chloride*** *– San Gabriel River Reach 2 (Dry), Coyote Creek (Dry), San Jose Creek Reach 1 (Dry)*
- ***Lindane*** *– San Gabriel River Reach 2 (Wet and Dry)*
- ***Sulfate*** *– San Gabriel River Reach 2 (Dry)*[4]*, San Jose Creek Reach 1(Dry)*

[4] This waterbody/pollutant combination was added due to one exceedance occurring during the 09-10 storm year. There have been no exceedances detected since this time.

CATEGORY 3C

- ***Alpha-Endosulfan*** *– Coyote Creek (Dry)*[5]
- ***Copper*** *– North Fork Coyote Creek (Dry)*
- ***Selenium*** *– San Gabriel River Reach 1 (Dry)*

CATEGORY 3D

- ***Dissolved Oxygen*** *– San Gabriel River Reach 1 (Dry),San Gabriel River Reach 2 (Wet and Dry), Coyote Creek (Wet)*[6]*, San Jose Creek Reach 1 (Wet & Dry)*
- ***MBAS*** *– Coyote Creek (Wet), San Gabriel River Reach 2 (Wet)*
- ***pH*** *–North Fork Coyote Creek (Dry)*
- ***Total Dissolved Solids*** *– San Gabriel River Reach 2 (Dry)*

Tables 2-1 and 2-2 summarize the waterbody pollutant combinations for the Lower SGR Watershed Group.

Table 2-1: Wet weather waterbody/pollutant categories

Category	Analyte	SGR1[(a)]	SGR2[(b)]	SJC1[(c)]	CC[(d)]	NFC[(e)]
1	Copper				×	×
	Lead		×	×	×	×
	Zinc				×	×
2	Ammonia			×	×	
	Copper		×	×		
	Cyanide		×		×	
	Diazinon				×	
	E. coli	×	×	×	×	×
	Mercury					×
	PAH		×	×		
	pH	×		×	×	
	Selenium					×
	Toxicity			×	×	
	Zinc		×	×		
3	Cyanide			×		×
	Dissolved Oxygen		×	×	×	
	Lindane		×			
	MBAS		×		×	
	Selenium	×				

[(a)]San Gabriel River Reach 1, [(b)]San Gabriel River Reach 2, [(c)]San Jose Creek Reach 1
[(d)]Coyote Creek, [(e)]North Fork Coyote Creek

[5] This waterbody/pollutant combination was added due to one exceedance occurring during the 09-10 storm year. There have been no exceedances detected since this time.

[6] This waterbody/pollutant combination was added due to one exceedance occurring during the 03-04 storm year. There have been no exceedances detected since this time.

Table 2-2: Dry weather waterbody/pollutant categories

Category	Analyte	SGR1[(a)]	SGR2[(b)]	SJC1[(c)]	CC[(d)]	NFC[(e)]
1	Copper	**X**			**X**	
	Selenium			**X**		
2	Ammonia			**X**	**X**	
	Chloride			**X**		
	Copper		**X**	**X**		
	Cyanide		**X**		**X**	
	Diazinon				**X**	
	E. coli	**X**	**X**	**X**	**X**	**X**
	Lead				**X**	
	Mercury					**X**
	Nickel				**X**	
	PAH		**X**	**X**		
	pH	**X**		**X**	**X**	
	Selenium					**X**
	TDS			**X**		
	Toxicity			**X**	**X**	
	Zinc		**X**	**X**	**X**	
3	Alpha-endosulfan				**X**	
	Chloride		**X**	**X**	**X**	
	Copper					**X**
	Cyanide			**X**		**X**
	Dissolved Oxygen	**X**	**X**	**X**		
	Lindane		**X**			
	pH					**X**
	Selenium	**X**				
	Sulfate		**X**	**X**		
	TDS		**X**			

[(a)]San Gabriel River Reach 1, [(b)]San Gabriel River Reach 2, [(c)]San Jose Creek Reach 1
[(d)]Coyote Creek, [(e)]North Fork Coyote Creek

2.1.1 CATEGORY 1 POLLUTANTS

METALS (COPPER, LEAD, & ZINC) AND SELENIUM

Copper (for San Gabriel River Reach 1 and Coyote Creek), lead (for San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1), zinc (for Coyote Creek), and selenium (for San Jose Creek Reach 1) are classified as a Category 1B pollutants. These waterbody-pollutant combinations are addressed in the USEPA established San Gabriel River and Impaired Tributaries Metals and Selenium TMDL. Implementation of this TMDL to achieve applicable receiving water limitations for these pollutants is discussed in later chapters of this WMP.

2.1.2 CATEGORY 2 POLLUTANTS

The following pollutants have been categorized as Category 2 because data indicate water quality impairment due to these constituents according to the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy)[7].

AMMONIA[8]

Ammonia is a nutrient which is harmful in high levels. The 303(d) List has indicated that the San Jose Creek Reach 1 and Coyote Creek are impaired by ammonia; therefore, ammonia is classified as a Category 2A pollutant for San Jose Creek Reach 1 and Coyote Creek.

According to the California 2010 Integrated Report, ammonia was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reach 1; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

BACTERIA

The 303(d) List has indicated that the San Gabriel River (Reaches 1 & 2), San Jose Creek (Reach 1), North Fork Coyote Creek, and Coyote Creek are impaired by bacteria[9]. In addition, Los Angeles County Flood Control District (LACFCD) Tributary Station TS(17) North Fork Coyote Creek detected 8 out of 8 wet weather exceedances of LA Basin Plan bacterial Water Quality Objectives (WQOs) for total coliform, fecal coliform, and fecal enterococcus. Therefore, bacteria is classified as a Category 2B pollutant for Reaches 1, 2, and 3 of the San Gabriel River, Reach 1 of the San Jose Creek, and Coyote Creek.

CHLORIDE

LACSD data detected 26 out of 108 dry weather exceedances at C1, 22 out of 108 dry weather exceedances at C2, and 21 out of 102 dry weather exceedances at RD in of the LA Basin Plan WQO for chloride between 2004 and 2012. These stations all correspond to Coyote Creek. Since the number of exceedances meets the State Listing Criteria for 303(d) listing[10] chloride is classified as a Category 2D pollutant in Coyote Creek.

COPPER

LACFCD mass emission station S(14) San Gabriel River detected 23 out of 38 wet weather exceedances and 14 out of 21 dry weather exceedances, and LACFCDTributary Station TS(17) North Fork Coyote

[7] An excerpt of the 2010 California 303(d) List of Water Quality Limited Segments for Region 4 is included in Appendix 2-1

[8] According to the Council for Watershed Health's State of the San Gabriel River watershed, over the last 10 years, upgrades to water reclamation plant (WRP) technologies has resulted in significant decreases in nitrogen compounds (such as ammonia) in receiving waters.

[9] According to the California 2010 Integrated Report, bacteria was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reaches 1 and 2; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

[10] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Conventionals – Table 3.2.

Creek detected 9 out of 10 wet weather exceedances and TS(15) Upper San Jose Creek detected 9 out of 10 wet weather and 4 out of 4 dry weather exceedances of the CTR WQO for copper between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[11] Copper is classified as a Category 2C pollutant in San Gabriel River Reach 2, North Fork Coyote Creek and San Jose Creek Reach 1.

CYANIDE

Cyanide is an inorganic chemical compound. The 303(d) List has indicated that San Gabriel River Reach 2 is impaired by cyanide. In addition, there were 4 out of 40 wet weather and 22 out of 23 dry weather exceedances of the CTR water quality objective for cyanide at Coyote Creek between 2002 and 2012[12]. Since this meets the State Listing Criteria for 303(d) listing[13], cyanide is classified as a Category 2A pollutant for the Reach 2 of the San Gabriel River and Coyote Creek.

DIAZINON

Diazinon is an organophosphate insecticide. The 303(d) List has indicated that Coyote Creek is impaired by diazinon; therefore, diazinon is classified as a Category 2A pollutant for the Reach 1 of Coyote Creek.

According to the California 2010 Integrated Report, diazinon was considered for removal from the 303(d) list for Coyote Creek; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards are exceeded and diazinon contributes to or causes the problem.

LEAD

Lead is classified as a Category 1B pollutant for San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1 during wet weather as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided during dry weather.

Although Coyote Creek does not have an established dry weather WLA within the San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL, data indicates that Coyote Creek is impaired by lead in dry weather. LACFCD Mass Emission Station S(13) detected 9 out of 23 dry weather exceedances of the CTR water quality objective for lead between 2002 and 2012. Therefore, lead is classified as a Category 2C pollutant for Coyote Creek.

MERCURY

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by mercury, the LACFCD Tributary station TS(17) North Fork Coyote Creek collected 1 out of 4 wet weather samples and

[11] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

[12] According to the California 2010 Integrated Report, cyanide was considered for placement onto 303(d) list for Coyote Creek; however, it was concluded that the pollutant should not be placed on the 303(d) list for Coyote Creek because applicable water quality standards for the pollutant are not being exceeded.

[13] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

2 out of 10 dry weather samples exceeding the California Toxics Rule WQO for this pollutant between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[14], mercury is classified a category 2C pollutant within this WMP. It is anticipated that the control measures used to address the pollutants within San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL will subsequently address mercury; however, if exceedances occur and the implemented or proposed control measures do not address mercury, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

NICKEL

LACSD data detected 58 out of 85 dry weather exceedances of the CTR WQO for nickel in the Coyote Creek between 2004 and 2012. Since this meets the State Listing Criteria for 303(d) listing[15] nickel is classified as a Category 2C pollutant in Coyote Creek.

PAHS

Although the San Gabriel River and San Jose Creek are not listed as impaired on the 303(d) List for PAHs, monitoring data from the LA County Sanitation Districts (LACSD) indicate numerous exceedances of PAH compounds in the San Gabriel River and San Jose Creek from 2004-2012. Therefore, PAHs are classified as a Category 2A pollutant for San Gabriel River Reach 2 and San Jose Creek Reach 1.

pH

pH is a measure of the acidity or basicity of an aqueous solution. The 303(d) List has indicated that San Gabriel River Reach 1, Coyote Creek, and San Jose Creek Reach 1 are impaired by pH; therefore, pH is classified as a Category 2D for Reach 1 of the San Gabriel River, Coyote Creek, and Reach 1 of the San Jose Creek.

According to the California 2010 Integrated Report, pH was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reach 1; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

SELENIUM

Selenium is classified as a Category 1C pollutant for San Jose Creek Reaches 1 and 2 as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided for Reaches 1, 2, or 3 of the San Gabriel River or for Coyote Creek.

Although Coyote Creek does not have an established WLA within the San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL, the 303(d) List has indicated that North Fork Coyote

[14] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

[15] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

Creek is impaired by selenium[16]. Therefore, selenium is classified as a Category 2C pollutant for Coyote Creek.

TOTAL DISSOLVED SOLIDS

Total Dissolved Solids (TDS) is a measure of the combined content of all inorganic and organic substances contained in a liquid. The 303(d) List has indicated that the San Jose Creek Reach 1 is impaired by TDS; therefore, TDS is classified as a Category 2D for San Jose Creek Reach 1.

TOXICITY

The 303(d) List has indicated that Coyote Creek and San Jose Creek Reach 1 are impaired by toxicity; therefore, toxicity is classified as a Category 2D for Coyote Creek and Reach 1 of the San Jose Creek.

According to the California 2010 Integrated Report, San Gabriel River Reaches 1 and 3 were originally listed on the 303(d) list for toxicity and were removed based on the conclusion that applicable water quality standards are not being exceeded.

ZINC

LACFCD mass emission station S(13) Coyote Creek detected 5 out of 23 dry weather exceedances, LACFCD mass emission station S(14) San Gabriel River detected 27 out of 38 wet weather exceedances and 8 out of 21 dry weather exceedances, and LACFCD Tributary Station TS(15) Upper San Jose Creek detected 9 out of 10 wet weather exceedances and 3 out of 4 dry weather exceedances of the CTR WQO for zinc between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[17] zinc is classified as a Category 2C pollutant in San Gabriel River Reach 2 and San Jose Creek Reach 1.

2.1.3 CATEGORY 3 POLLUTANTS

The waterbody-pollutant combinations described below have been identified as exceeding water quality objectives (WQOs) in the Lower SGR Watershed. Through the adaptive management process, water quality priorities identified in this WMP will be re-evaluated every two years, and if exceedances of Category 3 WQOs are identified through monitoring, then the WMP will be adapted to become more effective in addressing these constituents, per Section VI.C.8.a.ii of the MS4 Permit. Note that station S(14) is of limited value to the Lower SGR Watershed as the watershed's drainage comprises approximately 2% of the drainage captured by this station. Therefore its precision in measuring MS4 contributions from the watershed is uncertain.

ALPHA-ENDOSULFAN

[16] Based on data from the State Listing Policy lines of evidence ID #2425, #2426, #25164, and #25162 collected by the County of Los Angeles Department of Public Works, and the Los Angeles County Sanitation Districts, selenium is being considered for removal from the 303(d) list for Coyote Creek. The Regional Board concluded that the pollutant should not be on the 303(d) list because applicable water quality standards are not being exceeded. It has been recommended that the decision be approved by the State Board and selenium has not yet been removed from the 303(d) list for Coyote Creek

[17] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by Endulsulfan sulfates, the LACFCD Mass Emissions station S(13) in the Coyote Creek collected 1 out of 22 dry weather samples exceeding the California Toxics Rule WQO for this pollutant between 2002 and 2012. This exceedance occurred during the 2009-10 storm year, and there have been no further exceedances detected since this time. Alpha-Endosulfan is classified a category 3C. If exceedances are found tooccur and the implemented or proposed control measures do not address Alpha-Endosulfan, the WMP will be revised to include control measures to address the pollutant directly.

CHLORIDE

According to the California 2010 Integrated Report, Coyote Creek was originally listed on the 303(d) list for chloride and was removed based on the conclusion that applicable water quality standards are not being exceeded. However, there were 4 out of 22 dry weather exceedances of the LA Basin Plan WQO for chloride at the LACFCD Mass Emissions station S(14) in San Gabriel River between 2002 and 2012 and 3 out of 23 wet weather exceedances of the USEPA National Recommended WQO for chloride at S(13) between 2002 and 2012; therefore, Chloride is classified a category 3A pollutant within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address chloride, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

COPPER

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 4 out of 4 dry weather exceedances of the CTR WQO for copper between 2002 and 2012. Copper is classified as a Category 3C pollutant within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address Copper, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

CYANIDE

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 1 out 8 wet weather and 1 out of 4 dry weather exceedances and Station TS(15) Upper San Jose Creek detected 1 out of 9 wet weather exceedances of the CTR WQO for cyanide between 2002 and 2012. Therefore Cyanide is classified as a Category 3C pollutant for North Fork Coyote Creek and San Jose Creek Reach 1. If exceedances are found to occur and the implemented or proposed control measures are not expected to address cyanide, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

DISSOLVED OXYGEN

According to the California 2010 Integrated Report, dissolved oxygen (more correctly a lack of dissolved oxygen) was considered for placement onto 303(d) list for Coyote Creek; however, it was concluded that the dissolved oxygen should not be placed on the 303(d) list for Coyote Creek because applicable water quality standards are not being exceeded.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by low dissolved oxygen, the LACFCD Mass Emissions station S(13) in Coyote Creek collected 1 out of 39 wet weather samples below the dissolved oxygen water quality criteria between 2002 and 2012. This exceedance occurred during the 2003-04 storm year, and there have been no exceedances detected since that time. In addition, LACSD detected 10 out of 501 samples during dry weather in San Jose Creek and 11 out of 550 samples in San Gabriel River that were below the WQO for dissolved oxygen between 2004 and 2012. Therefore, dissolved oxygen is classified as a Category 3D pollutant within this WMP. If exceedances are found to occur through monitoring and the implemented or proposed control measures are not expected to address the dissolved oxygen impairment, the WMP will be revised to include control measures to address it directly.

Lindane

Lindane is a persistent organic pollutant and is relatively long-lived in the environment.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by lindane, historical data detected exceedances of lindane in San Gabriel River Reach 2. Therefore, lindane is classified as Category 3A within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the pollutant, the WMP will be revised to include control measures to address it directly.

Methylene Blue Active Substances (MBAS)

An MBAS assay is used to detect the presence of detergents or foaming agents in water samples.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by MBAS, the LACFCD Mass Emissions station S(13) in Coyote Creek collected 5 out of 42 wet weather samples, the LACFCD Mass Emissions station S(14) in Upper San Gabriel River collected 1 out of 37 wet weather samples that exceeded the Basin Plan WQO for MBAS between 2002 and 2012. Therefore, MBAS is classified as Category 3D within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the pollutant, the WMP will be revised to include control measures to address it directly.

pH

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 3 out of 4 dry weather exceedances of the LA Basin Plan WQO for pH between 2002 and 2012. Therefore pH is classified as a Category 3D pollutant within this WMP . If exceedances are found to occur through monitoring and the implemented or proposed control measures are not expected to address the impairment, the WMP will be revised to include control measures to address pH directly.

Selenium

Selenium is classified as a Category 1B pollutant for San Jose Creek Reach 1 during dry weather as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided for the San Gabriel River or Coyote Creek.

Although the San Gabriel River Reach 1 is not listed as impaired by selenium, the Council for Watershed Health monitoring site SGLT5617 in the San Gabriel River detected 1 exceedance of the National Toxics Rule WQO for selenium between 2005 and 2009. Therefore, selenium is classified as a Category 3C pollutant within this WMP for the San Gabriel River Reach 1. It is anticipated that the control measures used to address the pollutants within San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL will subsequently address selenium in ; however, if exceedances are found to occur and the implemented or proposed control measures do not address sulfates, the WMP will be revised.

SULFATES

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by sulfates, the LACFCD Mass Emissions station S(14) in the Upper San Gabriel River collected 1 out of 22 dry weather samples exceeding the Basin Plan WQO for sulfates between 2002 and 2012. This exceedance occurred during the 2009-10 storm year, and there have been no exceedances detected since that time. In addition, the LACSD detected 1 out of 503 dry weather samples exceeding the California Secondary MCL for sulfates between 2004 and 2012 in the San Jose Creek. Therefore, Sulfates are classified as a Category 3A within this WMP for the San Gabriel River Reach 1 and the San Jose Creek; however, these waterbody/pollutant combinations will not be directly addressed through the WMP. It is anticipated that the control measures used to address the pollutants within San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL will subsequently address sulfates; however, if exceedances are found to occur and the implemented or proposed control measures do not address sulfates, the WMP will be revised to include control measures to address the pollutant directly.

TOTAL DISSOLVED SOLIDS

Total Dissolved Solids (TDS) is a measure of the combined content of all inorganic and organic substances contained in a liquid. The LACFCD Mass Emission station S(14) collected 2 out of 22 dry weather samples exceeding the LA Basin Plan WQO for Total Dissolved Solids between 2002 and 2012.

Therefore TDS is classified as a Category 3D within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the condition, the WMP will be revised to include control measures to address it directly.

2.1.4 POLLUTANT CLASSIFICATION

In order to determine the sequence of addressing pollutants of concern, the pollutants have been placed into classification groups. Pollutants have been identified to be in the same "class" if they have a similar fate and transport, can be addressed via the same types of control measures, and can be addressed within the same timeline. The six following classes have been identified:

- Metals
- Nutrients
- Bacteria
- Pesticides
- Semivolatile Organic Compounds (SVOC)

- Water Quality Indicators/General

The specific classes and pollutants associated can be found below. Since similar control measures and timelines are to be implemented for pollutants within the same class, each class will be treated with the highest priority of any one pollutant within that class. Watershed Control Measures and Compliance Schedules are discussed in Sections 3 and 5, respectively.

METALS
Copper
Lead
Mercury
Nickel
Selenium
Zinc

NUTRIENTS
Ammonia

BACTERIA
Coliform Bacteria
E.Coli

PESTICIDES
Alpha Endosulfan
Diazinon
Lindane

SVOCS
PAHs

WATER QUALITY INDICATORS/GENERAL
Chloride
Cyanide
Dissolved Oxygen
MBAS
pH
Sulfate
Total Dissolved Solids
Toxicity

2.2 WATER QUALITY CHARACTERIZATION

In order to characterize existing water quality conditions in the Lower SGR Watershed, and to identify pollutants of concern for prioritization per section VI.C.5.a.ii of the MS4 Permit, available monitoring data collected during the previous ten years were analyzed. The following sources were utilized during the water quality characterization:

- LACFCD Mass Emission and Tributary Monitoring Programs
- Los Angeles County Sanitation Districts (LACSD)
- San Gabriel River Regional Watershed Monitoring Program (SGRRMP)
- County of Orange Coyote Creek Monitoring Program

A summary of each of these monitoring efforts and relevant findings is presented below. In addition to providing a characterization of the current conditions within the watershed, this information will be used to target watershed management efforts in the Lower SGR Watershed.

2.2.1 MASS EMISSIONS HISTORICAL DATA ANALYSIS

Since 1994, the LACFCD has conducted stormwater monitoring in Los Angeles County. The LACFCD operates seven mass emission monitoring stations, which collect runoff from the major watersheds in the county with the goal of estimating the mass emissions from the MS4, assessing mass emissions trends, and determining whether the MS4 is contributing to exceedances of water quality standards by comparing results to applicable objectives in the Water Quality Control Plan for the Los Angeles Region (Basin Plan), and the California Toxics Rule (CTR).

The mass emissions monitoring dataset is the most comprehensive information to date regarding the condition of water quality in the San Gabriel River and its tributaries. Two LACFCD Monitoring Stations, S(13) and S(14), collect samples that are applicable to the Lower SGR Watershed.

COYOTE CREEK MONITORING STATION S(13)

The Coyote Creek Monitoring station, S(13), is located at the existing Army Corps of Engineers stream gauge station (i.e. Stream Gauge F354-R) below Spring Street in the Lower SGR Watershed. The upstream tributary area is 150 square miles and extends into Orange County. The sampling station was chosen to avoid backwater effects from the San Gabriel River to ensure that all water being sampled is from Coyote Creek only. Coyote Creek is a concrete-lined trapezoidal channel at this location. Figure 2-2 shows the location and sub-drainage area of this station.

SAN GABRIEL MONITORING STATION S(14)

The San Gabriel River Monitoring Station, S(14), is located at an historic stream gauge station (Stream Gauge F263C-R), below San Gabriel River Parkway in Pico Rivera. Approximately 10% of the Lower SGR Watershed area drains to the San Jose Creek which discharges to the San Gabriel River Reach 2 upstream of the S(14) monitoring station. Lower SGR Watershed drainage comprises approximately 2% of the drainage captured by this station. While the Watershed Group is aware of this monitoring

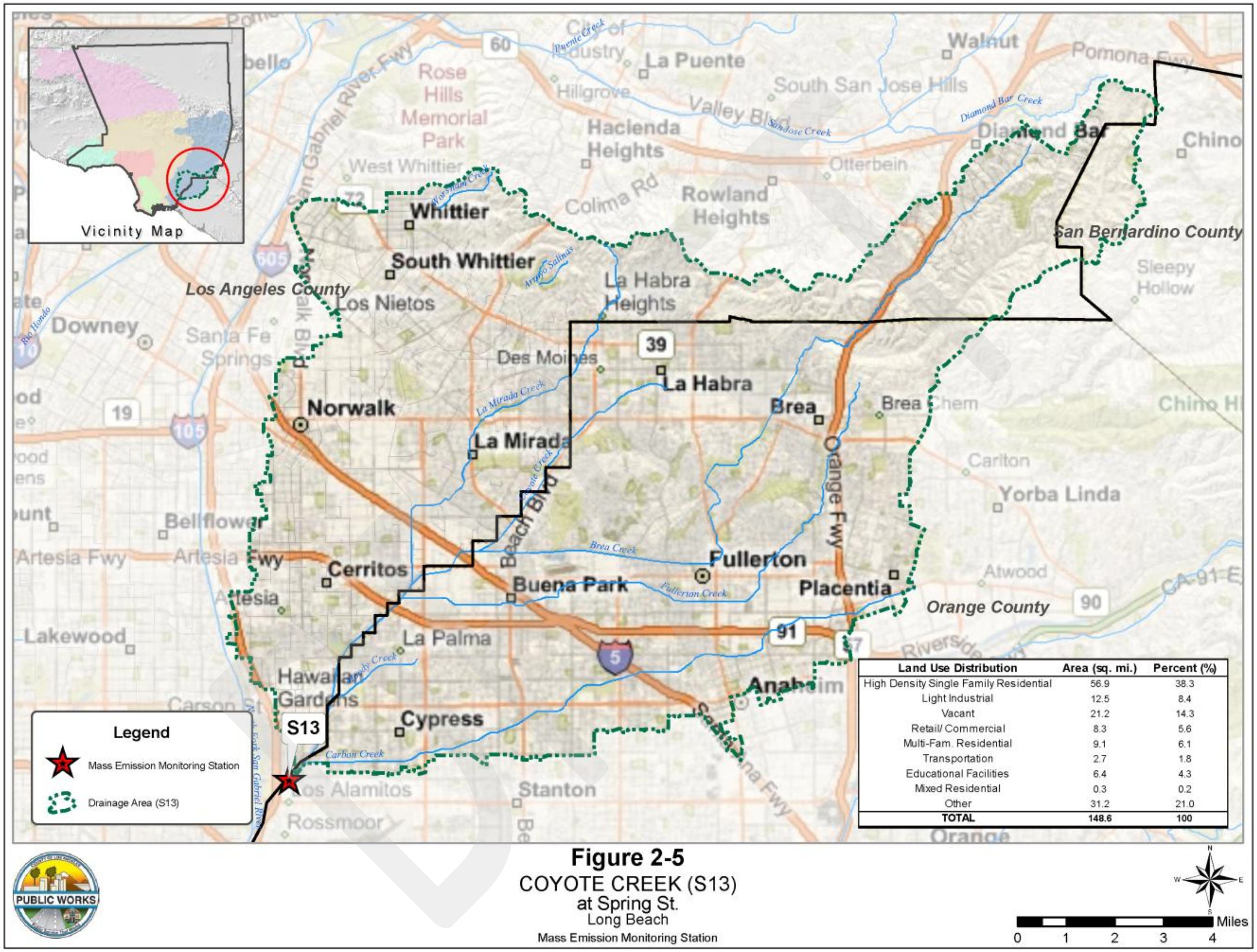
location and analyzed 10 years of data to determine WQPs, it may not be wholly representative of MS4 contributions from the Lower SGR Watershed since the station captures runoff from a large area outside of the Lower SGR Watershed. The Lower SGR Watershed Group will continue to monitor this station through the Lower SGR CIMP.

The upstream tributary area for station S(14) is 450 square miles (most of this area falls outside of the Lower SGR Watershed). The San Gabriel River is a grouted rock-concrete stabilizer along the western levee and a natural section on the eastern side. Flow measurement and water sampling are conducted in the grouted rock area along the western levee of the river. The length of the concrete stabilizer is nearly 70 feet. The San Gabriel River sampling location has been an active stream gauging station since 1968. Figure 2-3 shows the location and sub-drainage area of this station.

Both stations, S(13) and S(14), are equipped with automated samplers with integral flow meters, and collect flow composite samples from a minimum of three storm events, including the first storm, and two dry weather events in accordance with the 1996 MS4 Permit.

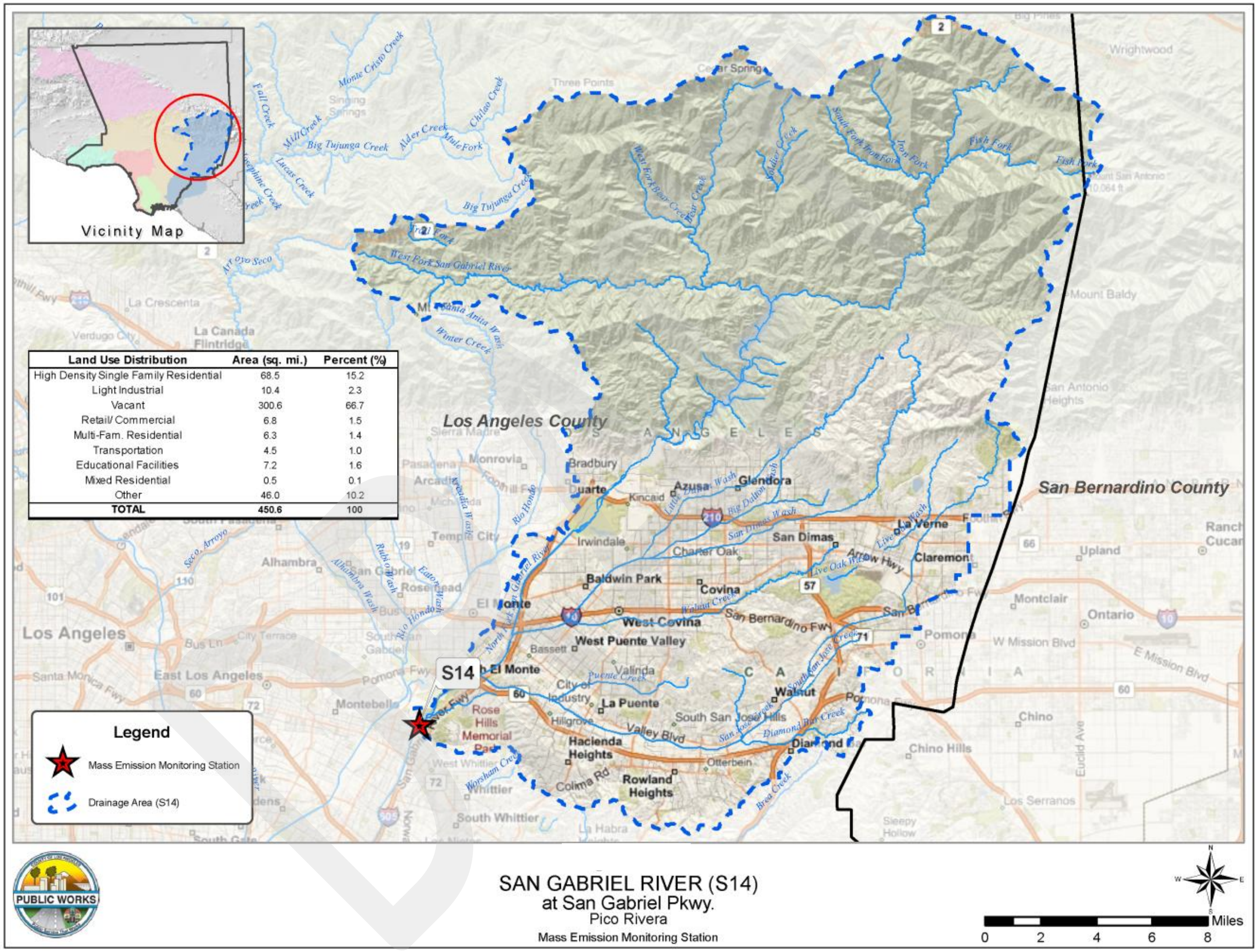
Monitoring data from stormwater collected at stations S(13) and S(14) were compared to the most stringent applicable WQOs to determine exceedances of receiving water limitations. WQOs were determined pursuant to TMDLs, the Basin Plan and the California Toxics Rule, 40 CFR Part 131.38 (CTR). Water quality objectives for chlorpyrifos and diazinon were determined using the freshwater final acute criteria set by the California Department of Fish and Game. Many of the WQOs were used as benchmarks for determining Water Quality Priorities, and should not be used for compliance purposes. Please refer to the Lower SGR Watershed Coordinated Integrated Monitoring Plan (CIMP) for a table of monitored constituents along with their most up-to-date WQOs.

A summary of the constituents not attaining WQOs at stations S(13) and S(14) during the monitoring years 2002-2012 is presented in Tables 2-3 to 2-6 below. Complete tables of monitoring results can be found in Appendix 2-2. Constituents were compared against the most appropriate WQO to date. Refer to CIMP Appendices for a table of monitored constituents along with applicable WQOs.



Land Use Distribution	Area (sq. mi.)	Percent (%)
High Density Single Family Residential	56.9	38.3
Light Industrial	12.5	8.4
Vacant	21.2	14.3
Retail/ Commercial	8.3	5.6
Multi-Fam. Residential	9.1	6.1
Transportation	2.7	1.8
Educational Facilities	6.4	4.3
Mixed Residential	0.3	0.2
Other	31.2	21.0
TOTAL	**148.6**	**100**

Figure 2-2: Coyote Creek S(13) monitoring station



Land Use Distribution	Area (sq. mi.)	Percent (%)
High Density Single Family Residential	68.5	15.2
Light Industrial	10.4	2.3
Vacant	300.6	66.7
Retail/ Commercial	6.8	1.5
Multi-Fam. Residential	6.3	1.4
Transportation	4.5	1.0
Educational Facilities	7.2	1.6
Mixed Residential	0.5	0.1
Other	46.0	10.2
TOTAL	**450.6**	**100**

Figure 2-3: San Gabriel River (S14) Monitoring Location

Table 2-3: S(13) Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	40	4	10	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	42	2	5	6.5-8.5	LA Basin Plan
Dissolved Oxygen	39	1	3	5	LA Basin Plan
Total Coliform	40	37	93	10000	LA Basin Plan - Marine Waters
Fecal Coliform	40	40	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	40	40	100	104	LA Basin Plan - Marine Waters
MBAS	42	5	12	0.5	LA Basin Plan
Total Copper	42	26	62	27	SG River Metals TMDL
Total Lead	42	1	2	106	SG River Metals TMDL
Total Selenium	42	1	2	5	SG River Metals TMDL
Dissolved Zinc	42	8	19	120	CTR-100mg/L CMC
Total Zinc	42	29	69	106	SG River Metals TMDL
Diazinon	42	3	7	0.08	CADF&G

Table 2-4: S(13) Constituents Exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	23	22	96	0.0052	CTR Freshwater Aquatic Life Protection, Chronic
pH	23	5	22	6.5-8.5	LA Basin Plan
Total Coliform	23	10	43	10000	LA Basin Plan - Marine Waters
Fecal Coliform	23	18	78	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	23	16	70	104	LA Basin Plan - Marine Waters
Chloride	23	3	13	230	USEPA National Recommended Criteria
Total Copper	23	3	13	19.1	SG River Metals TMDL
Total Lead	23	9	39	0.92	CTR Freshwater Aquatic Life Criteria - Chronic
Total Selenium	23	14	61	5	SG River Metals TMDL
Total Zinc	23	1	4	95.6	SG River Metals TMDL
Diazinon	23	2	9	0.05	CADF&G
Alpha Endosulfan	23	1	0.04	0.034	CTR Freshwater Aquatic Life Protection, Chronic

Table 2-5: S(14) Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	38	4	11	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	38	2	5	6.5-8.5	LA Basin Plan
Total Coliform	38	33	87	10000	LA Basin Plan - Marine Waters
Fecal Coliform	38	36	95	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	38	36	95	104	LA Basin Plan - Marine Waters
MBAS	37	1	3	0.5	LA Basin Plan
Total Copper	38	23	61	14	CTR Aquactic Life Protection - Acute
Total Zinc	38	27	71	54	CTR Aquactic Life Protection - Acute
Diazinon	39	4	10	0.08	CADF&G

Table 2-6: S(14) Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	22	16	73	0.0052	CTR Freshwater Aquatic Life Protection - Chronic
pH	21	3	14	6.5-8.5	LA Basin Plan
Total Coliform	22	11	50	10000	LA Basin Plan - Marine Waters
Fecal Coliform	22	12	55	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	22	12	55	104	LA Basin Plan - Marine Waters
Chloride	22	4	18	150	LA Basin Plan
Sulfate	22	1	5	300	LA Basin Plan
Total Dissolved Solids	22	2	9	750	LA Basin Plan
Total Copper	21	14	67	9.3	CTR Aquatic Life Protection - Chronic

2.2.2 LACFCD Tributary Monitoring

In addition to the Mass Emission Station monitoring, LACFCD conducted tributary monitoring during the 2006-07 and 2007-08 storm years. This monitoring occurred at 4 tributary stations that fall within the Lower SGR Watershed: TS15: Upper San Jose Creek, TS16: Maplewood Channel, TS17: North Fork Coyote Creek, and TS18: SD 21 (Artesia Norwalk Drain). Two of these sites are located in the storm drain system (TS15 and TS18), while TS15 and TS17 are in 303(d) listed receiving waterbodies. Note: only the data from TS15 and TS17 was used to characterize receiving water and identify WQPs in the Lower SGR watershed. Data analyzed from the TS16 and TS18 will be considered in pollutant source identification during WMP implementation.

TS15: Upper San Jose Creek

The Upper San Jose Creek tributary monitoring site is located on Upper San Jose Creek in the City of Industry, upstream of the confluence with Puente Creek. The site is approximately 500 feet south of where Don Julian Road crosses Puente Creek. The upstream tributary watershed area of Upper San Jose Creek is approximately 72.60 square miles.

TS16: Maplewood Channel

The Maplewood Channel tributary monitoring site is located on Maplewood Channel in Bellflower City, where Trabuco Street ends and crosses Maplewood Channel. The upstream tributary watershed area of Maplewood Channel is approximately 4.90 square miles.

TS17: North Fork Coyote Creek

The North Fork Coyote Creek tributary monitoring site is located on North Fork Coyote Creek in the City of Cerritos, where Artesia Boulevard crosses North Fork Coyote Creek. The upstream tributary watershed area of North Fork Coyote Creek is approximately 34.89 square miles.

TS 18: SD 21 (Artesia-Norwalk Drain)

The SD 21 (Artesia-Norwalk Drain) monitoring site is located on SD 21 (Artesia–Norwalk Drain) in the City of Long Beach, where Wardlow Road crosses the SD 21 (Artesia-Norwalk Drain). The upstream tributary watershed area of this site is approximately 4.14 square miles.

Monitoring data from stormwater collected at stations TS15 and TS17 were compared to the most stringent applicable WQOs to determine exceedances of receiving water limitations. WQOs were determined pursuant to TMDLs, the Basin Plan and the California Toxics Rule, 40 CFR Part 131.38 (CTR). WQOs for chlorpyrifos and diazinon were determined using the freshwater final acute criteria set by the California Department of Fish and Game. Many of the WQOs were used as benchmarks for determining Water Quality Priorities, and should not be used for compliance purposes. Please refer to the CIMP for a table of monitored constituents along with their most up-to-date WQOs.

A summary of the constituents not attaining WQOs at stations TS(15) and TS(17) during the monitoring years 2002-2012 is presented in Tables 2-7 to 2-11 below. Complete tables of monitoring results can be found in Appendix 2-2.

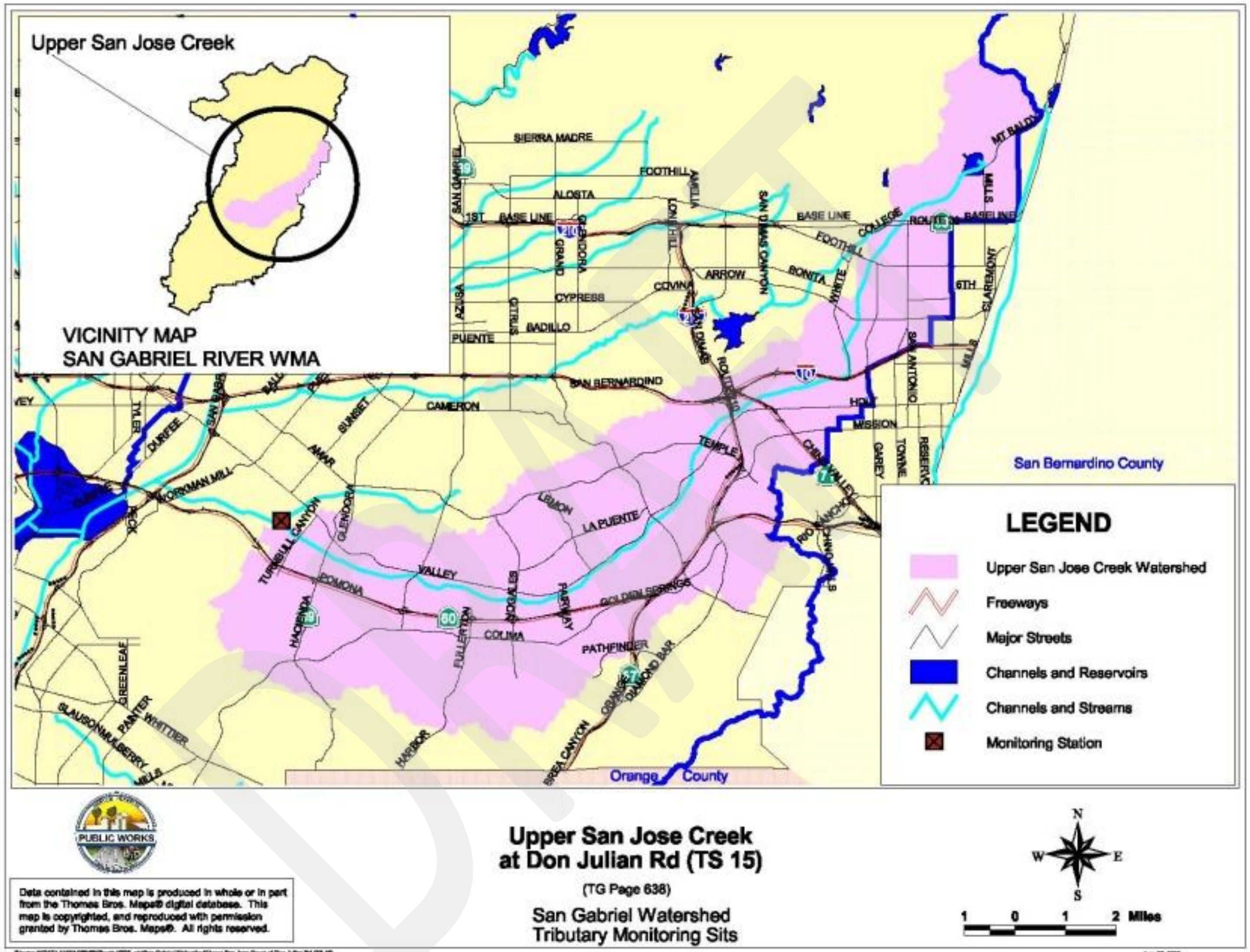


Figure 2-4: TS15 monitoring location

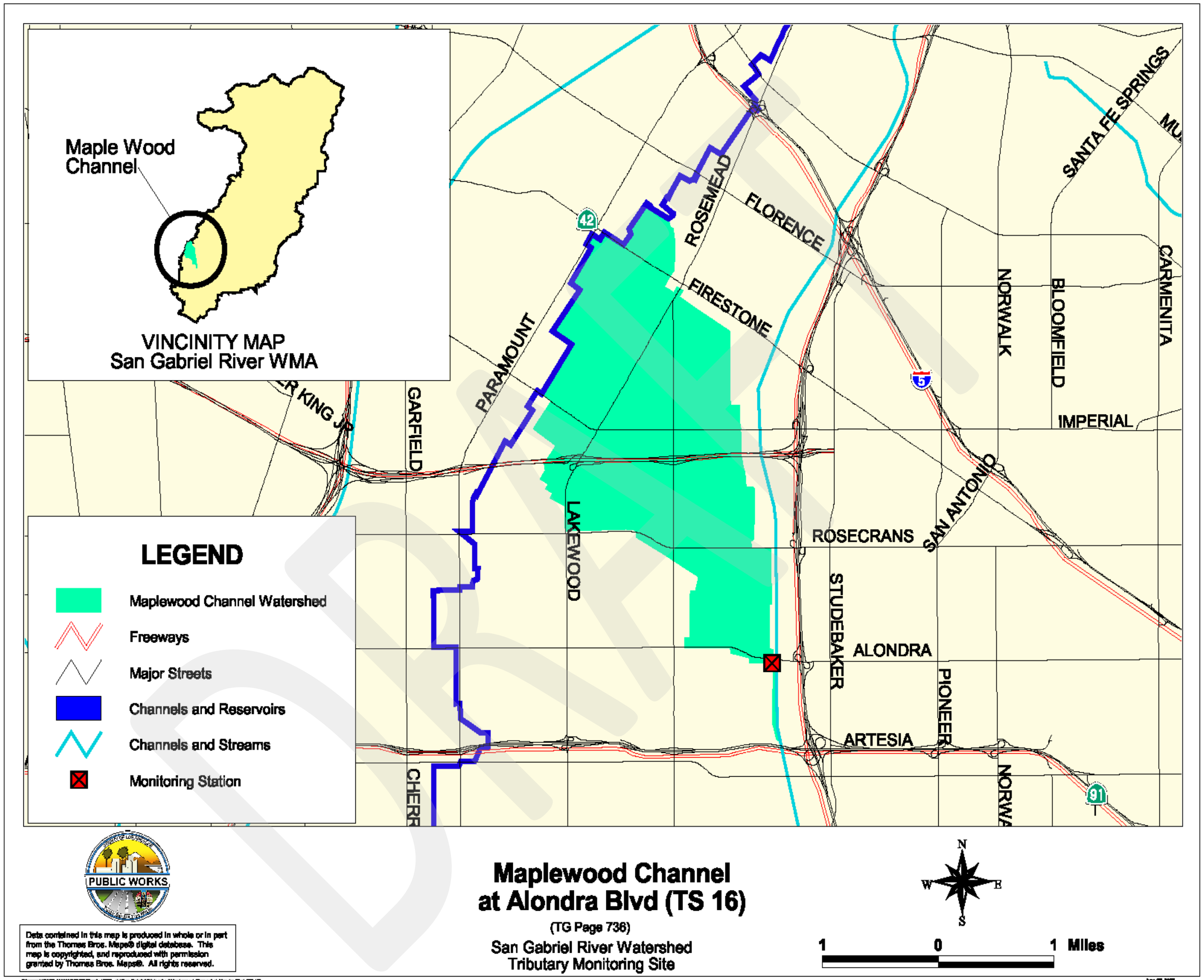


Figure 2-5: TS16 monitoring location

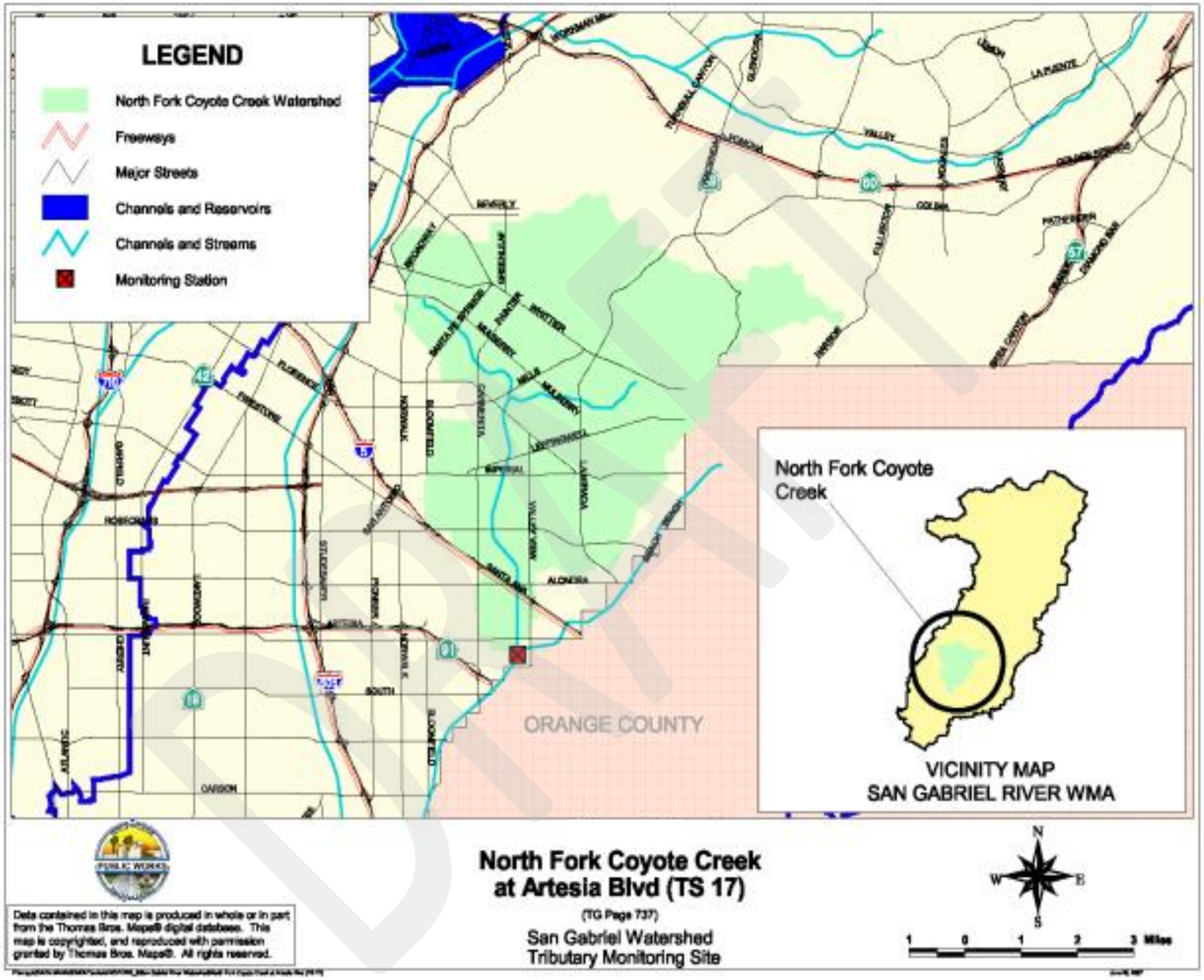


Figure 2-6: TS17 monitoring location

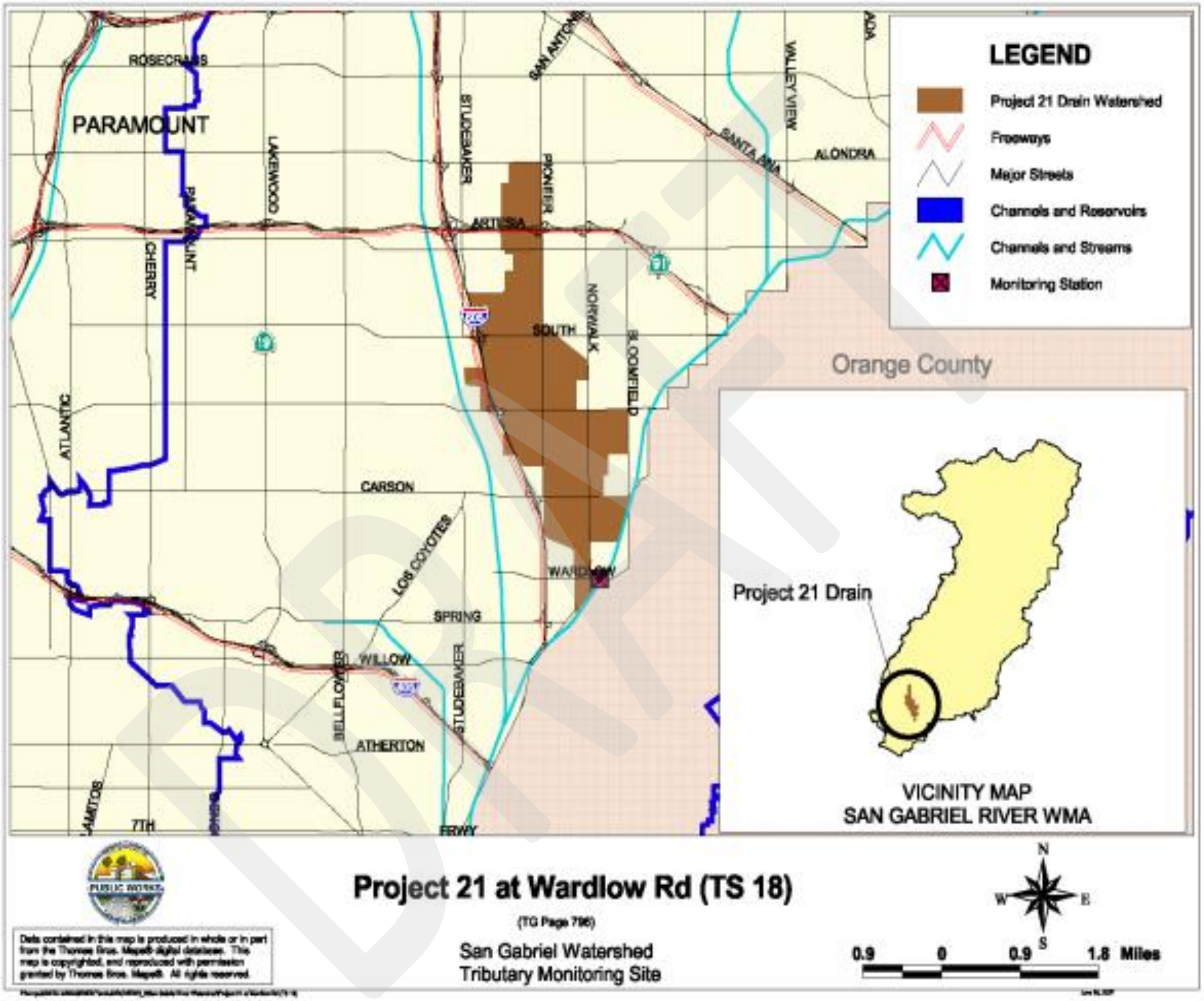


Figure 2-7: SD21 monitoring site location

Table 2-7: TS17 Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	8	1	13	0.022	CTR Freshwater Aquatic Life Protection - Acute
Total Coliform	8	8	88	10000	LA Basin Plan - Marine Waters
Fecal Coliform	8	8	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	8	8	100	104	LA Basin Plan - Marine Waters
Total Copper	10	9	90	14	CTR Freshwater Aquatic Life Protection – Acute
Total Mercury	4	1	25	0.051	CTR Human Health Consumption

Table 2-8: TS16 Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Total Coliform	4	4	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	4	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	4	100	104	LA Basin Plan - Marine Waters

Table 2-9: TS17 Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	8	1	13	0.022	CTR Freshwater Aquatic Life Protection - Acute
Total Coliform	8	8	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	8	8	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	8	8	100	104	LA Basin Plan - Marine Waters

Table 2-10: TS17 Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	4	1	25	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	4	3	75	6.5-8.5	LA Basin Plan
Total Coliform	4	2	50	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	2	50	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	2	50	104	LA Basin Plan - Marine Waters
CyanideTotal Mercury	810	12	1320	0.022051	CTR Freshwater Aquatic Life Protection - AcuteCTR Human Health Consumption

Table 2-11: TS17 Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
pH	4	3	75	6.5-8.5	LA Basin Plan
Total Coliform	4	4	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	4	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	2	50	104	LA Basin Plan - Marine Waters

2.2.3 LA COUNTY SANITATION DISTRICT MONITORING

The County Sanitation Districts of Los Angeles County (LACSD) are a confederation of 23 independent special districts serving the water pollution control management needs of about 5.7 million people in Los Angeles County. The Sanitation Districts' service area covers approximately 820 square miles and encompasses 78 cities and unincorporated territory within the County. With regard to wastewater treatment, the Sanitation Districts construct, operate and maintain facilities to collect, treat and dispose of wastewater and industrial wastes.

Seventeen of the 23 districts are signatory to an agreement which provides for sewerage service to the majority of residential, commercial and industrial users (IUs) within the County, but mostly located outside of the City of Los Angeles service area. This treatment system, known as the Joint Outfall System (JOS), currently consists of the Joint Water Pollution Control Plant (JWPCP) located in the City of Carson and six upstream water reclamation plants (WRPs); the Whittier Narrows WRP near the City of South El Monte, the Los Coyotes WRP in the City of Cerritos, the San Jose Creek WRP adjacent to the City of Industry, the Long Beach WRP in the City of Long Beach, the Pomona WRP in the City of Pomona and the La Cañada WRP in La Cañada Flintridge. All JOS facilities except the La Cañada WRP are regulated under the NPDES program; all six WRPs are subject to California Waste Discharge or Water Reclamation Requirements. See Chapter 1 Introduction for more detail on the WRP discharges within the Lower SGR Watershed.

The LACSD monitors its effluent at multiple locations within the Lower SGR Watershed. Data from 2004 to 2012 was analyzed and exceedances of the following constituents were found: PAHs in San Gabriel River Reach 2 and San Jose Creek Reach 1, Nickel in Coyote Creek, Chloride in San Jose Creek Reach 1, Sullfates in San Jose Creek Reach 1, and Dissolved Oxygen in San Gabriel River Reach 1 and San Jose Creek Reach 1.

2.2.4 COUNCIL FOR WATERSHED HEALTH SAN GABRIEL RIVER REGIONAL MONITORING PROGRAM

Since 2005, the San Gabriel River Regional Monitoring Program (SGRRMP), a group of local, state, and federal stakeholders led by the Council for Watershed Health, has conducted watershed scale dry weather (May through July) monitoring at targeted and random sites throughout the San Gabriel River watershed. From 2005-2009, the SGRRMP collected and analyzed aquatic chemistry, toxicity bioassessment, and physical habitat data from 69 randomly selected sites within the San Gabriel River watershed representing the upper river watershed, the lower river watershed, and mainstream channel below Whittier Narrows. The SGRRMP also relied on LACFCD tributary monitoring in the San Gabriel River and Coyote Creek watersheds for assessing water quality conditions. A map of randomly selected sites used for biological assessment, along with their biological condition scores is shown in Figure 2-.

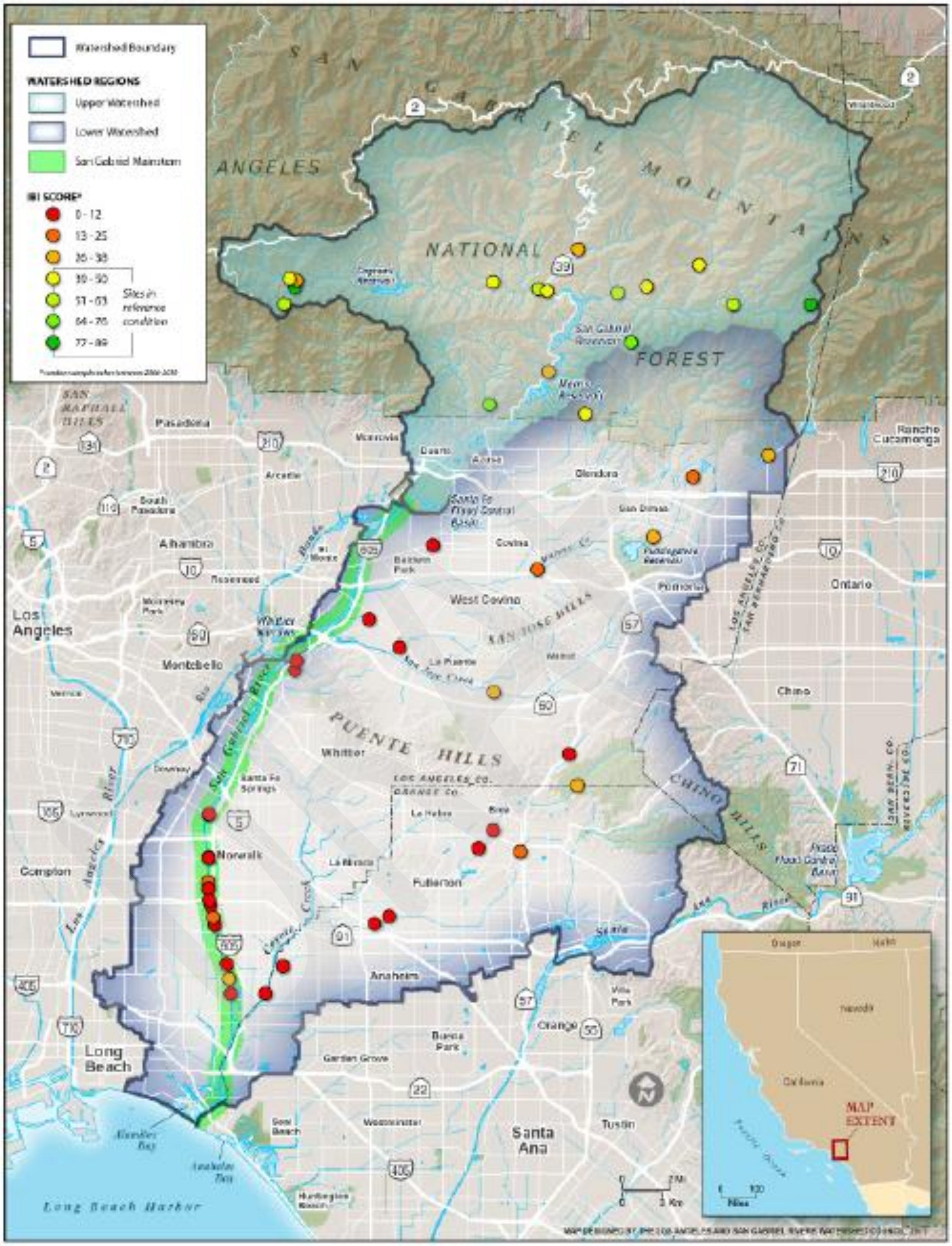


Figure 2-8: SGRRWMP stream monitoring locations used for water quality and biological conditions assessment

The following is a summary of significant observations found after the first five years of monitoring under this program[18]:

- "There were few exceedances of dry weather Basin Plan standards for any water quality parameters measured during the 5-year period."
- "Nutrients were greatest on the mainstem, while most metals were greatest in lower tributaries. An exception to this was dissolved zinc, which was much greater on the mainstem compared to other sub-regions."
- "While nutrients and metals were elevated in the lower tributaries and mainstem, they rarely exceeded water quality objectives and did not strongly correlate with the biotic condition."
- "Nitrate and ammonia were well below toxicity thresholds/standard and there were no exceedances of the hardness-adjusted California toxics rule for any dissolved metal."
- "Organophosphorous and pyrethroid pesticides were nearly always below method detection limits (i.e. Non-detect)."
- "A total of 61 water samples tested for acute and chronic toxicity using water fleas"…"All of the toxic endpoints measured during the five years were in the lower or upper watershed, with no toxicity measured on the San Gabriel River mainstem."
- 317 water samples collected at the confluence of 5 major tributaries with the San Gabriel River during the summers of 2007, 2008, and 2009 were analyzed for E. coli. "47% of these samples exceeded standards with the greatest rate of exceedances occurring at San Jose Creek (range 89 to 100%) and the fewest at Coyote Creek (10 to 29%)."[19]
- "San Jose Creek conveys the largest [relative] loads of most constituents during wet weather, particularly total suspended solids (TSS)."[29]

The Lower SGR Watershed will use these results, and continue to track future SGRRMP results to help target watershed control measures identified in the WMP.

2.2.5 ORANGE COUNTY COYOTE CREEK SOURCE CONTROL PLAN

The Orange County NPDES Municipal Stormwater Permit (Order No. R8-2009-0030) requires Permittees with discharges tributary to Coyote Creek to develop and implement a constituent-specific source control plan to include a monitoring program to control the discharge of copper, lead and zinc into Coyote Creek and other tributaries in Orange County that discharge into the San Gabriel River.

The Coyote Creek Source Control Plan outlines the monitoring and source control strategy for jurisdictions within Orange County draining to Coyote Creek. This Plan identifies monitoring locations to be used in determining source control strategies and compliance with TMDL targets for Coyote Creek within the Orange County jurisdiction. According to this plan, stormwater discharges from Los Angeles County are contributed through North Fork Coyote Creek, and at the confluence with the San Gabriel River. All monitoring locations identified in this plan that are downstream of North Fork Coyote Creek

[18] Morris, K. et al.

[19] Only approximately 10% of the Lower SGR Watershed contributes discharge to San Jose Creek

are located on the Orange County side of the confluence with the Creek, and are meant to be representative of Orange County drainage. Therefore, data collected from these locations cannot be used to characterize Los Angeles County MS4 discharges at this time. The Watershed Group will continue to remain apprised of monitoring results collected through the Orange County Source Control effort, and revise this WMP should data suggest that the Los Angeles County MS4 may be contributing to exceedances of water quality objectives.

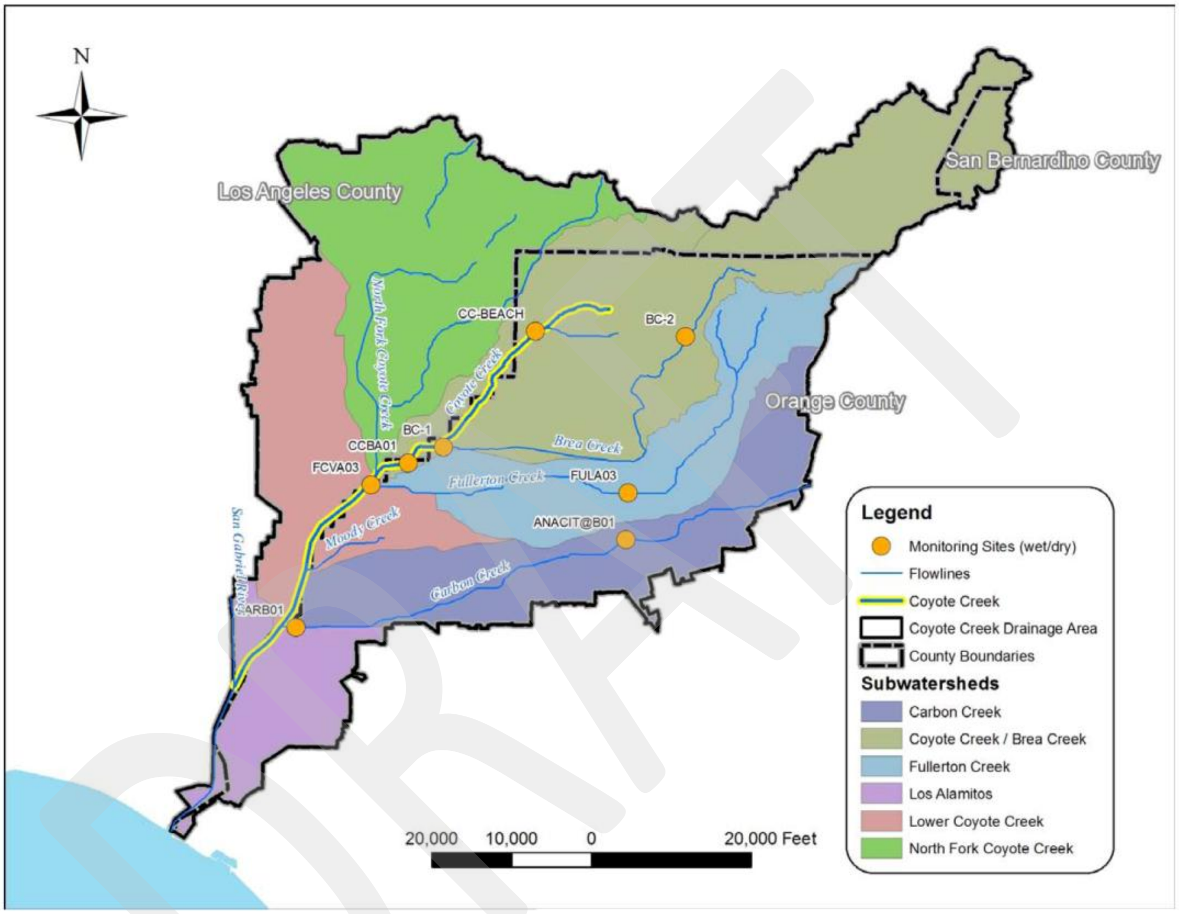


Figure 2-9: County of Orange, OC Watersheds Program Source Control Plan Monitoring Locations along Coyote Creek (*Coyote Creek Watershed Water Quality Monitoring Plan, Figure 2-1*)

2.3 Source Assessment

This section identifies the potential sources of pollutants within the Lower LSGR Watershed for the waterbody-pollutants classified in section 2.2. Information was gathered from several water quality monitoring programs and special studies related to pollutant sources and conditions that contribute to the highest water quality priorities to identify known and suspected stormwater and non-stormwater pollutant sources to and from the MS4.

The pollutants addressed in this section are bacteria, nutrients, metals and sediment. In order to generally describe the potential sources in the Lower LSGR Watershed for these pollutants, pollutant sources have been divided into the following categories: NPDES discharges, road infrastructure, atmospheric deposition, and wastewater from sanitary sewer and SSOs.

2.3.1 NPDES Sources

Pollutant sources may be categorized as either point sources or non-point sources. Point source discharges are regulated through National Pollutant Discharge Elimination System (NPDES) permits. Point sources include those associated with the MS4 (stormwater and urban runoff) and other NPDES discharges. Stormwater runoff in the watershed is regulated through four types of permits including MS4 permits, a statewide stormwater permit for Caltrans; a statewide Construction General Permit (CGP); and a statewide Industrial General Permit (IGP). The NPDES IGP regulates stormwater discharges and authorized non-stormwater discharges from ten specific categories of industrial facilities, including manufacturing facilities, oil and gas mining facilities, landfills, and transportation facilities. The NPDES CGP regulates stormwater discharges from construction sites that result in land disturbances equal to or greater than one acre. Point source discharges from IGP, CGP, residential, commercial and transportation activities can be a significant source of pollutant loads.

Non-point sources by definition include pollutants that reach waters from a number of land uses and are not regulated through NPDES permits. Non-point sources include existing contaminated sediments within the watershed and direct air deposition to the waterbody surface.

The following provides additional discussion regarding the presence of pollutants in stormwater runoff within the watershed.

Bacteria

Specific sources of bacteria are associated with categories such as, anthropogenic, non-anthropogenic, and environmental sources, which may include:

- Sanitary sewer overflows (SSOs), leaks and spills; illicit connections of sanitary lines to the storm drain system.
- Animal wastes – the bacteria indicators used to assess water quality are not specific to human sewage; therefore, natural influences of fecal matter from animals and birds can also be a source of elevated levels of bacteria.

- Organic debris from gardens, landscaping, parks, food waste and illegal dumping from recreational vehicle holding tanks among others, can be a source of elevated levels of total coliform bacteria[1].
- Environmental – soils, decaying vegetation
- Illegal connections and illicit discharges (IC/IDs) to the MS4 are also very likely sources of bacteria in stormwater discharges. The following table includes data based on annual reports submitted to the LA County DPW (previous principal permittee), for illicit connections and illicit discharges. Current data on the constituents for the IC/IDs recorded during this period is not available.

Table 2-12 Illicit Connections/Illicit Discharges 2001-2012

Agency	Illicit Discharges	Illicit Connections
Artesia	21	0
Bellflower	135	0
Cerritos	100	0
Diamond Bar	149	1
Downey	467	6
Hawaiian Gardens	41	0
La Mirada	121	0
Lakewood	162	0
Long Beach	-	-
Norwalk	219	1
Pico Rivera	-	-
Santa Fe Springs	82	2
Whittier	7	1
Total	1,504	11

NUTRIENTS

Possible sources of nutrients include runoff from residential and commercial areas due to landscaping activities and use of fertilizer for lawns and gardens, this includes organic debris. Activities such as washing cars, parking lots and driveways can contribute to nutrients pollutants in the MS4 since most of the detergents used contain phosphorus. Other sources of nutrients include food wastes, domestic animal waste; and human waste from areas inhabited by the homeless. These pollutants build up and are then washed into the waterways through the storm drain system when it rains. These kinds of loads are typically highest during the first major storm flush and even after extended periods of dry weather when pollutants have accumulated. Other major categories of nutrients sources include:

Golf courses are a major source of nutrients since fertilization activities and watering rates are generally much greater than the residential and commercial areas. The excess nutrients accumulated in the soils can be transported to waterways through excess irrigation or stormwater runoff. There are approximately 23 golf courses within the watershed area.

METALS

Heavy metals including copper, lead, and zinc are Category 1 pollutants in the Lower SGR Watershed. Although naturally occurring, concentrations of these metals are a concern in many watersheds because of potential industrial and urban discharges. These types of sources include Industrial General

Permit (IGP) covered facilities, Construction General Permit (CGP) covered facilities, and other types of urban activities.

INDUSTRIAL GENERAL PERMIT ACTIVITIES

The types of facilities covered under the IGP have the potential for metal loads, in particular metal plating, transportation, scrap yards and recycling and manufacturing facilities.

According to the Storm Water Multiple Application and Report Tracking System (SMARTS) database, there are approximately 360 current active industrial permits within the watershed; and from 2002-2012 there have been approximately 471 combined, active/terminated, industrial permits. Approximately 204 violations were recorded on the SMARTS database for inspections conducted from 2002-2012. No further data is available to determine the kind of violations or the kind of pollutants these facilities contributed to.

Table 2-13 Active IGP Facilities as of May 1, 2014

Agency	Total
Artesia	3
Bellflower	1
Cerritos	8
Diamond Bar	0
Downey	22
Hawaiian Gardens	0
La Mirada	22
Lakewood	1
Long Beach	78
Norwalk	15
Pico Rivera	12
Santa Fe Springs	176
Whittier	22
Total	360

CONSTRUCTION GENERAL PERMIT ACTIVITIES

Discharges covered under the CGP also have the potential to contribute metals loading from construction sites. Sediment delivered from construction sites can contain metals from construction materials and heavy equipment. Additionally, metals can leach out of building materials and construction waste exposed to stormwater[20].

Pollutants sources from construction activities are not considered a major concern since the watershed is mainly built-out. However, according to the SMARTS database, there are approximately 127 current active constructions permits within the watershed; and from 2002-2012 there have been approximately 470 combined, active/inactive, construction permits. Approximately 36 violations were recorded on the SMARTS database for inspections conducted from 2002-2012. No further data is available to determine the kind of violations or the kind of pollutants these facilities contributed to.

[20] Raskin, L., M.J. Singer, and A. DePaoli. 2004. Final Report to the State Water Resources Control Board Agreement number 01-269-250. University of California, Davis, CA.

Table 2-14 Active CGP Facilities as of May 1, 2014

Agency	Total
Artesia	1
Bellflower	5
Cerritos	5
Diamond Bar	10
Downey	7
Hawaiian Gardens	2
La Mirada	4
Lakewood	44
Long Beach	4
Norwalk	8
Pico Rivera	9
Santa Fe Springs	10
Whittier	18
Total	127

LAND USE ACTIVITIES

These include general wear and tear of automotive parts which can be a significant source of metals. For example, brake wear can release copper, lead, and zinc into the environment and this contributes to concentrations of metals in urban runoff. Motor oil and automotive coolants spills are another potential land use source of metals. Pesticides, algaecides, wood preservatives, galvanized metals, and paints used across the watershed can also contain these metals. In the watershed, sources for these heavy metals have been identified as automotive repair, maintenance, fueling, cleaning and painting locations, metal fabrication facilities, and transportation activities and facilities.

The fertilizers used for lawn and landscape maintenance are also a source of metals and organic chemicals. Fertilizers, herbicides, and pesticides contain metals such as cadmium, copper, mercury, zinc, lead, iron, and manganese, which are also distributed when applying fertilizers and pesticides.

2.3.2 ROAD INFRASTRUCTURE SOURCES

Runoff from highways and roads carries a significant load of pollutants. Pollutants originate from cars, roadway degradation, and surrounding landscape. Typical contaminants associated with these include sediment, heavy metals, oils and grease, debris, fertilizers, and pesticides, among others[21]. The use and wear of cars is one of the most prevalent sources of roadway pollutants. A study found that cars are the leading source of metal loads in stormwater, producing over 50 percent of copper, cadmium, and zinc loads[22]. Vehicle brake pads constitute the single largest source of copper[23]. Simultaneously, tires, and engine parts are also a significant source of metals pollutants; almost 50 percent of tire wear accounts

[21] Caltrans (California Department of Transportation). 2003. *Discharge characterization study report*. California Department of Transportation, Sacramento, CA.
[22] Schueler, T., and H.K. Holland. 2000. *The Practice of Watershed Protection*. Center for Watershed Protection, Ellicott City.
[23] TDC Environmental 2004, *Copper Sources in Urban and Shoreline Activities*. San Francisco, CA.

for over 50 percent of the total cadmium and zinc loads[24]. Roadways can also be a source of nutrients because nutrients are found in fertilizers that are commonly applied.

Table 2-15: Typical Sources of Pollutants from Road Infrastructure

Source	Cadmium	Chromium	Copper	Iron	Nickel	Lead	Zinc	PAHs	Nutrients	Synthetic Organic Chemicals
Gasoline	●		●			●	●			
Exhaust					●	●		●		●
Motor oil and grease				●	●	●	●	●		
Antifreeze	●	●	●	●		●	●	●		
Undercoating						●	●			
Brake Linings			●	●	●	●	●			
Tires	●		●			●	●	●		
Asphalt	●		●		●		●	●		
Concrete			●		●		●			
Diesel Oil	●	●				●	●			●
Engine wear				●	●	●	●			
Fertilizers, pesticides, and herbicides	●		●	●	●		●		●	●

2.3.3 ATMOSPHERIC DEPOSITION

Atmospheric deposition is the direct and indirect transfer of pollutants from the air to surface waters. Pollutants in the atmosphere deposit onto solid surfaces and can then be washed off by rain, becoming part of the stormwater runoff that reaches the MS4. Atmospheric deposition of pollutants can be a large source of contamination to surface waters. Typical pollutants associated with atmospheric deposition are metals, PAHs, PCBs, and, to a lesser extent, nutrients. These pollutants enter the atmosphere from point sources (i.e., industrial facility emitting metals into the air). A comparison of trace metals contributions from aerial deposition, sewage treatment plans, industrial activities, and power plants is shown in Table 2-16.

Table 2-16 Comparison of source annual loadings to Santa Monica Bay (metric tons/year)

Metal	Aerial Deposition	Non-Aerial Sources		
		Sewage Treatment Plants	Industrial	Power Plants
Chromium	0.5	0.6	0.02	0.14
Copper	2.8	16	0.03	0.01
Lead	2.3	<0.01	0.02	<0.01
Nickel	0.45	5.1	0.13	0.01
Zinc	12.1	21	0.16	2.4

[24] Davis A.P., M. Shokouhian, and S. Ni. 2001. Loading estimates of lead, copper, cadmium, and zinc in urban runoff from specific sources. *Chemosphere.*

In addition to the pollutants listed above, nutrients are also atmospherically deposited. The annual loading of nitrogen through atmospheric deposition in the neighboring Los Angeles River watershed is 5,559 tons per year, with 845 tons per year in the neighboring Ballona Creek watershed.[25]

2.3.4 SANITARY SEWERS AND SEPTIC SYSTEMS

Sanitary sewer systems and septic systems are potential sources of contaminants. Aging systems in need of repair or replacement, severe weather, improper system operation and maintenance (O&M), clogs, and root growth can contribute to sanitary sewer leaks and overflows. When sanitary sewers overflow or leak, they can release raw sewage into the environment, which can contain pollutants such as suspended solids, pathogenic organisms, toxic pollutants, oil and grease but in particular, high concentrations of bacteria and nutrients.[19]

According to the SSO database in the California Integrated Water Quality System (CIWQS) a total of 198 SSOs have been recorded within the watershed since 2006. Table 2-17 includes information on the total reported SSO discharges.

TABLE 2-17 SSO TOTAL AND VOLUME

Total SSOs	Total Volume (gal)
418	206,344

[25] Lu, R., K. Schiff, S. Solzenbach, and D. Keith. 2004. *Nitrogen Deposition on Coastal Watersheds in the Los Angeles Region*. Southern California Coastal Water Research Project Annual Report. 2003-2004. pp. 73– 81.

2.3.5 SUMMARY

Typical sources of these pollutants are summarized in Table 2-18.

Table 2-18 Typical Sources of Pollutants

Potential Source	Pollutants: Bacteria	Nutrients	Metals	TSS/ Turbidity	Key References
NPDES Sources					
Residential land areas	●	●		●	1, 2, 3, 4, 5, 6, 7, 8, 9
Agricultural activities (i.e., animal operations, land applications)	●	●		●	7,8,9
Metallurgical industries/activities			●		7, 10
Construction activities			●	●	7, 9
Industrial/municipal activities	●		●		6, 11
POTW discharges			●		12
Landscaping, fertilizers		●			7, 9
Homeless encampments	●				13
Pet waste	●	●			9,
Wildlife	●				7, 1
Native geology		●	●		7, 1
Land surface erosion			●	●	7
Detergents		●			9
Car washing				●	7, 9
Road Infrastructure					
Transportation sources (i.e., copper brake pads, tire wear)			●		7, 9, 14, 15
Pavement erosion			●	●	7, 16
Atmospheric Deposition					
Industrial activities			●		7, 10
Construction activities			●		7, 9
Roofing			●		7
Resuspension of historic emissions in road dusts and soil particles			●		17
Land surface erosion		●			18
Sanitary Sewer and sanitary sewer overflows (SSOs)					
Sewer Leaks, SSOs, illicit discharges, septic systems	●	●		●	7, 5, 19
POTW discharges		●	●		12

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2.4 PRIORITIZATION

Section VI.C.5.a.iv of the MS4 Permit outlines factors that should be considered when developing the sequence of addressing pollutants of concern within the Lower SGR Watershed. Based on the source assessment analysis, Water Quality Priorities (WQPs) within the watershed have been determined based on the following:

- Highest WQPs: TMDLs
    - TMDL pollutants with past due interim or final limits
    - TMDL pollutants with interim and final limits that fall within the MS4 Permit term, or the time period: September 6, 2012 – October 25, 2017
    - Pollutants that are in the same class as a TMDL pollutant
- High WQPs: other receiving water considerations
    - Pollutants on the 303(d) List for which MS4 discharges are a suspected source based on findings from the source assessment
    - Pollutants that exceed receiving water limitations and the findings from the source assessment indicate the MS4 as a source (these pollutants will be evaluated based on monitoring data collected as part of the CIMP).
- All Category 1 pollutants with TMDL compliance deadlines that are past due, or that fall within the MS4 Permit term are prioritized as a Highest WQP. In addition, pollutants that fall within the same class (as defined in Section 2.1) as a TMDL pollutant with a compliance deadline that is past due or falls within the MS4 Permit term are prioritized as a Highest WQP. All other pollutants that are associated with the MS4 (based on the Source Assessment in Section 2.3) are prioritized as a High WQP. Table 2-19 summarizes the WQPs for the watershed based on the criteria described above.

Table 2-19: Priority Pollutants

Category	Class	Pollutant	Waterbody	Associated with MS4	Priority
1	Metals	Copper	San Gabriel Reach 1, Coyote Creek	Yes	Highest
		Lead	San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1	Yes	Highest
		Zinc	Coyote Creek	Yes	Highest
		Selenium	San Jose Creek Reach 1	UTD[a]	Highest
2	Nutrients	Ammonia	San Jose Creek Reach 1 and Coyote Creek	Yes	High
	Metals	Copper	San Gabriel River Reach 2, North Fork Coyote Creek, San Jose Creek Reach 1	Yes	Highest
		Lead	Coyote Creek	Yes	Highest
		Mercury	North Fork Coyote Creek	UTD	Highest
		Nickel	Coyote Creek	UTD	Highest
		Selenium	North Fork Coyote Creek	UTD	Highest
		Zinc	San Gabriel River Reach 2, San Jose Creek Reach 1, Coyote Creek	Yes	Highest
	Bacteria	Coliform & Enterococcus	San Gabriel River Reach 1, San Gabriel River Reach 2, San Jose Creek Reach 1, North Fork Coyote Creek and Coyote Creek	Yes	High
	Pesticides	Diazinon	Coyote Creek	Yes	High
	SVOC	PAHs	San Gabriel River Reach 2, San Jose Creek Reach1	Yes	High
	Water Quality Indicators / General	Chloride	San Jose Creek Reach 1	UTD	High
		Cyanide	Coyote Creek, San Gabriel Reach 2	UTD	High
		pH	San Gabriel Reach 1, Coyote Creek, and San Jose Reach 1	UTD	High
		Total Dissolved Solids	San Jose Creek Reach 1	Yes	High
		Toxicity	Coyote Creek, San Jose Creek Reach 1	Yes	High
3	Metals	Copper	North Fork Coyote Creek	Yes	Highest
		Selenium	San Gabriel River Reach 1	UTD	Highest
	Water Quality Indicators / General	Chloride	San Gabriel River Reach 2, San Jose Creek Reach 1, Coyote Creek	UTD	High
		Cyanide	North Fork Coyote Creek, San Jose Creek Reach 1	UTD	High
		Dissolved Oxygen	San Gabriel River Reach 1 & 2, Coyote Creek, San Jose Creek Reach 1	UTD	High
		MBAS	Coyote Creek, San Gabriel River Reach 2	UTD	High
		Sulfates	San Gabriel River Reach 2, San Jose Creek Reach 1	UTD	High
		Total Dissolved Solids	San Gabriel River Reach 2	Yes	High
		pH	North Fork Coyote Creek	UTD	High
		Alpha-Endusulfan	Coyote Creek	UTD	High
	Pesticides	Lindane	San Gabriel River Reach 2	UTD	High

[a] UTD – Unable to Determine at this time

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3 SELECTION OF WATERSHED CONTROL MEASURES

This chapter identifies Watershed Control Measures (WCMs) to implement through the Participating Agencies' jurisdictional stormwater management programs, and collectively on a watershed scale. The WCMs are structural and/or nonstructural controls designed with the following objectives:

- Prevent or eliminate nonstormwater discharges to the MS4 that are a source of pollutants from the MS4 to receiving waters.
- Implement pollutant controls necessary to achieve all applicable interim and final water quality-based effluent limitations and/or receiving water limitations pursuant to corresponding compliance schedules.
- Ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations.

The goal is to create an efficient program that focuses individual and collective resources on water quality priorities (WQPs). The WCMs are categorized as

- Minimum Control Measures (MCMs),
- Nonstormwater Discharge (NSWD) Measures and
- Targeted Control Measures (TCMs), which are designed to achieve applicable water quality-based effluent limitations and receiving water limitations.

Each WCM category may be further categorized as either structural or nonstructural (nonstructural includes operation and maintenance procedures and pollution prevention measures) as well as either existing or proposed. Combined with Chapter 4 (RAA) and Chapter 5 (Compliance Schedules), the WMP includes the nature, scope and timing of implementation for each WCM and provides interim milestones for the WCMs to achieve TMDL compliance. Also included are the responsibilities of each Permittee.

3.1 STRATEGY FOR SELECTION AND IMPLEMENTATION OF WATERSHED CONTROL MEASURES

Pursuant to Part VI.C.1.a of the MS4 Permit (Part VII.C.1.a - LB Permit), the Watershed Group has developed customized strategies, control measures and BMPs to implement the requirements of the MS4 Permit. Addressing WQPs will be based on a multi-faceted strategy initially focused on source control, including total suspend solids (TSS) reduction and runoff reduction. If pollutants are not generated or released, they will not be available for transport to the receiving waters. In addition, if soils can be stabilized, sediment controlled, and dry-weather runoff and initial flushes of stormwater runoff eliminated or greatly reduced, the major transportation mechanisms will be eliminated or greatly reduced, and fewer pollutants will reach the receiving waters.

The Watershed Group is particularly focused on source control because major sources of many of the highest WQPs, such as copper, lead and zinc, are released into the atmosphere, resulting in widespread

aerial deposition onto impervious surfaces in the Watershed. In addition, these pollutants are discharged directly onto streets, highways, parking lots, and driveways from motor vehicle components such as brakes, wheel weights, and tires. The Participating Agencies have concluded that the most cost-effective and long-lasting way to address WQPs is to develop and support state-wide or regional measures that will encourage or require, if necessary, product or material substitution at the manufacturing stage. This can be a complex and time-consuming process, but the payoff in water quality improvement can be tremendous.

For example, the recent efforts of the California Stormwater Quality Association (CASQA) and Sustainable Conservation that led to the passage of the SB 346 legislation is a milestone that will significantly reduce the level of copper in metropolitan area waters throughout the state. SB 346 requires incremental reduction in the amount of copper in vehicle brake pads, which constitute the single largest source of copper in metropolitan environments. Based on available information, which was largely developed through a lengthy collaboration among brake pad manufacturers, government agencies, and environmental groups in the Brake Pad Partnership, a preliminary estimate of copper runoff reduction due to this piece of legislation was developed[1]. The estimate examined three scenarios and determined a 45- 60% reduction in copper in runoff could be attributed to reduction of its use in brake pads. Already in effect, new edge codes required on brake pads sold in California will provide information on copper content and a notice that on and after January 1, 2014 any motor vehicle brake friction materials sold in California must contain no more than 0.1 percent by weight of the following materials: cadmium and its compounds, chromium (VI) salts, lead and its compounds, mercury and its compounds, and asbestiform fibers.

In addition, the Department of Toxic Substances Control (DTSC) adopted new Safer Consumer Product Regulations that became effective October 1, 2013. These regulations contain a process for identifying and prioritizing Chemicals of Concern in Priority Products containing these constituents, as well as a process for eliminating or reducing the adverse impacts of Chemicals of Concern in Priority Products. It will apply to most consumer products placed into the stream of commerce in California. It specifically applies to adverse environmental impacts, including adverse water quality impacts, and it contains a petition process for identification and prioritization of chemicals and projects. CASQA, supported by Watershed Group, has started the process of conducting research and building a file of critical information to support the designation of zinc in tires as a future priority product/constituent combination.

As explained later in this chapter, many of the new requirements of the MS4 Permit also involve enhanced source control measures that will be implemented such as enhanced inspections programs and outfall screening measures. The *Targeted Control Measures* section of this chapter supplements these efforts with targeted source control measures such as incentives for irrigation control and upgraded street sweeping equipment, designed with the objective of achieving interim and final water quality-based effluent limitations and/or receiving water limitations.

[1] Based on the Los Cerritos Channel Watershed Group commissioned study, "Estimate of Urban Runoff Copper Reduction in Los Angeles County from the Brake Pad Copper Reductions Mandated by SB 346."

In concert with these initial source control efforts, which constitute 10% of the load reduction in the RAA (higher reductions may be realized), structural controls will also be implemented. The MS4 Permit mandates implementation of structural LID BMPs for certain classes of new developments and roadway projects. In addition, the *Targeted Control Measures* section of this chapter describes supplemental targeted structural BMPs. These structural controls are used to meet the load reduction requirements and structural BMP capacities for each participating agency as noted in Chapter 4 (the RAA) following the schedules provided for each agency in Chapter 5 (Compliance Schedules).

3.2 MINIMUM CONTROL MEASURES

The Minimum Control Measures (MCMs) are baseline WCMs required for all Permittees. The MCMs are defined in the MS4 Permit (excluding modifications set forth in an approved WMP) and are generally implemented individually by each Permittee. The objectives of the MCMs are to 1) result in a significant reduction in pollutants discharged into receiving waters and 2) satisfy the requirements of 40 CFR §122.26(d)(2)(iv). The MCMs are separate from Targeted Control Measures, which are developed by the Watershed Group and included in the WMP to specifically address WQPs.

The MS4 Permit allows the modification of several MCMs programs, so long as the modified actions are set forth in the approved WMP and are consistent with 40 CFR §122.26(d)(2)(iv). The modifications are based on an assessment to identify opportunities for focusing resources on WQPs. The term “modifications” refers only to instances where language from the MS4 Permit MCM provisions is removed and/or replaced. Any control measures that are strictly enhancements of the existing programs (i.e. do not conflict with the MS4 Permit MCM provisions) are included in the separate category of Targeted WCMs.

The following sections include a summary of the assessment of each MCM program as well as a determination as to whether each Participating Agency will implement the MCM provisions 1) as explicitly stated in the corresponding section of the MS4 Permit or 2) with modifications to focus resources on WQPs. Independent of the determinations made, the Agencies may consider additional MCM modifications through the Adaptive Management Process. Implementation of the MCMs will follow the approval of this WMP by the Regional Board Executive Officer following MS4 Permit §VI.D.1.b (LB Permit - §VII.D.1.ii).

3.2.1 LOS ANGELES COUNTY FLOOD CONTROL DISTRICT MINIMUM CONTROL MEASURES

The LACFCD will implement the MCMs as defined from §VI.D.1 to §VI.D.4 of the MS4 Permit.

3.2.2 ASSESSMENT OF MINIMUM CONTROL MEASURES (CITIES ONLY)

Pursuant to MS4 Permit §VI.C.5.b.iv.(1).(a) (LB Permit - §VII.C.5.h.i), the following section is an assessment of the MS4 Permit MCMs, intended to identify opportunities for focusing resources on WQPs.

3.2.2.1 DEVELOPMENT CONSTRUCTION PROGRAM

ASSESSMENT

Although controlling sediment is not a WQP, the reduction of sediment through an effective Development Construction Program will address WQPs. This is because sediment mobilizes other pollutants, including many of the WQP pollutants. As such the Development Construction Program is an integral component of each City's jurisdictional stormwater management program.

Compared to the prior MS4 Permit, the current Permit expands the provisions for the Development Construction Program. This expansion includes additional or enhanced requirements for plan review, site tracking, inspection frequencies, inspection standards, BMP implementation and employee training. If implemented effectively, these enhancements will aid in the control of sediment within the Watershed, and consequently, will address WQPs. As such, no modifications to the provisions of the Development Construction Program have been identified.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.8 of the MS4 Permit (§VII.D.K of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.2 INDUSTRIAL/COMMERCIAL FACILITIES PROGRAM

ASSESSMENT

The MS4 Permit provisions for the Industrial/Commercial Facilities Program provide opportunities for customization to address WQPs. Specifically, §VI.D.6.e.i.4 (§VII.D.G.5.i.4 - LB Permit) states that industrial inspection frequencies may be modified through the WMP development process. The Cities propose modifying the inspection frequencies of both industrial and commercial facilities based on a facility prioritization scheme that considers WQPs. For example, facilities that are deemed to have a high potential to discharge metals (a WQP pollutant) may be prioritized as "High" and inspected more frequently while facilities that have a small likelihood to adversely impact WQPs may be prioritized as "Low" and inspected less frequently.

DETERMINATION

Sections VI.D.6.d and VI.D.6.e of the MS4 Permit (Sections VII.D.G.4 and VII.D.G.5 of the LB Permit) will be replaced with the language in Table 3-3, which is located in the following *New Fourth Term Permit MCMs* section of this chapter and is identified as MCM-ICF-3.

In order to provide clarity to the Cities, one combined guidance document has been prepared for the Program, with the prioritization and revised inspection frequencies included – see Appendix A-3-1. The document is also intended to assist the Cities in the development and implementation of a jurisdictional program.

3.2.2.3 Illicit Connection and Illicit Discharges Elimination Program

Assessment

The purpose of the Illicit Connection and Illicit Discharges Elimination (ICID) Program is to detect, investigate and eliminate IC/IDs to the MS4. In order to address WQPs, a potential modification to MS4 Permit provisions would be the inclusion of a proactive approach for the detection of illicit discharges. However such an approach will be addressed through nonstormwater outfall based screening monitoring as outlined in the MRP. Also, such activities do not conflict with the MS4 Permit provisions for an IC/ID Program, and as such would be classified as a Targeted Control Measure. As such there is no need to modify the base provisions of the program.

Determination

The Cities will implement the MCMs as defined in §VI.D.10 of the MS4 Permit (§VII.D.M of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.4 Planning and Land Development Program

Assessment

Following MS4 Permit §VI.C.5.b.iv.1.a (LB Permit - §VII.C.5.h.i.), the Planning and Land Development Program was not assessed for potential modifications.

Determination

The Cities will implement the MCMs as defined in §VI.D.7 of the MS4 Permit (§VII.D.J of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.5 Public Agency Activities Program

Assessment

The Public Agency Activities Program is divided into several sub-programs. Many of the MS4 Permit provisions within the sub-programs consist of baseline BMPs that do not suggest modification. The sub-programs that do suggest a prioritized approach – such as street sweeping and catch basin cleaning frequencies – already provide this opportunity (frequencies are based on a City's assessment of trash and debris generation). The Public Facility Inventory sub-program also provides a prioritization opportunity, based on the tracking data obtained for each facility. However, since these facilities are not subject to regular "public agency" inspections as in the Industrial/Commercial Facilities Program, there is little utility in incorporating such a prioritization. The provisions of the public construction activities sub-program are considered an integral component of the jurisdictional stormwater program, for the reasons explained in the assessment of the Development Construction Program provisions. In summary there is no need to modify the MS4 Permit provisions of the program.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.9 of the MS4 Permit (§VII.D.L of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.6 PUBLIC INFORMATION AND PARTICIPATION PROGRAM

ASSESSMENT

The MS4 Permit allows a City to implement the requirements of the Public Information and Participation Program (PIPP) 1) by participating in a County-wide effort, 2) by participating in a Watershed Group effort, 3) individually within its jurisdiction or 4) through a combination of these approaches. The Cities will implement the PIPP following a combination of approaches. Consequently some clarifications of the MS4 Permit provisions are necessary.

In terms of modifications to address WQPs, the MS4 Permit provisions for the PIPP are not particularly prescriptive, thus allowing the Cities the flexibility to focus efforts on WQPs through the development of the program. As such, there is no need to modify the MS4 permit provisions of the program.

DETERMINATION

The table below provides clarification on elements of the MS4 Permit provisions for the PIPP:

Permit section	Clarification
§VI.D.5.c.(i) - MS4 Permit §VII.D.F.3.i - LB Permit Public Participation	Each City will participate in a County-wide sponsored PIPP to provide a means for public reporting of clogged catch basin inlets and illicit discharges/dumping, faded or missing catch basin labels, and general stormwater and nonstormwater pollution prevention information.
§VI.D.5.d - MS4 Permit §VII.D.F.4- LB Permit Residential Outreach Program	Each City will work in conjunction with a County-wide sponsored PIPP to implement the Residential Outreach Program. Elements of the program that will not be administered or implemented as a county-wide effort (currently the provision to provide educational materials to K-12 school children) will be addressed individually by each City or jointly on a watershed level. Through the adaptive management process, PIPP participation may develop into a watershed group or individual effort, or some combination of these approaches.

In order to provide clarity to the Cities, one combined guidance document has been prepared for the Program, with the approach for each provision (i.e. joint or individual effort) included – see Appendix A-

3-1. The document is also intended to assist the Cities in the development and implementation of a jurisdictional program.

3.2.2.7 PROGRESSIVE ENFORCEMENT AND INTERAGENCY COORDINATION

ASSESSMENT

Following MS4 Permit §VI.C.5.b.iv.1.a (LB Permit - §VII.C.5.h.i), the Progressive Enforcement and Interagency Coordination Program was not assessed for potential modifications.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.2 of the MS4 Permit (§VII.D.2 of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.3 THIRD TERM PERMIT MCMS

Until the WMP is approved by the Executive Officer of the Regional Board, the MCM provisions of the prior third term MS4 permit continue to be implemented by the participating agencies. Some of the MCMs of the current MS4 Permit are relatively unchanged carry-overs from the prior third term permit. The remaining MCMs are either enhancements of the third term MCMs or entirely new provisions. These new and enhanced fourth term MCMs are described in the following section.

3.2.4 NEW FOURTH TERM PERMIT MCMS (CITIES ONLY)

Part VI.D of the MS4 Permit and Part VII.D of the LB Permit (the MCM provisions) introduces many new provisions and program elements to be developed and incorporated within each participating agency's jurisdictional stormwater program. This section briefly describes the new and enhanced MCMs required for the Cities (City MCMs), excluding those required for the LACFCD in §VI.D.4. An MCM is considered new if it was not required by the prior MS4 Permit and is considered enhanced if it is an enhancement of a related provision of the prior MS4 Permit.

The details of each provision may be found in the relevant sections of the MS4 Permit, which are included. Unless an alternate date is provided in the MS4 Permit or in this section, the adoption date for the City MCMs coincides with the approval of the WMP by the Regional Board's Executive Officer.

3.2.4.1 STRUCTURAL CONTROLS

The new and enhanced MCMs consist primarily of nonstructural control measures, with the marked exception of the Planning and Land Development provisions, described as follows.

LID AND HYDROMODIFICATION

MS4 Permit §VI.D.7 (LB Permit §VII.D.J)

The LID and hydromodification provisions of the Planning and Land Development program are a significant enhancement from the prior MS4 Permit. The implementation of structural LID BMPs at new developments throughout the watershed will appreciably decrease the effective impervious area, reducing flow and, consequently, pollutant loads. The program is unique in that it will increase in effectiveness over time as more and more existing developments are redeveloped and bound to the LID/hydromodification requirements.

TRASH EXCLUDER INSTALLATION

MS4 Permit §VI.D.9.h.vii.(1) (LB Permit §VII.D.L.8. vii.(1))

In areas that are not subject to a trash TMDL, the Public Agency Activities Program includes a requirement to install excluders (or equivalent devices) on or in Priority A (MS4 Permit §VI.D.9.h.iii.(1)), LB Permit §VII.D.L.8. iii.(1)) area catch basins or outfalls to prevent the discharge of trash to the MS4. For LA MS4 Permittees, the deadline is no later than four years after the effective date of the Permit. This provision may be supplanted by the statewide trash amendments, which in their current draft iteration include the installation of full-capture devices in the priority land use areas of high density residential, industrial, commercial, mixed urban and public transportation stations as a compliance route.

3.2.4.2 NONSTRUCTURAL CONTROLS

Table 3-2 lists the new and enhanced nonstructural City MCMs as well as the new and enhanced NSWD measures. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's Comprehensive Load Reduction Plan (CLRP) for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The pages following Table 3-2 describe each of the listed controls.

Table 3-1 Pollutant Category versus Water Quality Classification

Waterbody-pollutant classification	Type of pollutant								
	Bacteria	Metals	Organics	Sediment	Pesticides	Nutrients	Oil and grease	Dissolved minerals	Trash
Category 1		✗						✗	
Category 2	✗	✗	✗	✗	✗	✗		✗	
Category 3			✗					✗	

Table 3.2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

			BMP effectiveness with respect to WQPs					Agency												
#	WCM Category/ID	WCM	Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Planning and Land Development																		
1	MCM-PLD-1	Amend development regulations to facilitate LID implementation	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
2	MCM-PLD-2	Post-construction BMP tracking, inspections and enforcement	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Existing Development																		
3	MCM-ICF-1	Increase in facility types inspected and number of inspections conducted	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
4	MCM-ICF-2	Business assistance program and BMP notification	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
5	MCM-ICF-3 (TCM-ICF-1)	Prioritize facilities/inspections based on water quality priorities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Construction																		
6	MCM-DC-1	Enhanced plan review program	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
7	MCM-DC-2	Enhanced inspection standards and BMP requirements	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

Table 3.2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency												
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
8	MCM-DC-3	Increased inspection frequencies	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
9	MCM-TRA-1	Enhanced staff training program	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Illicit Discharge Detection/Elimination																		
10	MCM-ICID-1	Enhanced IC/ID enforcement and written procedures	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
11	NSWD-1	Outfall screening and source investigations	◈	◈	◈	◈	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
12	MCM-TRA-1	Enhanced staff/contractor training	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Dry weather runoff reduction																		
13	NSWD-1	Outfall screening and source investigations	◈	◈	◈	◈	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
14	NSWD-2	Enhanced conditions for NSWDs, including irrigation reduction	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Public Information and Participation																		

Table 3.2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency												
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
15	MCM-PIP-1	Stormwater resources on City website	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Public Agency Activities																		
16	MCM-PAA-1	Enhanced BMP requirements for fixed facility/field activities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
17	MCM-PAA-2	Reprioritization of catch basins and clean-out frequencies	◆	◆	◇	◆	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
18	MCM-PAA-3	Integrated Pest Management Program	◈	◈	◈	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
19	MCM-PAA-4	Enhanced measures to control infiltration from sanitary sewers	◇	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
20	MCM-PAA-5	Inspection and maintenance of Permittee owned treatment controls	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
21	MCM-TRA-1	Enhanced inspector/staff training	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

✗ – To be implemented by agency within current MS4 Permit term. MCM – Minimum Control Measure. NSWD – Nonstormwater discharge measure.

◆ Primary pollutant reduction ◈ Secondary pollutant reduction ◇ Pollutant not addressed

BMP effectiveness ratings based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012.

ENHANCED STAFF/CONTRACTOR TRAINING PROGRAMS

MCM-TRA-1

MS4 Permit §VI.D.7.d.iv.(b), §VI.D.8.l, §VI.D.9.k, §VI.D.10.f (LB Permit §VII.D.J.5.iv.(b), §VII.D.K.xiv, §VII.D.L.11, §VII.D.M.6)

Measures introduced:

- Prescriptive staff training requirements to the Development Construction, Illicit Connections and Illicit Discharges Elimination and Public Agency Activities Programs. For example, relevant staff involved with the Construction Program must be knowledgeable in procedures consistent with the State Water Board sponsored Qualified SWPPP Practitioner/Developer (QSP/QSD) program.
- Inspections of structural BMPs under the Planning and Land Development Program must be conducted by trained personnel.
- Outside contractors are bound to the same training standards as in-house staff

These new and enhanced provisions will increase the overall effectiveness of the JSWMPs.

AMEND DEVELOPMENT REGULATIONS TO FACILITATE LID IMPLEMENTATION

MCM-PLD-1

MS4 Permit §VI.C.4.c.i, §VI.D.7.d.i (LB Permit §VII.C.4.c.i, §VII.D.J.5.i)

The participating agencies have developed and adopted LID ordinances and Green Street Policies. These measures will facilitate LID implementation.

POST-CONSTRUCTION BMP TRACKING, INSPECTIONS AND ENFORCEMENT

MCM-PLD-2

MS4 Permit: §VI.D.7.d.iv (LB Permit §VII.D.J.5.iv)

The Cities must track post-construction BMPs, conduct BMP verification and maintenance inspections and follow the Progressive Enforcement Policy in cases of non-compliance. This will improve the effectiveness of the Planning and Land Development program.

INCREASE IN FACILITY TYPES INSPECTED AND NUMBER OF INSPECTIONS CONDUCTED

MCM-IFC-1

MS4 Permit: §VI.D.6.d, §VI.D.6.e (LB Permit §VII.D.G.4, §VII.D.G.5), also affected by NPDES No. CAS000001, the State Water Resources Control Board's (SWRCB) Industrial General Permit (IGP)

Measures introduced:

- Inspect nurseries and nursery centers
- Perform follow-up *No Exposure Verification* inspections for at least 25% of industries that have filed a *No Exposure Certification (NEC)*
- Inspect light industrial facilities. Under the SWRCB's IGP adopted in April 1, 2014, light industries previously excluded from coverage under the IGP must now obtain coverage. Light industry is defined as SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39 and 4221-4225. This includes facilities ubiquitous

in industrial zones such as warehouses and machine shops. Although many of these facilities will likely qualify for the NEC, the type and number of facilities requiring inspection under the MS4 Permit will still increase.

These new and enhanced measures will increase the effectiveness of the Industrial/Commercial Facilities Program.

BUSINESS ASSISTANCE PROGRAM AND BMP NOTIFICATION ***MCM-IFC-2***

MS4 Permit: §VI.D.6.c (LB Permit §VII.D.G.3)

Measures introduced:

- Notify industrial/commercial owner/operators of applicable BMP requirements.
- Implement a Business Assistance Program to provide technical information to businesses to facilitate their efforts to reduce the discharge of pollutants in stormwater. The business assistance program described in the prior LA MS4 Permit was an optional provision.

These new and enhanced measures will increase the effectiveness of the Industrial/Commercial Facilities Program.

PRIORITIZE FACILITIES/INSPECTIONS BASED ON WATER QUALITY PRIORITIES ***MCM-IFC-3 (TCM-ICF-1)***

MS4 Permit: Modified MCM (replaces §VI.D.6.d, §VI.D.6.e), LB Permit: (replaces §VII.D.G.4, §VII.D.G.5)

A program has been developed to prioritize industrial/commercial facilities based on their potential to adversely impact WQPs. The resulting prioritization scheme determines the inspection frequency, replacing the uniform inspection frequency provided in the MS4 Permit. This allows Cities to concentrate efforts on WQPs. Sections VI.D.6.d and VI.D.6.e of the MS4 Permit (Sections VII.D.G.4 and VII.D.G.5 of the LB Permit) will be replaced with the language presented in Table 3-3.

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT *REPLACES§VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT*

MS4 PERMIT VI.D.6.d (LB Permit VII.D.G.4) Prioritize Critical Industrial/Commercial Sources

MS4 Permit VI.D.6.d.i (LB Permit VII.D.G.4.i) Prioritization Method

Prioritizing facilities by potential water quality impact provides an opportunity to optimize the effectiveness of the Industrial/Commercial Facilities Program and to focus efforts on water quality priorities. The inventory fields in Part VI.D.6.b.ii (VII.D.G.2.i) provide information that allows for such a facility prioritization. Based on these fields, Figure ICF-1 establishes a method for each City to prioritize all industrial/commercial facilities into three tiers – High, Medium and Low. A City may follow an alternative prioritization method provided it results in a similar three-tiered scheme.

Prioritization factors

Factor	Description
A	Status of exposure of materials and industrial/commercial activities to stormwater
B	Identification of whether the facility is tributary to a waterbody segment with impairments[2] for pollutants that are also generated by the facility
C	Other factors determined by the City, such as size of facility, presence of exposed soil or history of stormwater violations

Utilizing these factors, follow steps 1, 2 and 3 below:

1. Collect necessary information to evaluate factors

Factor	Initial method	Subsequent method
A	Satellite imagery	Results of stormwater inspection
B	Cross reference Table 4 or Table 5* with tributary TMDL/ 303(d) pollutants	Cross reference inspection results with tributary TMDL/ 303(d) pollutants
C	Varies	

* See pages 9 and 10 of Appendix A-3-1 ICF (guidance for the Industrial/Commercial Facilities Program)

2. Evaluate factors

Factor	Result	Score
A	Low or no exposure	0
	Moderate exposure	½
	Significant exposure	1
B	No*	0
	Yes**	1
C	Low	0
	Medium	½
	High	1

** No pollutant generation/impairment matches
*** ≥ 1 pollutant generation/impairment matches

3. Prioritize facilities

		C Score		
		0	½	1
A×B Score	0	Low	Medium	High
	½	Medium	High	High
	1	High	High	High

This method serves only as a guide to prioritization. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C.

Figure ICF-1: Industrial/Commercial Facility Prioritization Scheme

Step 3 in Figure ICF-1 may also be expressed by the relationships A·B + C ≥ 1 → High, 1 > A·B + C > 0 → Medium and A·B + C = 0 → Low. The purpose of multiplying A and B is to scale the impact of the presence of the

[2] CWA §303(d) listed or subject to a TMDL

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT

REPLACES §VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT

pollutants at a facility (B) by the likelihood that they will be discharged to the MS4 (A). Factor C quantifies water quality concerns that are independent of A or B and as such is incorporated through addition. The purpose of this numerical approach is to provide consistency to the prioritization process. It is intended solely as a guide. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C as listed in Figure ICF-1.

MS4 Permit VI.D.6.d.i.(1), (LB Permit VII.D.G.4.(1)), Prioritization Condition

The following condition will be met during the prioritization process: ***The total number of low priority facilities is less than or equal to 3 times the number of high priority facilities***. This condition is applied to maintain a minimum inspection frequency as explained in Section VI.D.6.e.i.

MS4 Permit VI.D.6.d.i.(2), (LB Permit VII.D.G.4.(2)), Prioritization Frequency

The default priority for a facility is Medium. Prioritization and reprioritization may be conducted at any time based on the discretion of the City. Figure ICF-2 is a flowchart of the prioritization process.

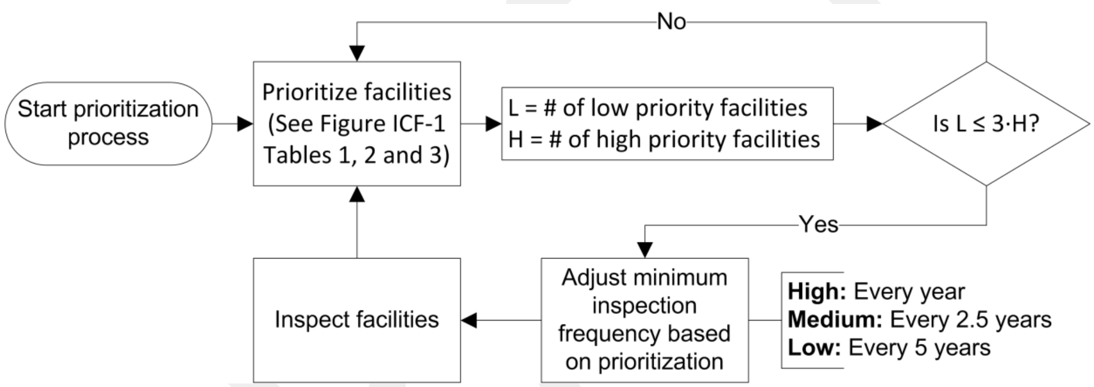

Figure ICF-2

MS4 Permit VI.D.6.e (LB Permit VII.D.G.5) Inspect Critical Industrial/Commercial Sources

MS4 Permit VI.D.6.e.i (LB Permit VII.D.G.5.i) Frequency of Industrial/Commercial Inspections

Following the facility prioritization method in Part VI.D.6.d.i, each City will inspect high priority facilities annually, medium priority facilities semi-quinquennially (once every 2.5 years) and low priority facilities quinquennially (once every five years). The frequencies may be altered by the exclusions defined in Part VI.D.6.e.i.(1). The condition in Part VI.D.6.d.i.(1) ensures at least the same average number of inspections conducted per year as the semi-quinquennial frequency defined in the MS4 Permit.

Each City will conduct the first compliance inspection for all industrial/commercial facilities within one year of the approval of their Watershed Management Program by the Executive Officer. A minimum interval of six months between the first and the second mandatory compliance inspection is required.

MS4 Permit VI.D.6.e.i.(1) (LB Permit VII.D.G.5.i(1)) Exclusions to the Frequency of Industrial Inspections

MS4 Permit VI.D.6.e.i.(1).(a) (LB Permit VII.D.G.5.i(1).(a)) Exclusion of Facilities Previously Inspected by the Regional Water Board

Each City will review the State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS) database at defined intervals to determine if an industrial facility has recently been inspected by the Regional Water Board. The first interval will occur approximately 2 years after the effective date of the Order.

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT ***REPLACES*§VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT**
The City does not need to inspect the facility if it is determined that the Regional Water Board conducted an inspection of the facility within the prior 24 month period. The second interval will occur approximately 4 years after the effective date of the Order. Likewise, the City does not need to inspect the facility if it is determined that the Regional Water Board conducted an inspection of the facility within the prior 24 month period. **MS4 Permit VI.D.6.e.i.(1).(b) (LB Permit VII.D.G.5.i(1).(b)) No Exposure Verification** As a component of the first mandatory inspection, each City will identify those facilities that have filed a No Exposure Certification with the State Water Board. Approximately 3 to 4 years after the effective date of the Order, each City will evaluate its inventory of industrial facilities and perform a second mandatory compliance inspection at a minimum of 25% of the facilities identified to have filed a No Exposure Certification. The purpose of this inspection is to verify the continuity of the no exposure status. **MS4 Permit VI.D.6.e.ii (LB Permit VII.D.G.5.ii) Scope of Industrial/Commercial Inspections** **MS4 Permit VI.D.6.e.ii.(1) (LB Permit VII.D.G.5.ii.(1) Scope of Commercial Inspections** Each City will inspect all commercial facilities to confirm that stormwater and nonstormwater BMPs are being effectively implemented in compliance with municipal ordinances. At each facility, inspectors will verify that the operator is implementing effective source control BMPs for each corresponding activity. Each City will require implementation of additional BMPs where stormwater from the MS4 discharges to a significant ecological area (SEA), a water body subject to TMDL provisions in Part VI.E, or a CWA §303(d) listed impaired water body. Likewise, for those BMPs that are not adequately protective of water quality standards, a City may require additional site-specific controls. **MS4 Permit VI.D.6.e.ii.(2) (LB Permit VII.D.G.5.ii.(2) Scope of Industrial Inspections** Each City will confirm that each industrial facility: a) Has a current Waste Discharge Identification (WDID) number for coverage under the Industrial General Permit, and that a Stormwater Pollution Prevention Plan (SWPPP) is available on-site; or b) Has applied for, and has received a current No Exposure Certification for facilities subject to this requirement; c) Is effectively implementing BMPs in compliance with municipal ordinances. Facilities must implement the source control BMPs identified in Table 10, unless the pollutant generating activity does not occur. The Cities will require implementation of additional BMPs where stormwater from the MS4 discharges to a water body subject to TMDL Provisions in Part VI.E, or a CWA §303(d) listed impaired water body. Likewise, if the specified BMPs are not adequately protective of water quality standards, a City may require additional site-specific controls. For critical sources that discharge to MS4s that discharge to SEAs, each City will require operators to implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards. d) Applicable industrial facilities identified as not having either a current WDID or No Exposure Certification will be notified that they must obtain coverage under the Industrial General Permit and will be referred to the Regional Water Board per the Progressive Enforcement Policy procedures identified in Part VI.D.2 of the MS4 Permit (Part VII.D.2 of the LB Permit).

ENHANCED PLAN REVIEW PROGRAM

MCM-DC-1

MS4 Permit: §VI.D.8.h, §VI.D.8.i (LB Permit: §VII.D.K.x, §VII.D.K.xi)

In general the MS4 Permit introduces provisions that conform to the SWRCB's Construction General Permit. For construction sites one acre or greater, measures include the following:

- Construction activity operators must submit Erosion and Sediment Control Plans (ESCPs) prior to grading permit issuance, developed and certified by a QSD to SWPPP standards.
- Operators must propose minimum BMPs that meet technical standards. The cities must provide these standards.
- Develop procedures and checklists to review and approve relevant construction plans.

These new and enhanced measures will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

ENHANCED INSPECTION STANDARDS/BMP REQUIREMENTS AT CONSTRUCTION SITES

MCM-DC-2

MS4 Permit: §VI.D.8.d, §VI.D.8.i, §VI.D.8.j (LB Permit: §VII.D.K.vi, §VII.D.K.xi, §VII.D.K.xii)

Measures introduced:

- Ensure BMPs from the ESCPs are properly installed and maintained.
- Ensure the minimum BMPs for sites less than one acre are installed and maintained.
- Develop and implement standard operating procedures for City stormwater inspections of construction sites.
- Require activity-specific BMPs for paving projects.

These new and enhanced measures will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

INCREASED INSPECTION FREQUENCIES

MCM-DC-3

MS4 Permit: §VI.D.8.j (LB Permit: §VII.D.K.xii)

The inspection frequency for construction sites one acre or more has significantly increased. The prior LA MS4 Permit required a minimum of one inspection during the rainy season. The current MS4 Permit requires monthly inspections year-round, as well as mandatory inspections based on the phase of construction. This enhanced measure will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

ENHANCED IC/ID ENFORCEMENT AND WRITTEN PROGRAM PROCEDURES

MCM-ICID-1

MS4 Permit: §VI.D.2, §VI.D.10; LB Permit: §VII.D.2 , §VII.D.M

Measures introduced:

- Develop and implement a Progressive Enforcement Policy that applies to the IC/ID Elimination, Development Construction, Planning and Land Development and Industrial/Commercial Facilities Programs. The Progressive Enforcement Policy is an augmentation of the policy listed in the prior LA MS4 Permit, which was restricted to the Industrial/Commercial Facilities Program.
- Maintain written procedures for receiving complaints, conducting investigations and responding to spills.

These new and enhanced measures will increase the effectiveness of the IC/ID Elimination program, as well as the related enforcement components of the Development Construction, Planning and Land Development and Industrial/Commercial Facilities Programs.

STORMWATER RESOURCES ON CITY WEBSITE ***MCM-PIP-1***

MS4 Permit: §VI.D.5.d.i.(4) (LB Permit: §VII.D.F.4.i.(4))

Measures introduced:

- The MS4 Permit introduces a requirement to maintain a stormwater webpage or provide links to stormwater websites via the City's website. The website (in-house or linked) will include:
  - Educational material and
  - Opportunities for the public to participate in stormwater pollution prevention and clean-up activities.

ENHANCED BMP REQUIREMENTS FOR FIXED FACILITY/FIELD ACTIVITIES ***MCM-PAA-1***

MS4 Permit: §VI.D.9.e (LB Permit: §VII.D.L.5)

Measures introduced:

- Implement effective source control BMPs for 65 specific pollutant-generating activities such as mudjacking, shoulder grading and spall repair.
- Contractually require hired contractors to implement and maintain the activity specific BMPs. Conduct oversight of contractor activities to ensure the BMPs are implemented and maintained.

These new and enhanced measures will increase the effectiveness of the Public Agency Activities program.

REPRIORITIZATION OF CATCH BASINS AND CLEAN-OUT FREQUENCIES ***MCM-PAA-2***

MS4 Permit: §VI.D.9.h.iii (LB Permit: §VII.D.L.8.iii)

In areas not subject to a trash TMDL, measures introduced include the following:

- Determine priority areas and update the map of catch basins with GPS coordinates and priority.

- Include the rationale or data to support the priority designations.

These new and enhanced measures will increase the effectiveness of the Public Agency Activities program.

INTEGRATED PEST MANAGEMENT PROGRAM

MCM-PAA-3

MS4 Permit: §VI.D.9.g (LB Permit: §VII.D.L.7)

The MS4 Permit introduces entirely new, prescriptive requirements to implement an Integrated Pest Management (IPM) Program for public agency activities and at public facilities. These requirements include adopting and verifiably implementing policies, procedures and/or ordinances that support the IPM program. Intertwined with the IPM provisions are additional requirements to control and minimize the use of fertilizers. These new and expansive measures will increase the effectiveness of the Public Agency Activities program and address WQPs.

ENHANCED MEASURES TO CONTROL INFILTRATION FROM SANITARY SEWERS

MCM-PAA-4

MS4 Permit: §VI.D.9.ix (LB Permit: §VII.D.L.ix)

The MS4 Permit introduces specific requirements to control infiltration from the sanitary sewer into the MS4. The measures include adequate plan checking, preventative maintenance, spill response, enforcement, interagency coordination and staff/contractor education. The requirements may be fulfilled through implementation of a Sewer System Management Plan in accordance with the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

INSPECTION AND MAINTENANCE OF PERMITTEE OWNED TREATMENT CONTROLS

MCM-PAA-5

MS4 Permit: §VI.D.9.x (LB Permit: §VII.D.L.x)

The MS4 Permit introduces requirements to implement an inspection and maintenance program for all Permittee owned treatment control BMPs, including post-construction treatment control BMPs. This measure will increase the effectiveness of the Public Agency Activities program.

3.3 NONSTORMWATER DISCHARGE MEASURES

The Participating Agencies will require dischargers that drain to their respective MS4s to implement the Nonstormwater Discharge (NSWD) Measures as defined in §III.A of the MS4 Permit (§IV.B of the LB Permit). If the Participating Agencies identify nonstormwater discharges from the MS4 as a source of pollutants that cause or contribute to exceedances of receiving water limitations, the WCMs will be modified and implemented – subject to the adaptive management process – to effectively eliminate the source of pollutants consistent with MS4 Permit §III.A and §VI.D.10 (LB Permit §IV.B and §VII.D.M). In these instances, potential WCMs may include prohibiting the nonstormwater discharge to the MS4, requiring the responsible party to 1) incorporate additional BMPs to reduce pollutants in the nonstormwater discharge or conveyed by the nonstormwater discharge or 2) divert to a sanitary sewer for treatment, or strategies to require the nonstormwater discharge to be separately regulated under a general NPDES permit.

It is important to note that the nonstormwater Outfall Based Screening and Monitoring Program (MRP §IX) introduces additional NSWD measures through the intensive procedures required for the identification of NSWDs from MS4 outfalls.

3.3.1 NEW FOURTH TERM PERMIT NONSTORMWATER DISCHARGE MEASURES

Parts III.A and VI.B (MRP IX) of the MS4 Permit (Parts IV.B and VII.B (MRP IX) of the Long Beach Permit Permit introduce new provisions and program elements that address NSWDs. This section briefly describes these new and enhanced NSWD measures. A NSWD measure is considered new if it was not required by the prior MS4 Permit and is considered enhanced if it is an enhancement of a related provision of the prior MS4 Permit.

Table 3-2 from the previous section lists the new and enhanced nonstructural NSWD measures as well as the City MCMs. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The following pages describe each of the listed controls. The details of each provision may be found in the relevant sections of the MS4 Permit, which are included. Unless an alternate date is provided in the MS4 Permit or in this section, the adoption date for the NSWD measures coincides with the approval of the WMP by the Regional Board's Executive Officer.

NSWD-1 OUTFALL SCREENING AND SOURCE INVESTIGATIONS

NSWD-1

MS4 Permit: §VI.B (MRP §IX) (LB Permit: MRP §IX)

The outfall screening and source investigation provisions of the MS4 Permit constitute an entirely new, expansive addition to each City's JSWMP. Implementing these new provisions will significantly support the control of unauthorized nonstormwater discharges.

ENHANCED CONDITIONS FOR EXEMPT NONSTORMWATER DISCHARGES

NSWD-2

MS4 Permit: §III.A (LB Permit: §IV.B)

The NSWD prohibitions of the MS4 Permit, which include specific measures to reduce irrigation runoff, are a significant enhancement from the prior LA MS4 Permit. Measures introduced include the following:

- Require the implementation of BMPs following established BMP manuals for discharges from non-emergency fire fighting activities and drinking water supplier distribution systems. Require specific BMPs for lake dewatering, landscape irrigation, pool and fountain discharges and non-commercial car washing.
- Require notification, monitoring (i.e. sampling) and reporting for drinking water supplier discharges and lake dewatering greater than 100,000 gallons.
- Require advance notification for any discharge of 100,000 gallons or more into the MS4.
- Minimize discharge of landscape irrigation through implementation of an ordinance specifying water efficient landscaping standards.
- Promote water conservation programs to minimize the discharge of landscape irrigation water into the MS4. This includes the following, where applicable:
    - Coordinate with local water purveyor(s) to promote:
        - Landscape water efficiency requirements for existing landscaping,
        - Drought tolerant, native vegetation, and
        - Less toxic options for pest control and landscape management.
    - Develop and implement a coordinated outreach and education program to minimize the discharge of irrigation water and pollutants associated with irrigation water.
- If monitoring results indicate that a conditionally exempt NSWD is a source of pollutants that causes or contributes to exceedances of applicable receiving water limitations and/or water quality-based effluent limitations, the Permittee must either:
    - Effectively prohibit the nonstormwater discharge to the MS4, or
    - Impose additional conditions, subject to approval by the Regional Water Board Executive Officer, or
    - Require diversion of the NSWD to the sanitary sewer, or
    - Require treatment of the NSWD prior to discharge to the receiving water.

Implementing these enhanced provisions will significantly support the control of unauthorized nonstormwater discharges.

3.4 Targeted Control Measures

Targeted Control Measures (TCMs) are additional control measures beyond the baseline MCMs and NSWD measures of the MS4 Permit that are intended to target the Watershed Group's WQPs. TCMs may be divided into two categories: nonstructural and structural. The selection of structural and nonstructural control measures to address WQPs within the Watershed Group is a vital component of the WMP planning process.

The Participating Agencies have already proposed and implemented a number of structural and nonstructural control measures in the watershed that collectively may contribute to considerable pollutant load reductions. These existing and planned BMPs provide a head start in the planning process to address WQPs within the Watershed Group. There are many different types of structural and nonstructural control measures that provide varying benefits from their implementation. The following sections describe Planned TCMs to be implemented, Potential TCMs that may be implemented (implementation is conditional upon factors such as site constraints, governing body approval, etc.) as well types of structural BMPs available to the Watershed Group.

3.4.1 Nonstructural Targeted Control Measures

3.4.1.1 Control Measures identified in TMDLs/Implementation Plans

There are no control measures identified in the San Gabriel River Metals TMDL. Planned and potential control measures to address the Metals TMDL are incorporated within the WCMs identified in this Chapter.

As recognized by the footnote in Attachment K-4 of the Permit, the Participating Agencies have entered into an Amended Consent Decree with the United States and the State of California, including the Regional Board, pursuant to which the Regional Board has released the Participating Agencies from responsibility for toxic pollutants in the Dominguez Channel and the Greater Los Angeles and Long Beach Harbors. Accordingly, no inference should be drawn from the submission of this CIMP or from any action or implementation taken pursuant to it that the Participating Agencies are obligated to implement the Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL, including this CIMP or any of the TMDL's other obligations or plans, or that the Participating Agencies have waived any rights under the Amended Consent Decree.

3.4.1.2 Total Suspended Solids Reduction

As explained in the introduction to this chapter, emphasis is placed on source control as a cost-effective measure to reduce pollutant loads. In this WMP, the chief approach is controlling Total Suspended Solids (TSS) at the source, as explained in the following section. Combining this approach with true source control, low impact development, green streets, and the MCMs constitutes a strong and effective initial implementation of the WMP, providing time for funding measures to be put in place to pay for the design, construction, and operation of stormwater capture and low flow diversion facilities and to develop working relationships with water and wastewater agencies.

BACKGROUND

TSS is the governing pollutant for metals. This is consistent with that found within the USEPA approved San Gabriel River Metals TMDL which represents metals (copper, lead, and zinc) through their associations with sediment. Reducing TSS in the receiving waters is anticipated to result in a significant reduction of metals in the receiving waters since both pollutant groups adhere to sediment; therefore initial implementation will focus on TSS reduction. Initial emphasis on TSS reduction should reduce the volume of water that ultimately needs to be captured and infiltrated or used to achieve standards for the Category 1 pollutants being addressed by the WMP – namely metals. This would make implementation of the WMP more cost-efficient.

Documentation is not available for the LSGR watershed; however it is available for the adjacent Los Cerritos Channel (LCC) Watershed, of which many LSGR cities drain to in part. For that watershed, Table 3-4 below provides a summary of TSS concentrations at the Stearns Street monitoring site over a 13-year period based on 74 wet-weather observations and 25 dry-weather observations.

Table 3-4: TSS statistics measured at LCC TMDL Monitoring Site

Statistic	Wet Weather (mg/L)	Dry Weather (mg/L)
No. of observations	74	25
Minimum	17	2
Maximum	1700	128
1st Quartile	96	7.5
Median	155	13
3rd Quartile	260	41
Mean	227	27
Standard deviation (n-1)	256	30

Although the RAA is only assuming a 5% pollutant load reduction through implementation of the TSS Reduction Strategy, the Watershed Group is targeting greater reductions. In an analysis performed by the Los Cerritos Channel WMP Group, it was determined that the expected reduction in the mean concentration of TSS at Stearns Street from 227 mg/l to 150 mg/l, which would be a 34% reduction in the mean concentration of TSS. The reduced value is consistent with those found in other watersheds with similar land uses.

TSS REDUCTION QUANTIFICATION

Although expected pollutant reductions resulting from the TSS Reduction Strategy are not modeled empirically within WMMS, a rudimentary quantification of the program's potential effectiveness may be calculated through the application of the Revised Universal Soil Loss Equation (RUSLE). The RUSLE is defined as

$$A = RKLS$$

where

$A =$ Spatially and temporally averaged soil loss per unit area per unit time. The result is expressed in the units elected for K and R.
$R =$ Rainfall-runoff erosivity factor (per unit time, generally one year),
$K =$ Soil erodibility factor (mass per unit area – an area density – generally tons per acre),
$L =$ Slope length factor and
$S =$ Slope steepness factor.

Using local values of R, K and LS obtained through maps available on the State Water Resources Control Board's website for the Construction General Permit[3],

$$R \approx 40\ year^{-1}$$
$$K \approx 0.32\ \frac{tons}{acre} \text{ and}$$
$$LS \approx 0.45$$

giving

$$A = (40\,year^{-1})\left(0.32\ \frac{tons}{acre}\right)0.45$$
$$A = 5.76\ \frac{tons}{acre\ year}.$$

Following the CGP Risk assessment procedures, 5.76 tons per acre year is within the "low sediment risk" designation.

During the preparation of this WMP, several participating agencies provided estimates of exposed soil within their jurisdiction that were not related to construction activities. The City of Bellflower field-verified these estimates, which totaled approximately 18 acres or about 0.5% of the City. Following the calculated value for A, this equates to approximately 100 tons of soil loss per year within the City.

Extrapolating this tonnage to the Lower SGR Watershed,

$$M_{TSS} = fWA = 0.005(50{,}240\ acres)\left(5.76\ \frac{tons}{acre\ year}\right)$$
$$M_{TSS} = 251\ acres\left(5.76\ \frac{tons}{acre\ year}\right)$$
$$M_{TSS} \approx 1{,}500\ \frac{tons}{year}$$

where

$M_{TSS} =$ Estimated annual soil loss within the LSGR watershed in tons,
$f =$ Estimated fraction of exposed soil (non-construction) within a given urbanized area and

[3] http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

$W =$ Watershed area.

Historical monitoring results from the adjacent Los Cerritos Watershed suggest that approximately 1.8 grams of zinc adheres to every kilogram of TSS, so that the zinc discharge M_{Zn} associated with M_{TSS} is

$$M_{Zn} \approx \left(\frac{1.8}{1000}\right) M_{TSS}$$
$$M_{Zn} \approx \left(\frac{1.8}{1000}\right)\left(1{,}500\ \frac{tons}{year}\right)\left(\frac{2000\ lbs}{1\ ton}\right)$$
$$M_{Zn} \approx 5{,}400\ \frac{lbs}{year}\ or\ 2{,}400\ \frac{kg}{year}.$$

Assuming that within the term of the MS4 Permits the TSS Reduction Strategy approaches an effectiveness goal of 10%, at this time the reduction would equate to 240 kg/year. Reductions of this magnitude for zinc (and other metals) will significantly aid in the achievement of the applicable WQBLs and RWLs of the MS4 Permit.

TSS REDUCTION STRATEGY

The core of the TSS Reduction Strategy is the Group's soil stabilization/sediment control. Two key components of this strategy are implementation of enhanced erosion and sediment control at construction sites, in accordance with each city's Development Construction Program, and stabilization of exposed soil not associated with construction sites. Initial assessments conducted by the LCC Watershed Group have indicated that vacant lots, Caltrans rights-of-way and transmission line rights-of-way are the primary areas of exposed soil not associated with construction sites. Specific control measures for these areas are explained in the following section.

3.4.1.3 LIST OF NONSTRUCTURAL TCMS

Table 3-5 lists planned and potential nonstructural TCMs for each participating agency. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The pages following Table 3-5 describe each of the listed controls.

The responses for each agency under Table 3-5 are defined as follows:

- ✗ *Planned TCM*. Under the presumption that 1) the TCM will likely not require approval of the governing body and 2) the governing body approves adequate staff/budget (if necessary), the TCM will be implemented.

- **P** *Potential TCM*. The TCM is under consideration by the agency, however implementation is contingent upon yet to be determined factors. These factors include approval by the governing body, additional time needed to inform the governing body and/or relevant staff and approval of service contracts. As such implementation cannot be assured at this time. If the Potential TCM is not adopted by the agency within the first two years of the implementation of the WMP, it will be reconsidered through the adaptive management process.

C *Completed TCM*. The TCM is preexisting (has been in effect for several years or more).

It is important to note that Caltrans and the LACFCD are operating regional stormwater programs and consequently incorporating localized institutional TCMs may not be feasible. As such their exclusion from such TCMs is justified.

The schedule of implementation for the TCMs is provided in Chapter 5.

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Planning and Land Development																			
1	TCM-PLD-1	Train staff/councils to facilitate LID and Green Streets implementation	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
2	TCM-PLD-2	Ordinance requiring LID BMPs for projects below MS4 Permit thresholds	◈	◆	◈	◆	◆					✗	N/A				✗				P
		Existing Development																			
3	TCM-ICF-1 (MCM-ICF-3)	Prioritize facilities/inspections based on water quality priorities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
4	TCM-TSS-1	Exposed soil ordinance	◈	◆	◈	◆	◇		P			C	N/A				P	P	P		✗
5	TCM-TSS-2	Erosion repair and slope stabilization on private property	◈	◆	◈	◆	◇		P				N/A				P	P	P		✗
6	TCM-TSS-3	Private parking lot sweeping ordinance	◆	◆	◈	◆	◇					✗	N/A				P				P
7	TCM-TSS-4	Sweeping of private roads and parking lots	◆	◆	◈	◆	◇					✗	N/A				P				P
8	TCM-TSS-5	Negotiations with regulated utilities for erosion control within R.O.W.	◈	◆	◈	◆	◇	**Watershed Group**													

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
9	TCM-RET-1	Encourage retrofitting of downspouts (downspout disconnect)	◈	◈	◈	◈	◆					✗	N/A				P		✗		P
		Dry weather runoff reduction																			
10	TCM-NSWD-1	Incentives for irrigation reduction practices	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
		Public Information and Participation																			
11	TCM-PIP-1	Refocused outreach to target audiences and water quality priorities	◆	◆	◆	◆	◆	**Watershed Group**													
		Public Agency Activities																			
12	TCM-PAA-1	Upgraded sweeping equipment (e.g. regenerative)	◆	◆	◈	◆	◇	C	✗	C	C	✗	N/A	C	C	C	P	C	C	C	✗
13	TCM-PAA-2	Adopt Sewer System Management Plan (SSMP)	◇	◆	◇	◇	◇	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
14	TCM-PAA-3	Adopt (nonstructural) statewide trash amendments	◈	◈	◈	◇	◇	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
15	TCM-PAA-4	Increased street sweeping frequency or routes	◆	◆	◈	◆	◇		P			P	N/A								P
16	TCM-TSS-6	Erosion repair and slope stabilization on public property and right of way	◈	◆	◈	◆	◇					✗	N/A				✗				✗

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Reporting/Adaptive Management																			
17	TCM-MRP-1	Enhanced tracking through use of online GIS MS4 Permit database	◈	◈	◈	◈	◈		P	✗	P	✗		✗	✗		P	✗	P	✗	✗
		Jurisdictional SW Management																			
18	TCM-SWM-1	Prepare guidance documents to aid in implementation of MS4 Permit MCMs	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Initiatives																			
19	TCM-INI-1	Copper reduction through implementation of SB 346	◆	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
20	TCM-INI-2	Lead reduction through implementation of SB 757	◆	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
21	TCM-INI-3	Support zinc reduction in tires through safer consumer product regulations	◆	◆	◇	◇	◇	**Watershed Group**													
22	TCM-INI-4	Apply for grant funding for stormwater quality/capture projects	◈	◆	◈	◆	◆					✗	✗				✗	✗	✗	✗	✗

✗ – Planned TCM. **P** – Potential TCM. **C** – Completed/implemented TCM.

◆ Primary pollutant reduction ◈ Secondary pollutant reduction ◇ Pollutant not addressed

BMP effectiveness ratings based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012.

ENHANCED TRACKING THROUGH USE OF ONLINE GIS MS4 PERMIT DATABASE **TCM-MRP-1**

Measures:

- Enter the enhanced tracking requirements of the fourth term MS4 Permit on an online GIS database management system dedicated to Phase I MS4 Permit compliance. Program elements addressed include all the MCMs (Development Construction, Planning and Land Development, Industrial/Commercial Facilities, Public Agency Activities, Public Information and Participation and Illicit Connection/Discharge Elimination) and the Monitoring and Reporting Program.
- Use the consolidated tracking data to:
    - Improve the effectiveness of the JSWMP (e.g. examine geospatial trends in IC/IDs, which could be used to strategically distribute public education materials) and WMP.
    - Assess the JSWMP and improve the annual reporting process.
    - Guide the adaptive management process through this assessment.

Many of the cities are implementing the measures through the use of *MS4Front*, a propriety online GIS MS4 Permit database management system.

TRAIN STAFF TO FACILITATE LID AND GREEN STREETS IMPLEMENTATION **TCM-PLD-1**

Measures:

- Conduct training for relevant staff in LID and Green Streets implementation prior to the onset of the programs. The elements of the training follow the provisions listed in MS4 Permit §VI.D.7.
- Educate governing bodies in LID and Green Streets implementation (optional).

Several cities have already accomplished these measures, which facilitate LID implementation and address WQPs.

ORDINANCE REQUIRES LID BMPS FOR PROJECTS BELOW MS4 PERMIT THRESHOLDS **TCM-PLD-2**

Measures:

- Adopt an ordinance requiring LID BMPs for smaller development projects that are below the thresholds for inclusion under the Planning and Land Development MCM Program.

Downey, South Gate and Signal Hill have already accomplished this measure, which facilitates LID and addresses WQPs.

PRIORITIZE FACILITIES/INSPECTIONS BASED ON WATER QUALITY PRIORITIES **TCM-ICF-1 (MCM-ICF-3)**

MS4 Permit: Modified MCM (replaces §VI.D.6.d, §VI.D.6.e)

A program has been developed to prioritize industrial/commercial facilities based on their potential to adversely impact WQPs. The resulting prioritization scheme determines the inspection frequency,

replacing the uniform inspection frequency provided in the MS4 Permit. This allows Cities to concentrate efforts on WQPs.

The complete program is detailed in the Minimum Control Measures section of this chapter – see MCM-ICF-3.

EXPOSED SOIL ORDINANCE — *TCM-TSS-1*

This TCM is an element of the TSS Reduction Strategy.

- Adopt ordinances that require landscaping, erosion control, and sediment control on vacant lots and other significant sources of exposed dirt.
- These efforts are distinct from construction activity control measures, which are addressed under the Development Construction MCM program.

The City of Whittier has successfully adopted and implemented such an ordinance. The ordinance also requires drought tolerant landscaping/xeriscaping. The ordinance language may be used as a template to develop similar ordinances for the other participating agencies, and as such is included in Appendix A-3-3.

EROSION REPAIR AND SLOPE STABILIZATION ON PRIVATE PROPERTY — *TCM-TSS-2*

This TCM is an element of the TSS Reduction Strategy. Measures include:

- If adopted, enforce the ordinances from TCM-TSS-1.
- Proactively enforce the existing stormwater ordinance regarding TSS-laden stormwater discharges (or potential discharges) from significant sources of exposed dirt and follow the Progressive Enforcement Policy. This may include observing site conditions prior to rain events and visual monitoring of stormwater discharges.

The City of Whittier has successfully implemented an ordinance in conformance with TCM-TSS-1. Pictures of some of the landscaped lots are included.

Wardman St and Philadelphia St, NW corner (1)

Wardman St and Philadelphia St, NW corner (2)

RB-AR13344

Greenleaf Ave and Philadelphia St, east side

Bailey St and Comstock Ave, NW corner

PRIVATE PARKING LOT SWEEPING ORDINANCE — *TCM-TSS-3*

This TCM is an element of the TSS Reduction Strategy.

- Adopt an ordinance that requires sweeping of private parking lots. An example ordinance from the City of Signal Hill is included in Appendix A-3-3.

SWEEPING OF PRIVATE ROADS AND PARKING LOTS — *TCM-TSS-4*

This TCM is an element of the TSS Reduction Strategy.

- If adopted, enforce the ordinance from TCM-TSS-3.
- Proactively enforce the existing stormwater ordinance regarding TSS-laden stormwater discharges (or potential discharges) for private roads and parking lots and follow the Progressive Enforcement Policy. This may include observing site conditions prior to rain events and visual monitoring of stormwater discharges.

NEGOTIATIONS WITH REGULATED UTILITIES FOR EROSION CONTROL WITHIN R.O.W. — *TCM-TSS-5*

This TCM is an element of the TSS Reduction Strategy.

- As a Watershed Group, pursue agreements between cities and utilities regarding erosion and sediment control in rights-of-way.

Since Caltrans is a participant in the Watershed Group, the cities will work with Caltrans to ensure that its rights-of-way are stabilized in a timely manner. However, since the public and private utilities whose rights-of-way must be stabilized are not members of the Watershed Group, negotiations with the utilities on how best to keep sediment from their rights-of-way out of the storm drain system will be necessary.

EROSION REPAIR AND SLOPE STABILIZATION ON PUBLIC PROPERTY — *TCM-TSS-6*

This TCM is an element of the TSS Reduction Strategy.

- Implement landscaping, erosion control, and sediment control on significant sources of exposed dirt on public property.

ENCOURAGE RETROFITTING OF DOWNSPOUTS (DOWNSPOUT DISCONNECT) *TCM-RET-1*

Measures:

- Encourage owners/operators of existing developments to disconnect existing downspouts from the MS4.

INCENTIVES FOR IRRIGATION REDUCTION PRACTICES *TCM-NSWD-1*

Measures:

- Provide incentives such as rebates for irrigation reduction (i.e. runoff reduction) practices such as xeriscaping and turf conversion.

All cities are currently involved in this effort through the Metropolitan Water District's water conservation rebate program.

REFOCUSED OUTREACH TO TARGET AUDIENCES AND WATER QUALITY PRIORITIES *TCM-PIP-1*

Measures:

- Within the Public Information and Education Program, elements such as material use/development and advertisements will address WQPs. The development of this effort will be ongoing throughout the MS4 Permit term, and may be regarded as a Watershed Group effort.

UPGRADED SWEEPING EQUIPMENT (E.G. REGENERATIVE) *TCM-PAA-1*

Measures:

- Upgrade street sweeping equipment to regenerative or other high-efficiency new technology.

Most of the Cities contract street sweeping to private companies. These companies have already phased in regenerative sweepers. The City of Whittier has been phasing in regenerative sweepers and expects to be 100% regenerative by the end of the MS4 Permit term. The City of Long Beach operates vacuum sweepers over regenerative due to maintenance concerns. However the City is considering contracting this service in the near future. If this occurs, the vacuum sweepers will likely be replaced with regenerative sweepers provided by the contractor.

ADOPT SEWER SYSTEM MANAGEMENT PLAN MEASURES: *TCM-PAA-2*

All agencies are enrolled in the statewide Waste Discharge Requirements for Sanitary Sewer Systems, which required the development and implementation of a Sewer System Management Plan (SSMP in mid 2009. The goal of the SSMP is to reduce and prevent sanitary sewer overflows (SSOs), as well as mitigate any SSOs that do occur. This goal also addresses WQPs. Elements of the SSMP include:

- Sanitary sewer system operation and maintenance program
- Design and performance provisions
- Overflow emergency response plan
- FOG Control Program
- System Evaluation and Capacity Assurance Plan

Following these SSMP elements will address WQPs.

ADOPT (NONSTRUCTURAL) STATEWIDE TRASH AMENDMENTS — *TCM-PAA-3*

Measures:

- Any mandatory nonstructural control measures required by the statewide Trash Amendments (currently in draft form) will result in trash load reductions. Since pollutants such as organics can adhere to plastic trash, secondary reductions for non-trash pollutants may be expected.

INCREASED STREET SWEEPING FREQUENCY OR ROUTES — *TCM-PAA-4*

Measures:

- Increase the street sweeping frequency, jurisdiction-wide or in high trash-generating areas and/or include additional routes (e.g. center medians and intersections).

PREPARE GUIDANCE DOCUMENTS TO AID IMPLEMENTATION OF MS4 PERMIT MCMS — *TCM-SWM-1*

This WMP includes in Appendix A-3-1 guidance documents and template forms to aid the Agencies in implementation of the MS4 Permit MCMs. These documents were developed to address two issues: 1) the MS4 Permit introduces many new and enhanced MCM provisions that do not have preexisting guidance documentation and 2) the model Stormwater Quality Management Program (SQMP) – which was required in the prior LA MS4 Permit and served as a guide to permit implementation – is now obsolete. Unlike the SQMP, the Agencies are not bound to the guidance and forms provided. They are provided as a resource to improve the effectiveness of the JSWMPs.

COPPER REDUCTION THROUGH IMPLEMENTATION OF SB 346 — *TCM-INI-1*

This initiative TCM has been completed recently. The impact of the TCM over time has been incorporated into the RAA.

LEAD REDUCTION THROUGH IMPLEMENTATION OF SB 757 — *TCM-INI-2*

This initiative TCM has been completed recently.

SUPPORT ZINC REDUCTION IN TIRES THROUGH SAFER CONSUMER PRODUCT REGULATIONS ***TCM-INI-3***

Measures:

- As a Watershed Group, plan to work with others to use the Department of Toxic Substances Control's Safer Consumer Product Regulations to reduce the zinc in tires, which one of the greatest sources of zinc in urban areas.

APPLY FOR GRANT FUNDING FOR STORMWATER CAPTURE PROJECTS ***TCM-INI-4***

Measures:

- Initiate Individual or multi-jurisdictional efforts to apply for grant funding for stormwater quality/capture projects.

In April 2014, The Gateway Water Management Authority received grant funding of $1.3 million for LID projects in the Cities of Downey, Norwalk, Pico Rivera, Santa Fe Springs and Whittier (as well as Lynwood, Paramount, Signal Hill and South Gate).

3.4.2 STRUCTURAL TARGETED CONTROL MEASURES

Structural TCMs are Structural BMPs, in addition to MCMs, designed with the objective to achieve interim and final water quality-based effluent limitations and/or receiving water limitations. Structural TCMs are an important component of the Watershed Group's load reduction strategy. These BMPs are constructed to capture runoff and filter, infiltrate, or treat it. If properly maintained, these BMPs can have high pollutant removal efficiencies (see the *Performance Evaluation of Structural BMPs* element of this section); however, they tend to be more expensive than nonstructural BMPs. The two prevailing approaches for implementing Structural BMPs are regional and distributed approaches. Both serve important purposes and should be considered in combination to determine the best possible implementation strategy to meet the Watershed Group's water quality goals.

DISTRIBUTED BMPS

Distributed Structural BMPs are generally built at the site-scale. They are intended to treat stormwater runoff at the source and usually capture runoff from a single parcel or site.

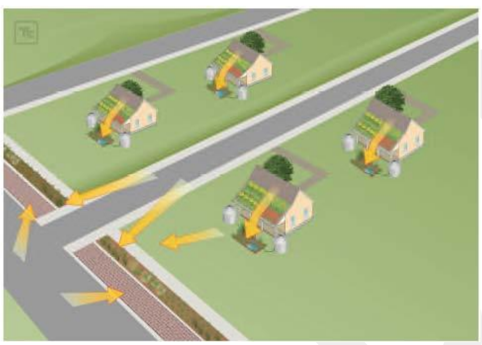

Figure 3-1: Distributed BMP Schematic

REGIONAL BMPS

Regional BMPs refer to large structural BMPs that receive flows from neighborhoods or large areas and may serve dual purposes for flood control or groundwater recharge[4].

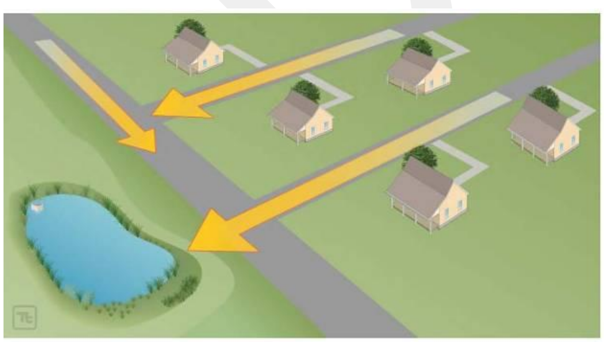

Figure 3-2: Regional BMP Schematic

[4] San Diego River Watershed Comprehensive Load Reduction Plan (2012)

3.4.2.1 Structural BMP Subcategories

Structural BMPs fall under a variety of subcategories that correspond to their function and water quality benefit. Some of the most common of these subcategories are described below. These subcategories will be used throughout the WMP to describe existing, planned, and potential regional and distributed BMPs.

Infiltration BMPs

Infiltration BMPs allow for stormwater to percolate through the native soils and recharge the underlying groundwater table, subsequently decreasing the volume of water discharged to the downstream waterbodies. These BMPs must be constructed in areas where the native soils have percolation rates and groundwater levels sufficient for infiltration.

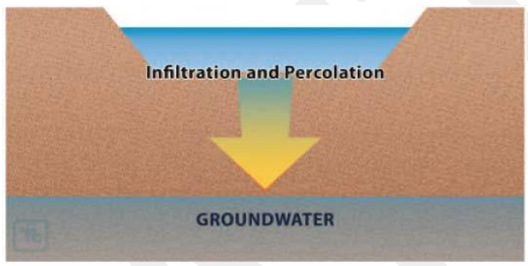

Figure 3-3: Infiltration BMP Schematic

Infiltration Basin

An infiltration basin consists of an earthen basin with a flat bottom. An infiltration basin retains stormwater runoff in the basin and allows the retained runoff to percolate into the underlying soils. The bottom of an infiltration basin is typically vegetated with dryland grasses or irrigated turf grass.

Infiltration Trench

An infiltration trench is a long, narrow, rock-filled trench with no outlet other than for overflow. Runoff is stored in the void space between stones and infiltrates through the bottom and sides of the trench. Infiltration trenches provide the majority of their pollutant removal benefits through volume reduction. Pretreatment is important for limiting amounts of coarse sediment entering the trench which can clog and render the trench ineffective.

Bioretention with no Underdrain

Bioretention facilities with no underdrain are landscaped shallow depressions that capture and infiltrate stormwater runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. The facilities normally consist of a ponding area, mulch layer, engineered media, and vegetation. As stormwater passes down through the media, pollutants are filtered, adsorbed, and biodegraded by the soil and vegetation.

Figure 3-4: Bioretention without underdrain schematic

DRYWELL

Drywells are similar to infiltration trenches in their design and function; however, drywells generally have a greater depth to footprint area ratio and can be installed at relatively deep depths. A drywell is a subsurface storage facility designed to temporarily store and infiltrate runoff. A drywell may be either a small excavated pit filled with aggregate or a prefabricated storage chamber or pipe segment.

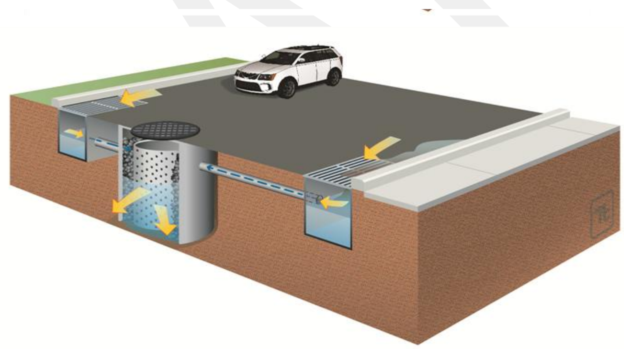

Figure 3-5: Drywell schematic

POROUS PAVEMENT

Porous pavement (concrete, asphalt, and pavers) contain small voids that allow water to pass through to a gravel base. They come in a variety of forms; they may be a modular paving system (concrete pavers, grass-pave, or gravel-pave) or poured in place pavement (porous concrete, permeable asphalt). Porous pavements treat stormwater and remove sediments and metals within the pavement pore space and gravel base. While conventional pavement results in increased rates and volumes of surface runoff, properly constructed and maintained porous pavements allow stormwater to percolate through the pavement and enter the soil below. This facilitates groundwater recharge while providing the structural and functional features needed for the roadway, parking lot, or sidewalk. The paving surface, subgrade, and installation requirements of porous pavements are more complex than those for conventional asphalt or concrete surfaces.

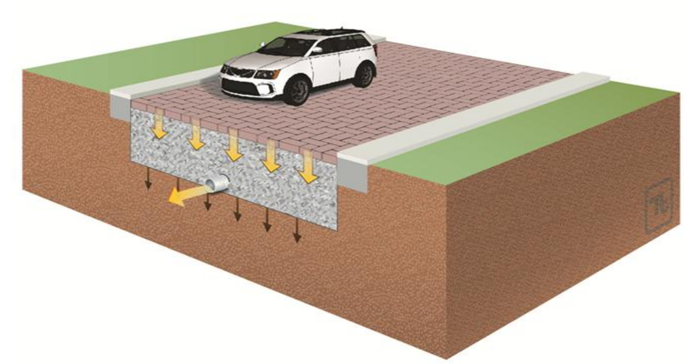

Figure 3-6: Porous pavement schematic

BIOTREATMENT BMPS

Biotreatment BMPs treat stormwater through a variety of physical, chemical, and biological processes prior to being discharged to the MS4 system. These BMPs should be considered where Infiltration BMPs are infeasible.

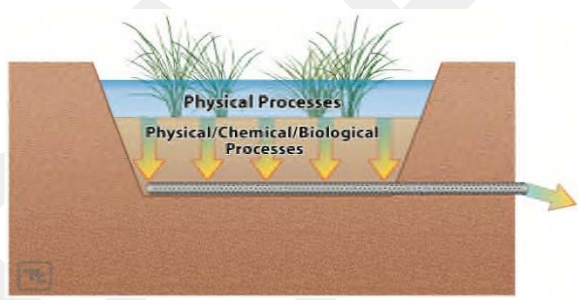

Figure 3-7: Biotreatment BMP schematic

BIORETENTION WITH UNDERDRAINS

Bioretention stormwater treatment facilities are landscaped shallow depressions that capture and filter stormwater runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. The facilities normally consist of a ponding area, mulch layer, engineered media, and vegetation. As stormwater passes down through the media, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and vegetation. Bioretention with underdrain systems are utilized for areas containing native soils with low permeability or steep slopes, where the underdrain system routes the treated runoff to the storm drain system.

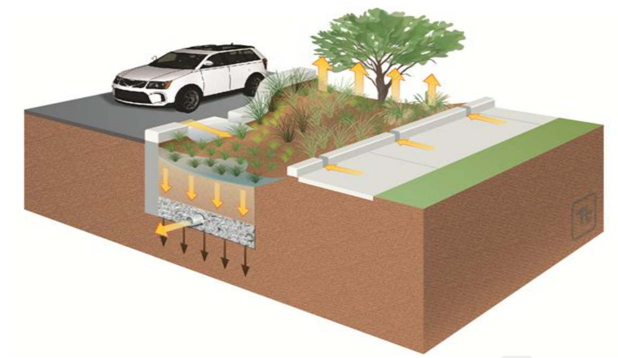

Figure 3-8: Bioretention with Underdrains schematic

VEGETATED SWALES

Vegetated swales are open, shallow channels with low-lying vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. Vegetated swales provide pollutant removal through settling and filtration in the vegetation (usually grasses) lining the channels. In addition, although it is not their primary purpose, vegetated swales also provide the opportunity for volume reduction through subsequent infiltration and evapotranspiration and reduce the flow velocity. Where soil conditions allow, volume reduction in vegetated swales can be enhanced by adding a gravel drainage layer underneath the swale allowing additional flows to be retained and infiltrated. Where slopes are shallow and soil conditions limit or prohibit infiltration, an underdrain system or low flow channel for dry weather flows may be required to minimize ponding and convey treated and/or dry weather flows to an acceptable discharge point. An effective vegetated swale achieves uniform sheet flow through a densely vegetated area for a period of several minutes (depending on design standard used).

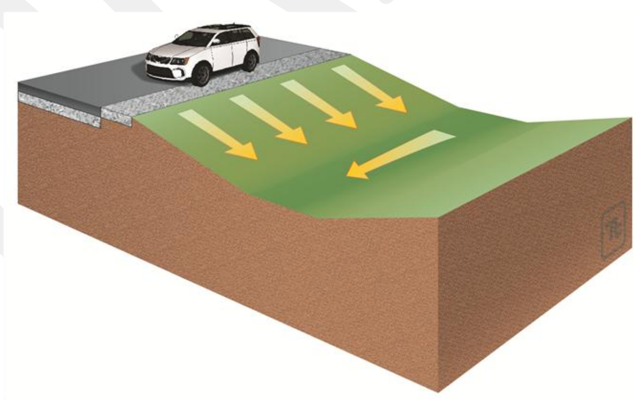

Figure 3-9: Vegetated swale schematic

WET DETENTION BASIN

Wet detention basins are constructed, naturalistic ponds with a permanent or seasonal pool of water (also called a “wet pool” or “dead storage”). Aquascape facilities, such as artificial lakes, are a special

form of wet pool facility that can incorporate innovative design elements to allow them to function as a stormwater treatment facility in addition to an aesthetic water feature. Wet ponds require base flows to exceed or match losses through evaporation and/or infiltration, and they must be designed with the outlet positioned and/or operated in such a way as to maintain a permanent pool. Wet ponds can be designed to provide extended detention of incoming flows using the volume above the permanent pool surface.

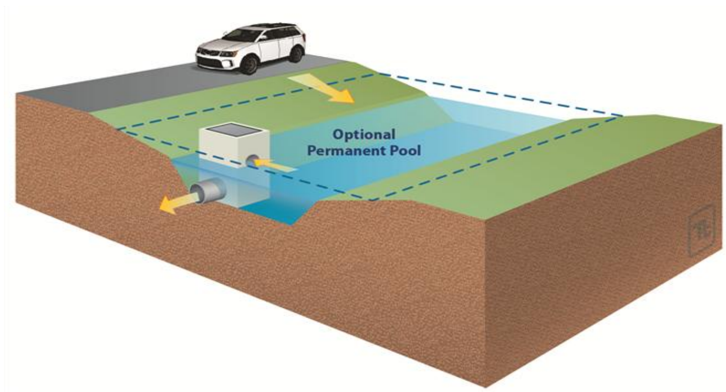

Figure 3-10: Wet detention basin schematic

DRY EXTENDED DETENTION BASIN

Dry extended detention basins are basins whose outlets have been designed to detain the stormwater runoff to allow particulates and associated pollutants to settle out. Dry extended detention basins do not have a permanent pool; they are designed to drain completely between storm events. They can also be used to provide hydromodification and/or flood control by modifying the outlet control structure and providing additional detention storage. The slopes, bottom, and forebay of Dry extended detention basins are typically vegetated.

Figure 3-11: Dry extended detention basin schematic

PRE TREATMENT BMPS

Pre-treatment BMPs are typically not used as primary treatment; however, they are highly recommended for preliminary treatment in order to prolong the life and prevent clogging of the downstream system in a treatment train.

MEDIA FILTERS

Media filters are usually designed as multi-chambered stormwater practices; the first is a settling chamber, and the second is a filter bed filled with sand or another filtering media. As stormwater flows into the first chamber, large particles settle out, and then finer particles and other pollutants are removed as stormwater flows through the filtering medium. They can also be used as pre-treatment, with their location prior to any infiltration or biotreatment BMP.

CATCH BASIN INSERTS

Catch basins inserts typically include a grate or curb inlet and a sump to capture sediment, debris, and pollutants. Filter fabric can also be included to provide additional filtering of particles. The effectiveness of catch basins, their ability to remove sediments and other pollutants, depends on its design and maintenance. Some inserts are designed to drop directly into existing catch basins, while others may require retrofit construction. Similar to media filters, catch basin filters can also be used as a pre-treatment BMP for infiltration and biotreatment BMPs.

Figure 3-12: Pre-treatment BMP schematic

RAINFALL HARVEST

Rainfall Harvest BMPs capture rainwater to be reused in lieu of discharging directly to the MS4.

ABOVE GROUND CISTERNS

Cisterns are large above ground tanks that store stormwater collected from [impervious surfaces] for domestic consumption. Above ground cisterns are used to capture runoff. Mesh screens are typically used to filter large debris before the stormwater enters the cistern. The collected stormwater could potentially be used for landscape irrigation and some interior uses, such as toilets and washing machines. The collection and consumption of the stormwater results in pollution control, volume reduction, and peak flow reduction from the site.

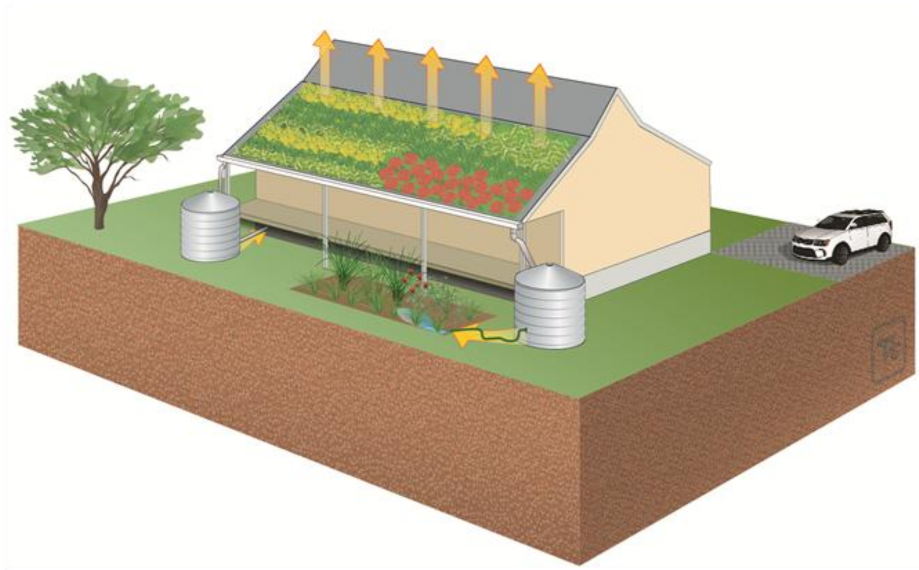

Figure 3-13: Above ground cisterns schematic

UNDERGROUND DETENTION

Underground detention systems function similarly to above ground cisterns in that they collect and use stormwater from impervious surfaces. These systems are concealed underground and can allow for larger stormwater storage and capture additional impervious surfaces not easily captured in an above ground system (e.g. parking lots and sidewalks).

Figure 3-14: Underground detention schematic

DIVERSION SYSTEMS

LOW FLOW DIVERSION

Flow diversion systems collect and divert runoff. Flow diversion structures can primarily be used in two ways. First, flow diversion structures may be used to direct dry weather flows to a treatment facility, preventing the runoff from reaching a receiving water body. This is typically done with low flow runoff, which occurs during periods of dry weather. Second, flow diversion structures can also be modified by incorporating them into other BMPs. For example, diverted flow can be fed into a regional BMP. Properly designed stormwater diversion systems are very effective for preventing stormwater from being contaminated and for routing contaminated flows to a proper treatment facility.

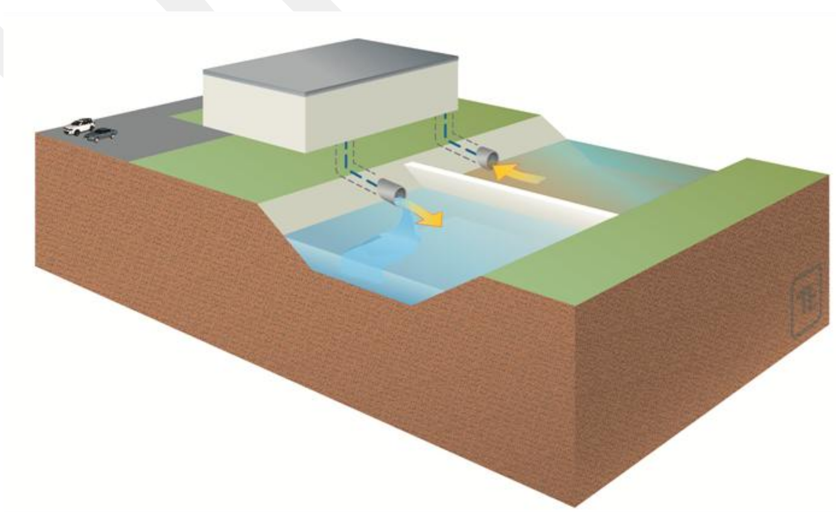

Figure 3-15: Low flow diversion schematic

3.4.2.2 PERFORMANCE EVALUATION OF STRUCTURAL BMPS

It is important to take the performance of stormwater BMPs into consideration during the planning and implementation process. This section provides an analysis of specific BMPs to determine the pollutant removal effectiveness of those BMPs. The International Stormwater BMP Database[5] (BMP Database) project website was used to analyze different BMP types for their effectiveness in removing specific pollutants. The website features a database of over 530 BMP studies, performance analysis results, BMP performance tools, monitoring guidance and other study-related publications. Performance studies relevant to BMPs matching the criteria for an effective regional or distributed application were analyzed to include the following:

- Bioretention
- Bioswale
- Detention Basin
- Grass Strip
- Porous Pavement
- Retention Pond
- Wetland Basin
- Wetland Channel

The average influent and effluent concentrations for the 95th percentile confidence interval were analyzed for pollutants of concern for the Lower Los Angeles River (LSGR) watershed available through the BMP Database. The following pollutants were analyzed:

- Arsenic (Dissolved)
- Arsenic (Total)
- Cadmium (Dissolved)
- Cadmium (Total)
- Chromium (Dissolved)
- Chromium (Total)
- Copper (Dissolved)
- Copper (Total)
- E. coli
- Enterococcus
- Fecal Coliform
- Lead (Dissolved)
- Lead (Total)
- Nickel (Dissolved)
- Nickel (Total)
- TSS
- Zinc (Dissolved)

[5] Geosyntec Consultants, Wright Water Engineers. International Stormwater Best Management Practices (BMP) Database Pollutant Category Summary Statistical Addendum: TSS, Bacteria, Nutrients, and Metals. July 2012.

- Zinc (Total)

The majority of the BMPs analyzed by the BMP Database project are located in major transportation corridors. Land use categories such as residential, commercial, and industrial are not heavily represented in the analysis. The BMP effectiveness may also vary with regional conditions. Many BMPs were monitored in areas where a higher intensity and volume of rainfall than LA County is observed. Additionally, some of the BMPs monitored were designed in the 1990s, 1980s, or earlier. These are expected to have been designed with less stringent guidelines resulting in a more conservative analysis. Although the conditions noted above may result in a slight variance in BMP effectiveness, the pollutant removal efficiencies are considered to be applicable.

It is important to note that the majority of pollutant load reduction is achieved using infiltration BMPs which result in an overall volume reduction. The analysis emphasizes reduction in concentrations of constituents, rather than volume or load reduction. Flow reduction analyses were not performed due to the dependence on rainfall intensity, soil types, and other site-specific conditions. The RAA has determined the volume reduction needed to meet compliance goals.

RESULTS

The analysis can be used to evaluate BMPs and support assumptions made in the RAA regarding effluent concentrations from specific BMPs. The required pollutant reductions determined through the RAA will be used to prioritize the BMPs to maximize effectiveness. The results of the BMP Database analysis are presented in a comparison format to easily visualize the pollutant removal efficiencies of each BMP type.

Each pollutant analyzed is a pollutant of concern for the LSGR WMP watersheds, with the exception of Total Suspended Solids (TSS). The reason for its inclusion is that studies have shown that there is a direct correlation between sediment concentration and various pollutants for which the watersheds are impaired. The data compiled from the BMP Database was used to determine the percent removal of each BMP for each pollutant. Each BMP was ranked in terms of pollutant removal efficiency for each pollutant type (see the *BMP Pollutant Removal Effectiveness Comparison Charts* Below). Data for specific pollutants was not available for each BMP; therefore, only available data is presented.

The next analysis included taking the data and grouping the removal efficiencies under each BMP type. The pollutants were then ranked in terms of pollutant removal efficiency for each BMP type (see the *BMP Type Comparison Charts for Pollutant Removal* below). Data for specific pollutants was not available for each BMP; therefore, only available data is presented.

BMP Pollutant Removal Effectiveness Comparison Charts

Bioretention	
TSS	78%
Total Zinc	75%
E. coli	71%
Enterococcus	61%
Total Copper	55%
Total Lead	33%
Total Cadmium	5%

Bioswale	
Total Nickel	66%
Dissolved Nickel	59%
Dissolved Zinc	54%
Total Chromium	49%
Total Lead	49%
Dissolved Cadmium	43%
Total Copper	40%
Total Cadmium	38%
TSS	37%
Total Zinc	37%
Total Arsenic	30%
Dissolved Copper	27%
Dissolved Lead	22%
Dissolved Chromium	10%
Dissolved Arsenic	0%
E. coli	-5%
Fecal Coliform	-6%

Detention Basin	
E. coli	67%
TSS	64%
Total Zinc	58%
Total Lead	49%
Total Copper	47%
Total Chromium	41%
Total Nickel	41%
Dissolved Copper	37%
Fecal Coliform	30%
Dissolved Zinc	29%
Total Cadmium	21%
Total Arsenic	19%
Dissolved Lead	16%
Dissolved Chromium	14%
Dissolved Nickel	10%
Dissolved Arsenic	0%
Dissolved Cadmium	-233%

Grass Strip	
Total Lead	78%
Total Zinc	76%
Total Copper	70%
Total Cadmium	65%
Dissolved Zinc	61%
Dissolved Lead	59%
TSS	56%
Dissolved Copper	54%
Total Chromium	50%
Dissolved Cadmium	31%
Fecal Coliform	28%
Dissolved Nickel	22%
Dissolved Chromium	21%
Total Arsenic	10%
Dissolved Arsenic	-5%

Porous Pavement	
TSS	80%
Total Zinc	74%
Total Lead	57%
Total Nickel	53%
Dissolved Zinc	52%
Dissolved Nickel	51%
Total Copper	40%
Dissolved Cadmium	33%
Total Cadmium	11%
Total Arsenic	0%
Dissolved Lead	0%
Total Chromium	-4%
Dissolved Copper	-7%
Dissolved Chromium	-464%

Retention Pond	
E. coli	95%
TSS	81%
Enterococcus	75%
Total Lead	67%
Total Chromium	67%
Fecal Coliform	63%
Total Zinc	60%
Dissolved Zinc	57%
Total Cadmium	53%
Total Nickel	51%
Total Copper	48%
Dissolved Cadmium	41%
Total Arsenic	38%
Dissolved Lead	37%
Dissolved Copper	35%
Dissolved Chromium	15%
Dissolved Nickel	-26%

Wetland Basin	
Enterococcus	75%
TSS	56%
Total Zinc	54%
Fecal Coliform	53%
Total Cadmium	42%
Total Lead	40%
Total Copper	36%
E. coli	19%

Wetland Channel	
Dissolved Lead	84%
Total Zinc	32%
TSS	29%
Total Nickel	22%
Dissolved Zinc	18%
Total Chromium	18%
Total Lead	15%
Total Cadmium	2%
Total Copper	-6%

BMP Type Comparison Charts for Pollutant Removal

Influent/Effluent Summary Statistics for Dissolved Arsenic (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	0.6	0.6	0%
Detention Basin	1.04	1.04	0%
Grass Strip	0.61	0.64	-5%
Media Filter	0.53	0.62	-17%

Influent/Effluent Summary Statistics for Total Arsenic (µg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	1.36	0.85	38%
Bioswale	1.68	1.17	30%
Detention Basin	2.21	1.78	19%
Grass Strip	1.04	0.94	10%
Porous Pavement	2.5	2.5	0%

Influent/Effluent Summary Statistics for Dissolved Cadmium (ug/L)

BMP Type	In	Out	Percent Removal
Bioswale	0.21	0.12	43%
Retention Pond	0.17	0.1	41%
Porous Pavement	0.06	0.04	33%
Grass Strip	0.13	0.09	31%
Detention Basin	0.15	0.5	-233%

Influent/Effluent Summary Statistics for Total Cadmium (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	0.52	0.18	65%
Retention Pond	0.49	0.23	53%
Wetland Basin	0.31	0.18	42%
Bioswale	0.5	0.31	38%
Detention Basin	0.39	0.31	21%
Porous Pavement	0.28	0.25	11%
Bioretention	0.99	0.94	5%
Wetland Channel	0.5	0.49	2%

Influent/Effluent Summary Statistics for Dissolved Chromium (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	2.13	1.68	21%
Retention Pond	1.18	1	15%
Detention Basin	1.25	1.08	14%
Bioswale	1.53	1.38	10%
Porous Pavement	0.5	2.82	-464%

Influent/Effluent Summary Statistics for Total Chromium (µg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	4.09	1.36	67%
Grass Strip	5.49	2.73	50%
Bioswale	4.53	2.32	49%
Detention Basin	5.02	2.97	41%
Wetland Channel	1.72	1.41	18%
Porous Pavement	3.6	3.73	-4%

Influent/Effluent Summary Statistics for Dissolved Copper (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	11.66	5.4	54%
Detention Basin	5.56	3.52	37%
Retention Pond	6.57	4.24	35%
Bioswale	11.01	8.02	27%
Porous Pavement	5.37	5.75	-7%

Influent/Effluent Summary Statistics for Total Copper (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	24.52	7.3	70%
Bioretention	17	7.67	55%
Retention Pond	9.57	4.99	48%
Detention Basin	10.62	5.67	47%
Porous Pavement	13.07	7.83	40%
Bioswale	10.86	6.54	40%
Wetland Basin	5.61	3.57	36%
Wetland Channel	4.52	4.81	-6%

Influent/Effluent Summary Statistics for E. coli (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	2800	150	95%
Bioretention	150	44	71%
Detention Basin	1300	429	67%
Wetland Basin	785	632	19%
Bioswale	3990	4190	-5%

Influent/Effluent Summary Statistics for Enterococcus (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	615	153	75%
Retention Wetland Ba	615	153	75%
Bioretention	605	234	61%

Influent/Effluent Summary Statistics for Fecal Coliform (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	1920	707	63%
Wetland Basin	13000	6140	53%
Detention Basin	1480	1030	30%
Grass Strip	32000	23200	28%
Bioswale	4720	5000	-6%

Influent/Effluent Summary Statistics for Dissolved Lead (µg/L)

BMP Type	In	Out	Percent Removal
Wetland Channel	3.26	0.52	84%
Grass Strip	0.64	0.26	59%
Retention Pond	0.76	0.48	37%
Bioswale	1.39	1.08	22%
Detention Basin	0.79	0.66	16%
Porous Pavement	0.5	0.5	0%

Influent/Effluent Summary Statistics for Total Lead (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	8.83	1.96	78%
Retention Pond	8.48	2.76	67%
Porous Pavement	4.3	1.83	57%
Detention Basin	6.08	3.1	49%
Bioswale	3.93	2.02	49%
Wetland Basin	2.03	1.21	40%
Bioretention	3.76	2.53	33%
Wetland Channel	2.94	2.49	15%

Influent/Effluent Summary Statistics for Dissolved Nickel (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	4.93	2.04	59%
Porous Pavement	0.88	0.43	51%
Grass Strip	2.68	2.09	22%
Detention Basin	2.82	2.55	10%
Retention Pond	1.68	2.11	-26%

Influent/Effluent Summary Statistics for Total Nickel (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	9.26	3.16	66%
Porous Pavement	3.64	1.71	53%
Retention Pond	4.46	2.19	51%
Grass Strip	5.41	2.92	46%
Detention Basin	5.64	3.35	41%
Wetland Channel	2.8	2.18	22%

Influent/Effluent Summary Statistics for TSS (mg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	70.7	13.5	81%
Porous Pavement	65.3	13.2	80%
Bioretention	37.5	8.3	78%
Detention Basin	66.8	24.2	64%
Grass Strip	43.1	19.1	56%
Wetland Basin	20.4	9.06	56%
Bioswale	21.7	13.6	37%
Wetland Channel	20	14.3	29%

Influent/Effluent Summary Statistics for Dissolved Zinc (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	36.1	14	61%
Retention Pond	22.5	9.6	57%
Bioswale	52.7	24.5	54%
Porous Pavement	13.5	6.5	52%
Detention Basin	15.6	11.08	29%
Wetland Channel	11.6	9.5	18%

Influent/Effluent Summary Statistics for Total Zinc (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	103.3	24.3	76%
Bioretention	73.8	18.3	75%
Porous Pavement	57.6	15	74%
Retention Pond	53.6	21.2	60%
Detention Basin	70	29.7	58%
Wetland Basin	48	22	54%
Bioswale	36.2	22.9	37%
Wetland Channel	23	15.6	32%

RESULTS ANALYSIS SUMMARY

The statistical analysis presented has many applications, including supporting BMP prioritization and the RAA analysis. As future applications are undertaken, the results can be analyzed in more detail. For this analysis, the following observations were discovered:

- Overall, the retention pond returned the best results in terms of pollutant removal efficiency for several pollutants, with more than 60% removal for E. coli, TSS, Enterococcus, total lead, fecal coliform, and total zinc.
- Among the constituents analyzed, the percent removals were often the highest for metals, lead and zinc in particular.
- The poorest performance was often observed for nutrients and bacteria, with concentrations increasing for some BMP types. Leaching of nutrients from soils/planting media and resuspension of captured pollutants may be a cause of the increases observed in these BMPs[6].

It is important to note that the majority of pollutant removal associated with stormwater BMPs will be due to infiltration and overall volume reduction. Although this is the case, a small component may be associated with inflow to outflow pollution concentration reduction and the analysis focuses on this percent reduction. Percent reduction is easily understandable and convenient for reporting; therefore, the method seems to be appropriate for this analysis. Refer to the article "Voodoo Hydrology" in the July 2006 article of Stormwater Magazine[7] for further information on caveats to this method. Although the analysis does not cover volume reduction, the RAA analysis has estimated the pollutant reduction necessary to meet compliance.

3.4.2.3 EXISTING TARGETED STRUCTURAL BMPS

The existing structural BMPs in place within the Watershed Group area have been included in the RAA model. Refer to Chapter 4 for more details.

3.4.2.4 CONTROL MEASURES IDENTIFIED IN TMDLS, IMPLEMENTATION PLANS AND STATE AMENDMENTS

There are no control measures identified in the San Gabriel River Metals TMDL. Planned and potential control measures to address the Metals TMDL are incorporated within the WCMs identified in this Chapter.

The State Water Resources Control Board is expected to adopt the statewide trash amendments in late 2014. The current draft amendments include as a compliance route the installation of full-capture devices in the priority land use areas of high density residential, industrial, commercial, mixed urban and public transportation stations. These structural control measures are expected to result in significant reductions in trash loading. Also, since pollutants such as organics can adhere to plastic trash, secondary reductions for non-trash pollutants may be expected.

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[6] Stormwater: BMP Effectiveness for Nutrients, Bacteria, Solids, Metals, and Runoff Volume (2012). Retrieved online at: http://www.stormh2o.com/

[7] http://www.stormh2o.com/SW/Editorial/Voodoo_Hydrology_37.aspx

3.4.2.5 PLANNED TARGETED CONTROL MEASURES

The projects listed below have been planned to some extent by the Participating Agencies. A literature review was conducted of existing TMDL Implementation Plans, the existing IRWMP, and other planning documents to collect data. The extent of planning of these projects ranges from a roundtable discussion to being in preliminary phases of design.

GATEWAY MULTI-AGENCY, MULTI-WATERSHED PROJECT TO INCORPORATE LOW IMPACT DEVELOPMENT (LID) BMPS INTO MAJOR TRANSPORTATION CORRIDORS IN THE GATEWAY REGION OF LOS ANGELES
(GATEWAY PROP 84 PROJECT - **GRANT APPLICATION APPROVED**)

This project is a planned regional project within multiple cities to include the cities of Downey, Norwalk, Santa Fe Springs, and Whittier. The Gateway Water Management Authority (GWMA) applied for funds through the Prop 84 Grant Round 2 program to put towards this project, which was approved in May 2014. The project is in the preliminary design phase and the information provided is subject to change.

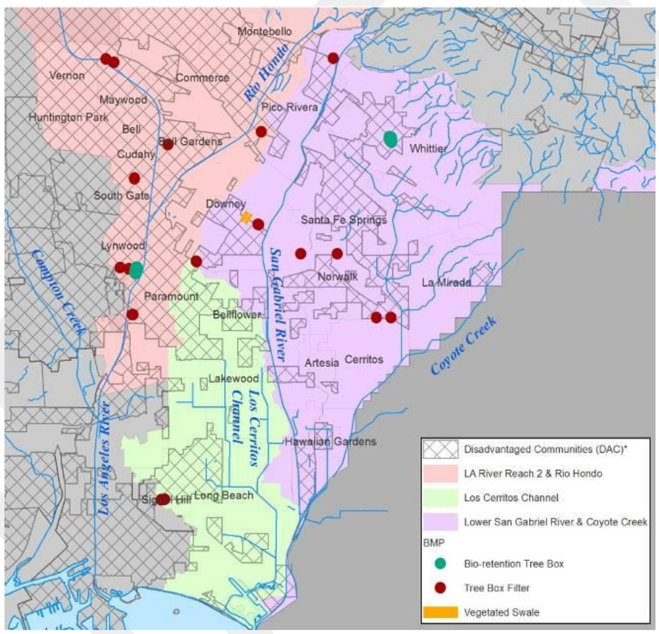

Figure 3-16: BMP Locations within the Gateway Prop 84 Project

The project seeks to prevent stormwater contamination of surface waters in three watersheds, to include the San Gabriel River. This will be accomplished by installing LID BMPs to treat stormwater runoff, and its associated pollutants.

Table 3-6: Proposed BMPs within the Gateway Prop 84 Project

6 lists the BMPs to be implemented within the Cities and Figures 3-17 to 3-21 show the project locations within each city.

Table 3-6: Proposed BMPs within the Gateway Prop 84 Project

City	LID BMPs	Location	Anticipated treatment[8]
Downey	(2) Tree box filters	(1) NEC Pangborn Ave & Firestone Blvd, (1) NWC Pangborn Ave & Firestone Blvd	29,032 cf
	(1) Bioswale	(1) Firestone Blvd. at Stonewood Mall	11,741 cf
Norwalk	(2) Tree box filters	(1) Imperial Highway & Volunteer Ave, (1) Firestone Blvd & Imperial Highway	14,516 cf
Pico Rivera	(1) Tree box filter	(1) Beverly Boulevard and Tobias Avenue	7, 258 cf
Santa Fe Springs	(2) Tree box filters	(1) Alondra Blvd and Shoemaker Ave, (1) Alondra Blvd and Marquardt Ave	14,516 cf
Whittier	(10) Bioretention Tree Wells	Locations to be determined	5,870 cf

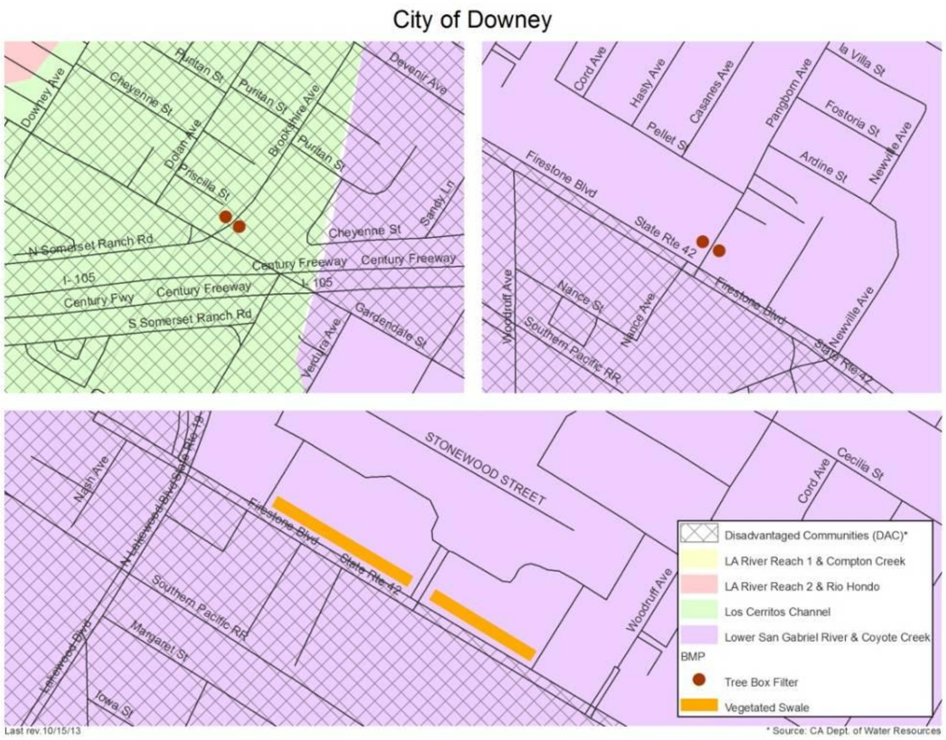

Figure 3-17: Gateway Prop 84 Project BMP locations proposed for the city of Downey

[8] Treatment volume calculations based on a 24-hour, 0.75 in storm, 6x6 tree box filter units and a 1200 LF swale.

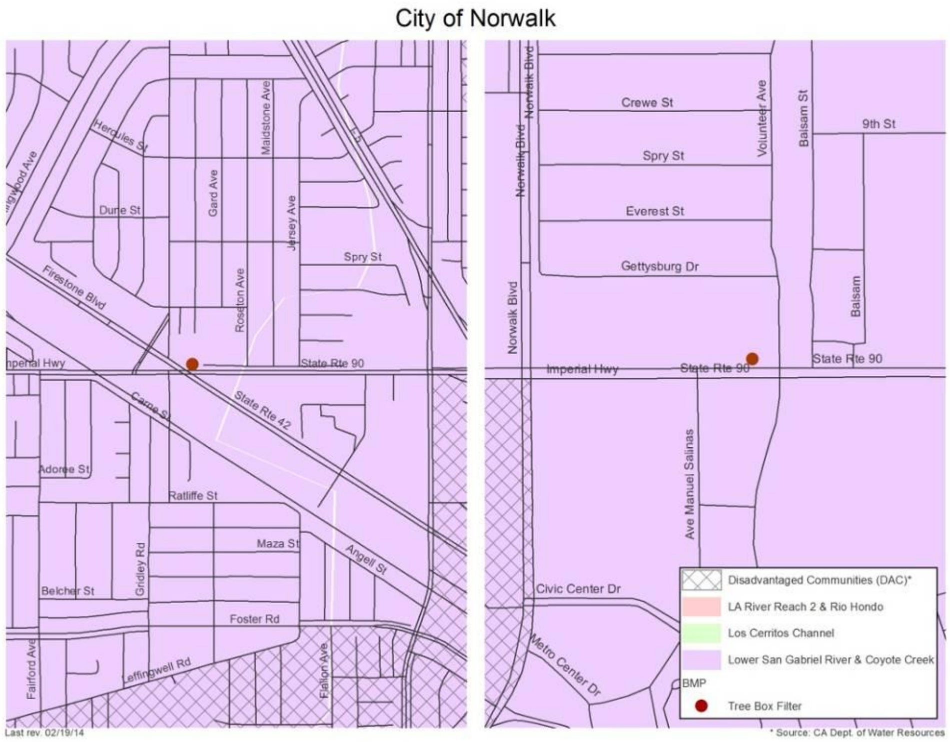

Figure 3-18: Gateway Prop 84 Project BMP locations proposed for the city of Norwalk

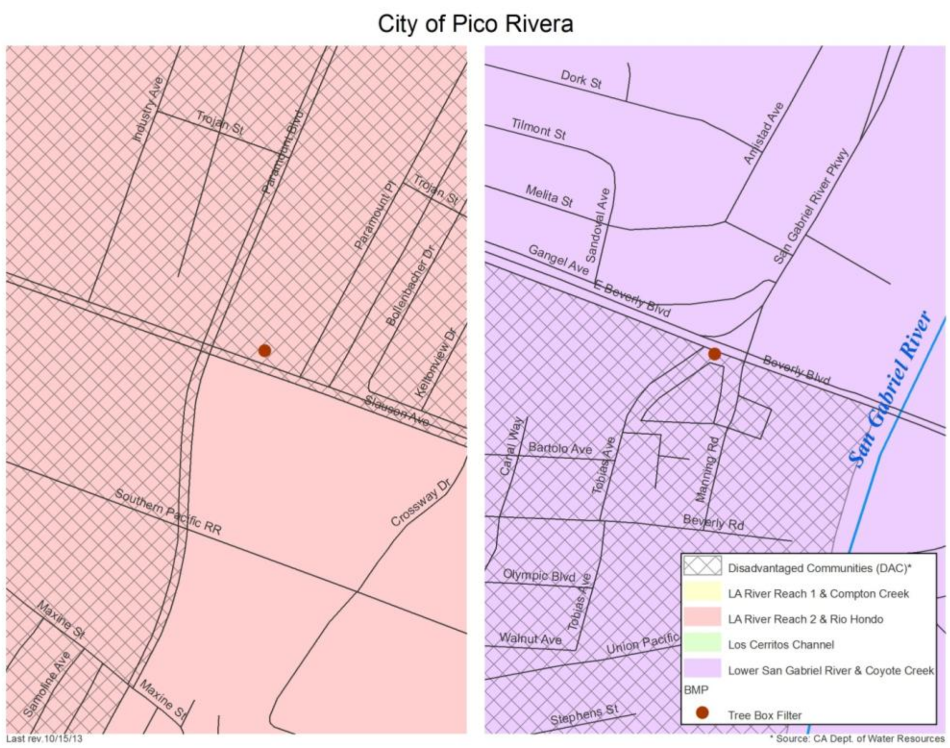

Figure 3-19: Gateway Prop 84 Project BMP locations proposed for the city of Pico Rivera

RB-AR13366

Figure 3-20: Gateway Prop 84 Project BMP locations proposed for the city of Santa Fe Springs

Figure 3-21: Gateway Prop 84 Project BMP locations proposed for the city of Whittier

IRWMP PROJECTS

The following project descriptions are from the Gateway Integrated Regional Watershed Management Plan (IRWMP). These projects have been discussed in detail with the Gateway Water Management Authority (GWMA) and are likely to be implemented once the required funding is acquired. Further details about each project can be found in the Gateway IRWMP documents.

BELLFLOWER NPDES PERMIT AND TMDL COMPLIANCE STORMWATER IMPROVEMENTS

This project will consist of installing catch basin automatic retractable screens (ARS), vegetated swales, bioretention systems, infiltration basins, porous pavement, and covered trash receptacles at various locations within the city of Bellflower.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

CONSTRUCT BIOSWALES/LANDSCAPING IN VARIOUS LOCATIONS IN LONG BEACH

This project will be located in the city of Long Beach and is planned to construct and/or reconstruct new and existing medians to capture and treat stormwater runoff.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

THE LOS CERRITOS, SAN GABRIEL RIVER AND ALAMITOS BAY LOW FLOW DIVERSION SYSTEM

This project will serve the cities of Long Beach, Bellflower, Norwalk, and Cerritos. The project plans to investigate sites along three waterbodies, to include the Lower San Gabriel River, to determine the feasibility of constructing Low Flow Diversion (LFD) Devices in locations that have high levels of metals and bacteria. This work will include the design and construction of four (4) LFDs that will be identified in the feasibility report.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

PUMP STATION VORTEX SEPARATION SYSTEM (VSS) DEVICES

This project will serve the cities of Long Beach, Bellflower, Norwalk, Cerritos and proposes to investigate sites upstream of the storm drain pump station along the Lower San Gabriel River to determine the feasibility of constructing Pre Filter Vortex Separation System Structural BMPs to capture trash, metals, and sediment possibly containing bacteria in five (5) locations. This project would provide a large amount of treatment in the San Gabriel River.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

3.4.2.6 POTENTIAL SITES FOR FUTURE TARGETED CONTROL MEASURES

A preliminary assessment has been performed for the Lower San Gabriel River Watershed to determine potential areas to locate regional BMPs. This was done with a preliminary GIS approach by screening areas within 660 feet (1/8 mile) of a waterbody and currently designated as open space as well as other potentially useful zoning designations. The overall size of each site was used to calculate the maximum amount of volume which could be stored at the site and the maximum amount of area that could be diverted to the site assuming the entire site were redeveloped to incorporate infiltration.

The equations used were derived from the Orange County Technical Guidance Document (OC TGD)[9] and can be found below:

$$\mathbf{DCV=CdA_{TRIBUTARY}\times\left(\frac{43560}{12}\right)}$$

Driving Equation No. 1

$$D_{MAX}=K_{DESIGN}T\times\left(\frac{1}{12}\right)$$

Assume K_{DESIGN} = 0.3 in/hr

0.3 in/hr is the lowest infiltration rate where infiltration is deemed feasible per the MS4 Permit.

$$D_{MAX}=0.3\times48\times\frac{1}{12}=1.2\text{ feet}$$

$$A_{BMP}=\frac{DCV}{D_{MAX}}$$

$$\mathbf{A_{TRIBUTARY}=\frac{A_{BMP}\times1.2}{Cd\times\left(\frac{43560}{12}\right)}}$$

Driving Equation No. 2

$$C=(0.75\times IMP)+0.15=0.9$$

Assume 100% imperviousness

Assume d=1.1

1.1 inches is the highest depth on the LA County 85th Percentile Isohyetal Map for the LSGR watershed.

$$\mathbf{A_{TRIBUTARY}=\frac{A_{BMP}\times1.2}{0.9\times1.1\times\left(\frac{43560}{12}\right)}}$$

Final Equation No. 1

$$\mathbf{DCV=A_{BMP}\times1.2}$$

Final Equation No. 2

A_{BMP} has been assumed to be the total site area to determine the maximum tributary area that can be diverted to the site and the maximum volume the site can treat.

Where:

DCV:	Design Capture Volume	$A_{TRIBUTARY}$:	Area Tributary to BMP	T:	Drawdown Time
C:	Runoff Coefficient	D_{MAX}:	Maximum Effective Depth	A_{BMP}:	Footprint Area of BMP
d:	Rainfall Depth	K_{DESIGN}:	Design Infiltration Rate	IMP:	Percent Impervious

[9] Orange County. *Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs).* May 19, 2011.

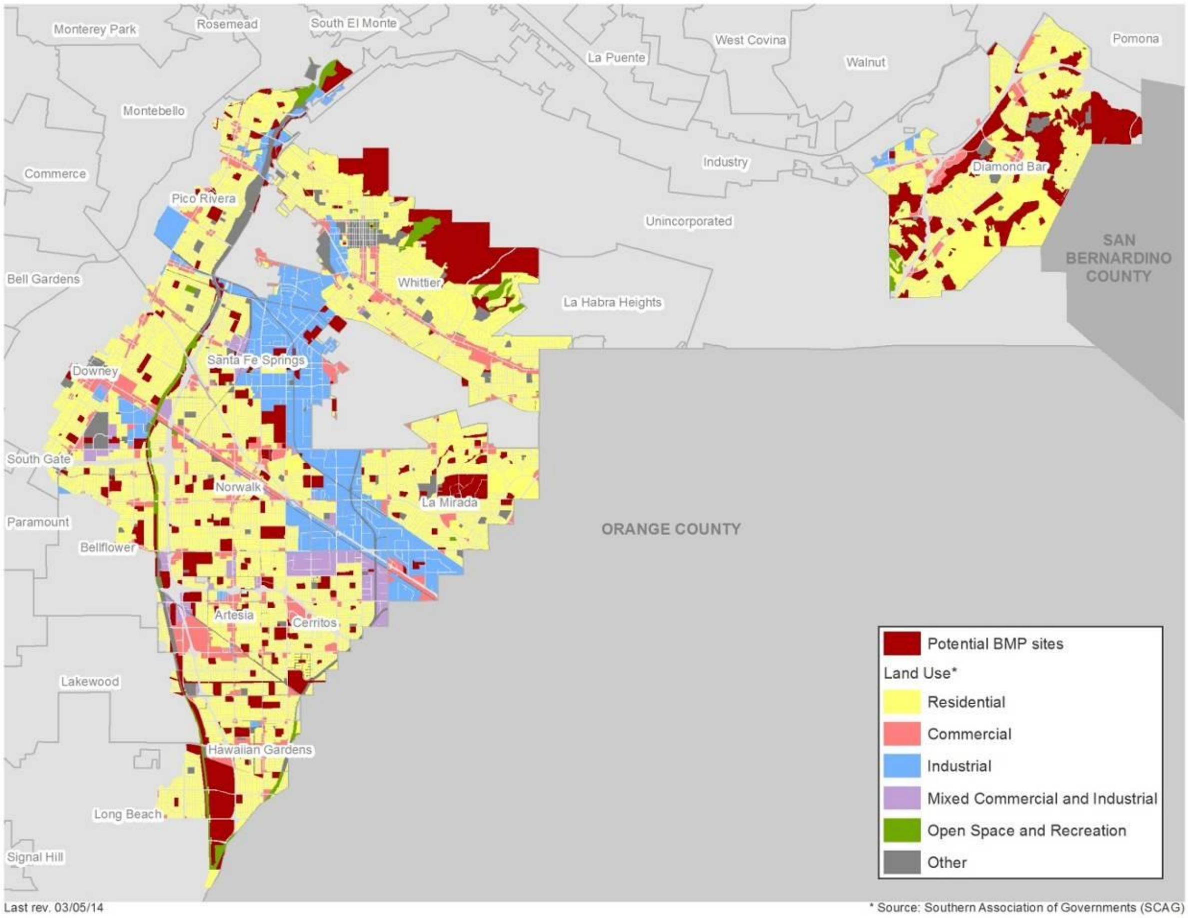

Figure 3-22: Potential Sites for Future Structural BMPs

Figure 3-21 indicates the locations of sites potentially available for future regional BMPs. Additionally, Table 3-7 and Table 3-8 indicate the locations of sites potentially available for future regional BMPs within the Coyote Creek Watershed and the San Gabriel River Watershed, respectively. These locations can serve as a starting point during the implementation phase of the WMP. They have been grouped by jurisdiction and listed in order by land use. The land use with the highest accessibility is listed first. Within each land use designation, the sites have been listed from largest to smallest. Note that with regional BMPs there are opportunities for multiple agencies to benefit from the same site. The land uses are ranked as follows:

Open Space and Recreation: Sites designated for open space, parks, and recreational activities were ranked with the highest potential for future regional BMPs. The reasoning being that these types of areas have the highest likeliness to be publically owned and not require land acquisition, generally have a high percentage of landscaped area available, and have a high opportunity for multiple benefits.

Educational Use: Sites designated for educational use were ranked with the second highest potential for future regional BMPs. The reasoning being that these types of areas although not city-

owned could have an easier land acquisition process than privately owned land, generally have a high percentage of landscaped area available, and have a high opportunity for multiple benefits.

GOVERNMENT INSTITUTION: Sites designated for educational use were ranked with the third highest potential for future regional BMPs. This is due to the institution being government owned presenting a higher chance of collaboration than a privately owned facility. Although this may be the case, many government institutions may not be willing to take on maintenance responsibilities which would result in the necessity of land acquisition or maintenance agreements.

GOLF COURSES/ COUNTRY CLUBS: Sites designated for golf courses or country clubs were ranked with the fourth highest potential for future regional BMPs. The reasoning being that these types of areas generally have a high percentage of landscaped area available and have a high opportunity for multiple benefits. Although this may be the case, land acquisition for these sites is expected to be a difficult accomplishment.

COMMERCIAL USE: Sites designated for commercial areas were ranked with the fifth highest potential for future regional BMPs. The reasoning being that these types of areas generally have a high percentage of parking area available which could potentially be retrofitted for infiltration opportunities. Although this may be the case, land acquisition for these sites is expected to be a difficult accomplishment.

The available sites will be further assessed to determine the best location for a regional BMP. Note that the sites presented do not represent the only sites available for the Watershed Group. The ultimate site selection process should take into account the following characteristics:

LOCATION IN RELATION TO RAA RESULTS: The RAA provides an estimation of runoff reduction to be provided in each area in order to meet the water quality objectives. The sites should be selected taking this into consideration.

GIS DATA: GIS data should be further analyzed to screen projects based on criteria such as land use, topography, hydrologic features, streets and roads, existing storm drain infrastructure, and storm drain invert depth.

PROJECT BENEFITS: It is preferred that a project contains multiple benefits in order to increase the overall benefit and support for the project. Benefits to take into consideration include, but are not limited to, the following:

- Water quality benefits
- Water supply benefits
- Recreational use
- Multi-agency benefits
- Publically owned
- Storage availability
- Funding available

- Project readiness
- Flood control benefits
- Proximity to pollutant sources or impaired waters
- Adjacent to existing storm drain

PROJECT CONSTRAINTS: Not every project will be feasible; therefore, it is important to take into consideration any constraints that may result in project infeasibility. These constraints include, but are not limited to, the following:

- High groundwater
- Low infiltration rates
- Existing soil contamination/proximity to existing soil contamination
- Brownfields[10]
- Existing groundwater contamination/proximity to existing groundwater contamination
- Potential for soil instability (liquefaction zones, hillside areas)
- Existing private ownership (requires land acquisition)
- Cost Effectiveness
- Historical landmarks

[10] With certain legal exclusions and additions, the term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant (*Environmental Protection Agency*).

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[11]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Artesia	Open Space and Recreation	Artesia Park	18750 Clarkdale Ave.	33.8598	-118.0781	13.7	200	16.5
		Padelford Park	11870 169th Street	33.8769	-118.0788	1.3	19	1.6
	Educational Use	Middle School	Excluded for privacy			18.1	263	21.7
		Elementary School	Excluded for privacy			9.2	134	11.1
		Elementary School	Excluded for privacy			7.0	102	8.4
		Elementary School	Excluded for privacy			5.4	79	6.5
	Commercial Use	Lot	Excluded for privacy			1.0	14	1.1
Cerritos	Open Space and Recreation	Cerritos Park East	13234 E. 166th St.	33.8787	-118.0498	26.9	390	32.2
		Heritage Park	19211 Studebaker Rd.	33.8632	-118.0616	12.5	181	14.9
		Gridley Park	18600 Bloomfield Ave.	33.8499	-118.09	10.4	151	12.4
		Jose A. Gonsalves Park	Gridley Rd. and Yearling	33.8814	-118.0414	9.5	138	11.4
		Frontier Park	13611 E. 166th St.	33.8776	-118.0599	6.2	90	7.4
		El Rancho Verde Park	16910 Maria Ave.	33.8501	-118.0525	5.8	84	6.9
		Jacob Park	7815 Denni St.	33.8499	-118.0744	5.2	75	6.2
		Sunshine Park	19310 Vickie Ave	33.8557	-118.0528	4.1	60	4.9
		Friendship Park	13650 Acoro St.	33.8716	-118.0405	3.8	56	4.6
		Pat Nixon Park	12340 South St.	33.8577	-118.0683	2.8	40	3.3
		Brookhaven Park	13101 Brookhaven St.	33.8661	-118.0508	2.6	38	3.1
		Satellite Park (Residential Mixed Density)	12412 Mountain Creek Rd.	33.8828	-118.0678	1.9	28	2.3
		Saddleback Park	13037 Acoro St.	33.8723	-118.0539	1.5	22	1.8
		Cerritos Regional Park	19700 Bloomfield Ave.	33.8486	-118.0581	79.7	1160	95.7
		Loma Park	17503 Stark Ave.	33.8718	-118.068	0.8	12	1.0
	Government Institution	Cerritos Sculpture Garden and City Hall	18125 Bloomfield Ave.	33.8663	-118.0666	1.4	21	1.7

[11] These numbers were generated using the Los Angeles County GIS Data Portal website (http://egis3.lacounty.gov/dataportal/) and the LA County Department of Public Works Spatial Information Library website (http://dpw.lacounty.gov/general/spatiallibrary/index.cfm?agree=agree). All areas may not be usable space for BMP retrofits.

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[11]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Cerritos	Educational Use	High School	Excluded for privacy			29.0	422	34.8
		Middle School	Excluded for privacy			21.5	313	25.8
		Adult School	Excluded for privacy			18.4	267	22.1
		Middle School	Excluded for privacy			15.6	226	18.7
		High School	Excluded for privacy			12.5	182	15.0
		High School	Excluded for privacy			10.6	155	12.8
		Elementary School	Excluded for privacy			9.6	139	11.5
		Elementary School	Excluded for privacy			8.7	126	10.4
		Middle School	Excluded for privacy			8.6	125	10.3
		Elementary School	Excluded for privacy			8.5	124	10.2
		Elementary School	Excluded for privacy			8.5	123	10.2
		Elementary School	Excluded for privacy			7.9	115	9.5
		Elementary School	Excluded for privacy			7.9	115	9.5
		Elementary School	Excluded for privacy			7.9	114	9.4
		Elementary School	Excluded for privacy			7.3	106	8.8
		Elementary School	Excluded for privacy			6.6	97	8.0
		Elementary School	Excluded for privacy			4.1	59	4.9
Diamond Bar	Open Space and Recreation	County park	-	33.9820	-117.8188	149.5	2174	179.4
		open space	896 Terrace Ln W	34.0011	-117.8215	123.6	1798	148.3
		Pantera Park and Diamond Bar City Parkland	738 Pantera Dr.	34.0077	-117.7895	108.4	1577	130.1
		Maple Hill Park	1355 Maple Hill Rd.	33.9962	-117.8265	5.5	79	6.5
		Paul C. Grow Park	23281 E. Forest Canyon Rd.	33.9949	-117.8111	3.5	51	4.2
		Summit Ridge Park	1425 Summitridge Dr.	34.0000	-117.7958	1.1	15	1.3
	Educational Use	High School	Excluded for privacy			32.5	473	39.0
		Elementary School	Excluded for privacy			2.5	37	3.0
		Elementary School	Excluded for privacy			8.7	127	10.5
		Elementary School	Excluded for privacy			8.2	120	9.9
		Elementary School	Excluded for privacy			8.0	116	9.6

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[11]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
		Elementary School	Excluded for privacy			7.2	104	8.6
Hawaiian Gardens	Educational Use	Middle School	Excluded for privacy			15.9	231	19.1
		Elementary School	Excluded for privacy			8.0	116	9.6
		Elementary School	Excluded for privacy			6.0	87	7.2
La Mirada	Open Space and Recreation	La Mirada Regional Park	Alicanted Rd. & Adelfa Dr.	33.9083	-118.006	81.1	1179	97.3
		La Mirada Creek Park	12021 Santa Gertrudes Ave.	33.9211	-117.998	15.6	227	18.7
		Behringer Park	15900 Alicante Dr.	33.9017	-117.9883	11.1	161	13.3
		La Mirada Pool	13701 Adelfa Dr.	33.9053	-118.0089	9.7	141	11.7
		Neff Park	14300 San Cristobal Dr.	33.8981	-118.0259	9.0	130	10.7
		park	15635 Yellowbrook Ln.	33.9151	-117.9986	1.9	28	2.3
		Anna J. Martin Park	16135 Avenida San Martin	33.9134	-117.9863	1.9	27	2.3
	Educational Use	University	Excluded for privacy			53.8	782	64.5
		High School	Excluded for privacy			31.5	458	37.8
		Middle School	Excluded for privacy			18.4	267	22.0
		Elementary School	Excluded for privacy			11.8	171	14.1
		Elementary School	Excluded for privacy			8.3	121	10.0
		Middle School	Excluded for privacy			7.6	110	9.1
		Middle School	Excluded for privacy			7.3	106	8.7
		Elementary School	Excluded for privacy			7.2	105	8.7
		School	Excluded for privacy			7.0	102	8.4
		Elementary School	Excluded for privacy			6.9	101	8.3
		Elementary School	Excluded for privacy			6.5	95	7.8
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			127.4	1853	152.9
	Commercial Use	Lot	Excluded for privacy			1.5	22	1.8
Lakewood	Open Space and Recreation	Palms Park	12305 207th St.	33.8433	-118.0703	19.1	278	22.9
		Bloomfield Park	21420 Pioneer Blvd.	33.8355	-118.0807	13.7	200	16.5
	Educational Use	Elementary School	Excluded for privacy			5.8	84	6.9
		High School	Excluded for privacy			30.5	443	36.6

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[11]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
		Elementary School	Excluded for privacy			11.9	173	14.3
Long Beach	Open Space and Recreation	El Dorado East Regional Park	7550 E. Spring St.	33.8229	-118.087	651.1	9470	781.3
	Government Institution	LACSD lot	-	33.798	-118.0884	7.3	107	8.8
	Educational Use	Academy	Excluded for privacy			10.3	149	12.3
	Commercial Use	Church	Excluded for privacy			4.4	63	5.2
Norwalk	Open Space and Recreation	John Zimmerman Park	13031 Shoemaker Ave.	33.9122	-118.0569	13.2	192	15.9
		Hermosillo Park	11959 162nd St.	33.885	-118.0772	8.7	126	10.4
		Norwalk Park	1300 Clarkdale Park	33.9097	-118.0719	6.8	100	8.2
		Holifield Park[12]	15021 Bloomfield Ave.	33.8932	-118.0665	22.7	331	27.3
	Government Institution	Norwalk City Hall	12700 Norwalk Blvd.	33.9158	-118.0712	9.5	139	11.4
	Educational Use	High School and Elementary School	Excluded for privacy			28.5	414	34.1
		High School	Excluded for privacy			27.1	395	32.6
		Junior High School	Excluded for privacy			8.1	117	9.7
		Middle School	Excluded for privacy			14.4	209	17.2
		Middle School	Excluded for privacy			10.5	153	12.6
		Elementary School	Excluded for privacy			9.7	140	11.6
		Elementary School	Excluded for privacy			8.2	119	9.8
		Elementary School	Excluded for privacy			6.1	88	7.3
		Elementary School	Excluded for privacy			5.6	82	6.7
	Golf Courses/ Country Clubs	Golf Center	Excluded for privacy			11.5	167	13.7

[12] Holifield Park may have soil and groundwater contamination. Proof of this contamination has not yet been provided; therefore, it was not removed from the list, but ranked accordingly.

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[11]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Santa Fe Springs	Commercial Use	lot	Excluded for privacy			5.3	77	6.4
	Educational Use	High School	Excluded for privacy			12.6	183	15.1
		Elementary School	Excluded for privacy			12.3	178	14.7
Whittier	Open Space and Recreation	Arroyo Pescadero Park (Puente Hills Preserve)	7531 Colima Rd.	33.9843	-118.0088	1247.6	18146	1,497.1
		Parnell Park	15390 Lambert Rd.	33.9364	-118.0021	11.2	163	13.5
		Michigan Park	8228 Michigan Ave.	33.9642	-118.0215	10.0	145	12.0
		York Field Park	9110 Santa Fe Springs Rd.	33.9574	-118.0509	8.8	128	10.6
		Founders Memorial Park	6755 Newlin Ave.	33.9868	-118.0468	5.9	86	7.1
		Leffingwell Ranch Park	10537 Saint Gertrudes	33.9396	-117.9945	4.1	59	4.9
		John Greenleaf Whittier Park	7211 Whittier Ave.	33.9763	-118.0438	2.0	30	2.4
		Central Park	13212 Park St.	33.9813	-118.0344	1.7	25	2.0
		Kennedy Park	8530 Painter Ave.	33.9599	-118.0352	1.5	22	1.8
		Anaconda Park	14575 Anaconda St.	33.9507	-118.0131	1.0	15	1.2
		Laurel Park	8825 Jacmar Ave.	33.9562	-118.0288	0.8	12	1.0
	Educational Use	High School	Excluded for privacy			34.5	501	41.3
	Golf Courses/ Country Clubs	Country Club	Excluded for privacy			140.1	2038	168.1

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[13]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Bellflower	Open Space and Recreation	T. Mayne Thompson Park	14001 Bellflower Blvd.	33.905	-118.1265	11.3	164	13.5
		park	16804 View Park Ave.	33.8822	-118.1089	6.1	88	7.3
		Byron Zinn Park	13600 Carfax Ave.	33.9070	-118.1101	3.2	46	3.8
		utility corridor	19706 Studebaker Rd.	33.8901	-118.1094	35.5	516	42.5
		Caruthers Park	10500 Flora Vista St.	33.8788	-118.1101	20.0	291	24.0
	Educational Use	Middle School and High School	Excluded for privacy			40.1	584	48.2
		High School	Excluded for privacy			24.6	357	29.5
		Elementary School	Excluded for privacy			7.4	107	8.8
		Elementary School	Excluded for privacy			5.5	79	6.6
		Elementary School	Excluded for privacy			3.7	54	4.5
Cerritos	Open Space and Recreation	Liberty Park	19211 Studebaker Rd.	33.8550	-118.1013	17.6	256	21.2
		Reservoir Hill Park	16733 Studebaker Rd.	33.8788	-118.1007	4.6	67	5.6
		Westgate Park	18830 San Gabriel Ave.	33.8594	-118.1039	4.5	66	5.5
	Educational Use	College	Excluded for privacy			118.6	1725	142.3
		High School	Excluded for privacy			35.2	511	42.2
		High School and Junior High School	Excluded for privacy			21.5	313	25.8
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			31.2	454	37.5
Diamond Bar	Open Space and Recreation	Sycamore Canyon Park	22930 E. Golden Springs Dr	34.0058	-117.8088	47.0	683	56.4
		Diamond Bar Pony Baseball Fields	22601 Sunset Crossing Rd.	34.0315	-117.8205	12.7	185	15.2
		Carlton J. Peterson Park	24142 E. Sylvan Glen Rd.	34.0288	-117.7945	8.4	122	10.1

[13] These numbers were generated using the Los Angeles County GIS Data Portal website (http://egis3.lacounty.gov/dataportal/) and the LA County Department of Public Works Spatial Information Library website (http://dpw.lacounty.gov/general/spatiallibrary/index.cfm?agree=agree). All areas may not be usable space for BMP retrofits.

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[13]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Diamond Bar	Open Space and Recreation	Ronald Reagan Park	2201 Peaceful Hills Rd.	33.9823	-117.853	5.8	85	7.0
	Educational Use	Middle School	Excluded for privacy			25.5	371	30.6
		Middle School	Excluded for privacy			13.3	194	16.0
		Elementary School	Excluded for privacy			11.2	163	13.5
		Elementary School	Excluded for privacy			6.7	97	8.0
		Elementary School	Excluded for privacy			6.6	96	7.9
		Elementary School	Excluded for privacy			6.1	88	7.3
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			170.6	2482	204.7
	Commercial Use	Church	Excluded for privacy			3.8	56	4.6
Downey	Open Space and Recreation	Wilderness Park	10999 Little Lake Rd.	33.9359	-118.1013	20.6	300	24.7
		Rio San Gabriel Park	9612 Ardine St.	33.9312	-118.1092	15.7	228	18.8
		Independence Park	12334 Bellflower Blvd.	33.9196	-118.1231	11.7	171	14.1
		Dennis The Menace Park	9125 Arrington Ave.	33.9558	-118.1115	6.5	94	7.8
		utility corridor	9073 Gardendale St.	33.9157	-118.1122	3.5	51	4.2
		Brookshire Childrens Park	10050 Imperial Hwy.	33.9212	-118.1424	1.2	18	1.5
	Educational Use	High School	Excluded for privacy			19.4	282	23.3
		Middle School	Excluded for privacy			17.9	261	21.5
		Adult School	Excluded for privacy			15.5	226	18.6
		Middle School	Excluded for privacy			14.3	207	17.1
		Elementary School	Excluded for privacy			11.5	167	13.8
		High School	Excluded for privacy			8.2	119	9.8
		Elementary School	Excluded for privacy			7.6	110	9.1
		Elementary School	Excluded for privacy			6.4	92	7.6
		Elementary School	Excluded for privacy			5.4	78	6.4
Lakewood	Open Space	Rhynerson Park	20711 Studebaker Rd.	33.8416	-118.0952	58.5	851	70.2

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[13]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Lakewood	and Recreation	lot	5034 Stevely Ave.	33.8495	-118.1008	6.3	91	7.5
	Open Space and Recreation	park	4936 Stevely Ave.	33.8468	-118.1003	4.1	59	4.9
		utility corridor	5104 Stevely Ave.	33.8503	-118.101	3.5	51	4.2
Long Beach	Open Space and Recreation	utility corridor	3506 Stevely Ave.	33.8211	-118.0924	20.9	304	25.1
		Camp Fire Long Beach Area Council	7070 Carson St.	33.8315	-118.0966	6.1	89	7.4
	Educational Use	High School	Excluded for privacy			18.7	272	22.5
		Elementary School	Excluded for privacy			6.5	94	7.8
Norwalk	Open Space and Recreation	Arthur Gerdes Park	14700 Gridley Rd.	33.897	-118.0899	8.1	117	9.7
		New River Park	13432 Halcourt Ave.	33.9083	-118.1017	4.5	66	5.5
		Orr Park	12130 S. Jersey Ave.	33.921	-118.0845	3.5	51	4.2
		Glazier Park	10801 Fairton St.	33.8951	-118.1039	1.9	28	2.3
	Educational Use	High School	Excluded for privacy			19.2	280	23.1
		Middle School	Excluded for privacy			14.1	205	16.9
		Elementary School	Excluded for privacy			8.5	123	10.2
		Elementary School	Excluded for privacy			3.2	46	3.8
		Elementary School	Excluded for privacy			6.6	96	8.0
		Elementary School	Excluded for privacy			3.1	44	3.7
		Elementary School	Excluded for privacy			6.6	96	7.9
		Elementary School	Excluded for privacy			5.6	81	6.7
		Elementary School	Excluded for privacy			5.5	80	6.6
		Elementary School	Excluded for privacy			5.4	79	6.5
Pico Rivera	Open Space and Recreation	Pico Rivera Bicenntenial Park	11003 Rooks Rd.	34.0243	-118.0468	98.7	1436	118.4
		Smith Park	6016 Rosemead Blvd.	33.9904	-118.0897	15.7	228	18.8
		Streamland Park	3539 Durfee Ave.	34.02	-118.0718	14.1	206	17.0
		Pico Park	9528 Beverly Blvd.	34.0074	-118.0739	10.8	157	12.9
		Park	8717 E. Beverly Blvd.	34.0122	-118.0854	0.2	3	0.3
	Government Institution	Whittier Pumping Plant	4128 San Gabriel River Pkwy	34.0106	-118.0678	6.5	94	7.8

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[13]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Pico Rivera	Educational Use	High School	Excluded for privacy			20.5	298	24.6
		Continuation School	Excluded for privacy			12.1	176	14.6
		Elementary School	Excluded for privacy			11.1	162	13.3
		Elementary School	Excluded for privacy			8.3	120	9.9
		Elementary School	Excluded for privacy			7.8	113	9.3
		Elementary School	Excluded for privacy			6.5	95	7.8
		Elementary School	Excluded for privacy			6.4	94	7.7
	Educational Use	Elementary School	Excluded for privacy			6.3	92	7.6
		Elementary School	Excluded for privacy			4.8	70	5.8
		Elementary School	Excluded for privacy			4.7	68	5.6
		Middle School	Excluded for privacy			3.6	52	4.3
		School	Excluded for privacy			3.3	48	3.9
		Elementary School	Excluded for privacy			2.7	40	3.3
		Library	Excluded for privacy			1.3	19	1.6
	Commercial Use	Church	Excluded for privacy			1.3	20	1.6
Santa Fe Springs	Open Space and Recreation	Santa Fe Springs Park	10068 Cedardale Dr.	33.9454	-118.0976	13.8	200	16.5
		Lake Center Park	11641 Florence Ave.	33.936	-118.0853	11.4	166	13.7
		Los Nietos Park	11143 Charlesworth Rd.	33.9558	-118.0835	9.9	145	11.9
		utility corridor	Next to San Gabriel River freeway	33.9642	-118.0863	9.0	131	10.8
		Little Lake Park	10900 Pioneer Blvd.	33.9331	-118.0775	8.8	128	10.6
		Santa Fe Springs City Baseball	9730 Pioneer Blvd.	33.9518	-118.0824	6.4	94	7.7
		utility corridor	Next to San Gabriel River mid trail	33.9543	-118.0898	5.2	76	6.3
		utility corridor	Next to San Gabriel River mid trail	33.9610	-118.0865	3.1	44	3.7
		Lakeview Park	10225 S. Jersey Ave.	33.943	-118.0898	2.1	30	2.5
		park	9918 Cedardale Dr.	33.9497	-118.0926	2.0	30	2.4

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[13]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Santa Fe Springs	Educational Use	High School	Excluded for privacy			23.6	343	28.3
		High School	Excluded for privacy			9.3	136	11.2
		Elementary School	Excluded for privacy			9.3	135	11.1
		Elementary School	Excluded for privacy			6.0	87	7.2
	Educational Use	Elementary School	Excluded for privacy			5.0	73	6.0
	Commercial Use	Plaza	Excluded for privacy			5.6	81	6.7
Whittier	Open Space and Recreation	Hellman Wilderness Park	5700 Greenleaf Ave.	34.0005	-118.0333	282.2	4104	338.6
		Palm Park	5703 Palm Ave.	33.9909	-118.0572	11.9	173	14.3
		Amigo Park	5700 Juarez Ave.	33.9993	-118.0691	3.9	56	4.6
		park	10559 Whittier Blvd.	33.9913	-118.0655	2.5	37	3.0

3.4.3 RIGHT-OF-WAY BMPS

Right-of-way BMPs are systems of multiple distributed BMPs placed within a street right-of-way. These BMPs are designed to reduce the volume of stormwater discharge into the MS4 and treat stormwater runoff from adjacent streets and developments. Common right-of-way BMPs include bioretention, biofiltration, and permeable pavement. See the previous section for BMP descriptions. These BMPs can be implemented alone or in conjunction with one another.

A preliminary assessment has been performed to assess areas potentially available for right-of-way BMPs. This was done with a preliminary GIS approach by screening highways, arterial roads, and secondary (collector) roads located in non-residential areas within 200 feet of a catch basin location. The potential locations are indicated with grey circles on **Figure 3-23** below.

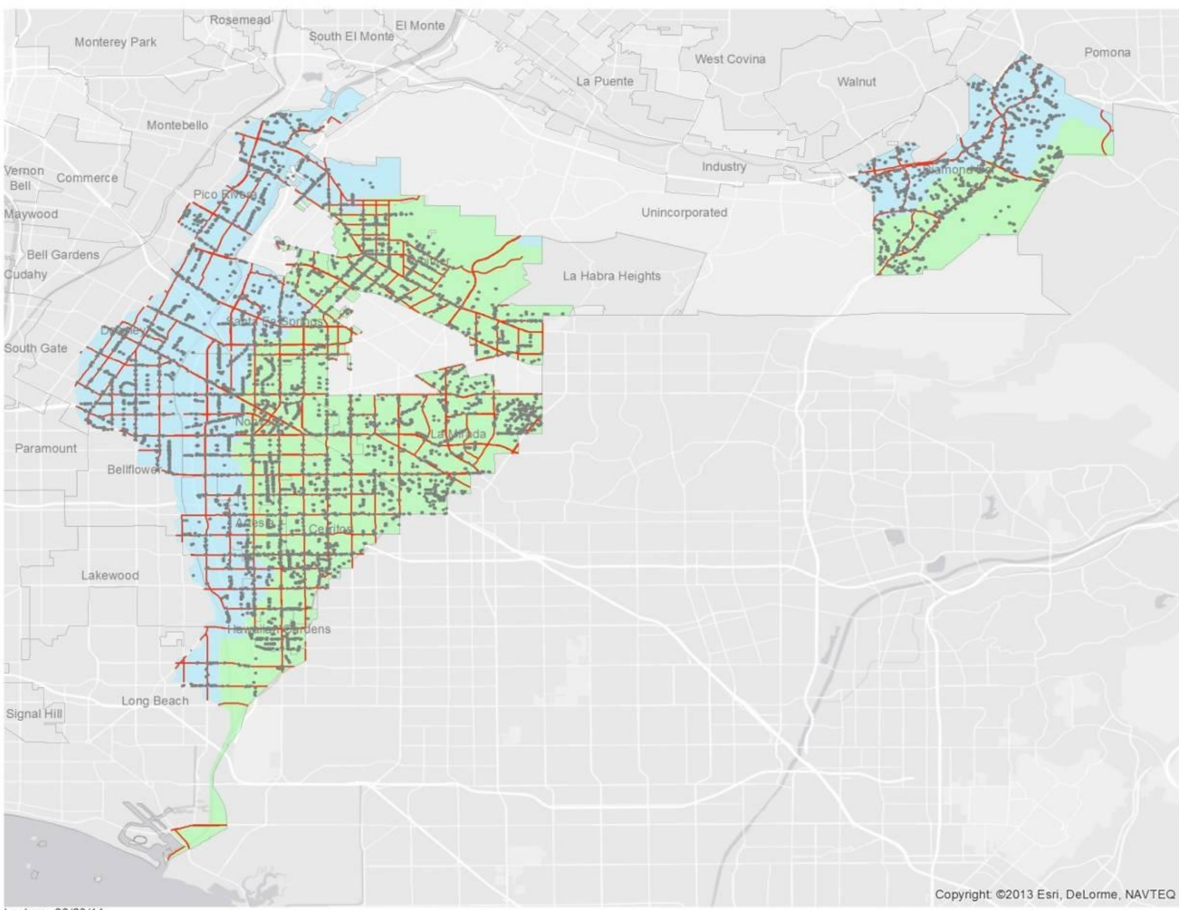

Figure 3-23: Areas potentially available for right-of-way BMPs

4 Reasonable Assurance Analysis

4.1 Executive Summary

A required element the WMP is the Reasonable Assurance Analysis (RAA). The MS4 Permit specifies the RAA use a watershed based computer modeling system to demonstrate:

"that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term".

There are three computer modeling systems approved by the MS4 Permit and the Watershed Management Modeling System (WMMS) was selected to develop this RAA. The Los Angeles County Flood Control District (LACFCD), through a joint effort with U.S. Environmental Protection Agency (USEPA), developed WMMS specifically to support informed decisions associated with managing stormwater.

While the Permits prescribes the RAA as a quantitative demonstration that control measures will be effective, the RAA also promotes a modeling process to identify and prioritize potential control measures to be implemented by the WMP. In other words, the RAA not only demonstrates the cumulative effectiveness of BMPs to be implemented, it also supports their selection. Furthermore, the RAA incorporates the applicable compliance dates and milestones for attainment of the WQBELs and RWLs, and therefore supports BMP scheduling. The ultimate goal of WMMS is to identify cost-effective water quality improvement projects through an integrated, watershed-based approach.

On March 25, 2014, the Los Angeles Regional Water Quality Control Board (Regional Board) issued "RAA Guidelines" (LARWQCB 2014) to provide information and guidance to assist permittees in development of the RAA. Appendix 4-1 provides appropriate documentation on the modeling assumptions that meet the RAA Guidelines.

The RAA describes the process for identifying milestones the current and next Permit periods, as well as final milestones to meet applicable TMDLs. Modeling was performed to quantify necessary load reductions to achieve the milestones. Based on these load reduction targets, a pollutant reduction plan was established that outlines the types and sequencing of BMPs for each jurisdiction to achieve milestones throughout the schedule. The RAA provides a detailed list of the capacities needed for BMPs over time, incorporating the existing BMPs and control measures identified in the WMP. These recommendations serve as goals for each jurisdiction to seek opportunities for implementation over time, but strategies may change as opportunities for more cost-effective BMPs are identified throughout the schedule.

The RAA has determined that the metal zinc will be the primary or "limiting" pollutant and that by implementing structural and non-structural measures to reduce zinc, the remaining pollutant goals will be achieved. Over the entire Lower San Gabriel River Watershed, the RAA projects a need for structural controls be sized to capture and or treat 118.6 acre -feet.

4.2 REASONABLE ASSURANCE ANALYSIS

The Reasonable Assurance Analysis for the Lower San Gabriel River Watershed is included in Appendix 4-1.

5 COMPLIANCE SCHEDULE

This Chapter provides the compliance schedule for each Participating Agency. The compliance schedule will be used to measure progress toward addressing the highest WQPs and achieving interim and final WQBELs and RWLs. The schedule is expressed as the needed structural BMP capacities over space and time. The Reasonable Assurance Analysis (RAA, Chapter 4) refines the capacity over space to the subwatershed level. The BMP capacities assume a 10% reduction over the MS4 Permit term through implementation of the nonstructural BMPs described in Chapter 3. The following section of this chapter includes the nonstructural BMP schedule.

Where deadlines are not specified within the MS4 Permit term, interim milestones are provided. Because zinc is the limiting pollutant in the RAA, compliance with WQPs not otherwise addressed by a TMDL is also achieved through the listed BMP capacities.

5.1 NONSTRUCTURAL BEST MANAGEMENT PRACTICES SCHEDULE

A 10% load reduction is assumed to result from the cumulative effect of nonstructural BMPs. These nonstructural BMPs consist of Minimum Control Measures, Nonstormwater Discharge Measures and Targeted Control Measures (MCMs, NSWD measures and TCMs) as described in Chapter 3. Their implementation over the MS4 Permit term is as follows:

5.1.1 NONSTRUCTURAL MINIMUM CONTROL MEASURES SCHEDULE

The MCMs will be implemented by the Participating Agencies upon approval of the WMP by the Regional Board Executive Officer or by the implementation dates provided in the MS4 Permit, where applicable. The scope of the MCM programs has expanded significantly from the prior third term MS4 Permit. This change is not entirely unexpected as a period of over ten years separates the adoption of the third and fourth term permits. Consequently significant pollutant reductions are anticipated through effective implementation of the new nonstructural MCMs. In particular, effective implementation of the Development Construction program will compliment the nonstructural TSS Reduction Strategy.

MCM provisions new to the Cities are described in WMP Section 3.2. Guidance documents have been prepared as an optional aid to Cities in MCM development/implementation – see Attachment 3.1.

5.1.2 NONSTRUCTURAL NON STORMWATER DISCHARGE MEASURES SCHEDULE

The NSWD measures will be implemented by the Participating Agencies upon approval of the WMP by the Regional Board Executive Officer or by the implementation dates provided in the MS4 Permit, where applicable. The scope of the NSWD measures has expanded from the prior third term MS4 Permit. In particular, NSWD source investigations are now tied into a robust outfall screening program required by the MS4 Permit Monitoring and Reporting Program and additional conditions have been placed on common exempt NSWDs, such as potable water discharges and irrigation runoff. Consequently significant pollutant reductions are anticipated through the resulting reductions in NSWD flows.

NSWD measures new to the Participating Agencies are described in WMP Section 3.3.

5.1.3 NONSTRUCTURAL TARGETED CONTROL MEASURES SCHEDULE

The specific Participating Agencies implementing each TCM is included in Table 3-5 in Chapter 3. The table also lists whether the TCM is a *planned* or a *potential* control measure. Potential control measures are contingent upon unknown factors such as governing body approval and as such implementation within the MS4 Permit term cannot be guaranteed. Descriptions of each nonstructural TCM are included in WMP Section 3.4. Table 5-1 lists the corresponding implementation schedules.

Table 5-1: Nonstructural TCM Compliance Schedule

Nonstructural TCM	Chapter 3 ID	Effort	Start date
Prioritize facility inspections based on WQPs	TCM-ICF-1	J*	2015-2017
Copper reduction through implementation of SB 346	TCM-INI-1	W*	Ongoing
Lead reduction through implementation of SB 757	TCM-INI-2	W	Ongoing
Support zinc reduction in tires through safer consumer product regs	TCM-INI-3	W	Ongoing
Apply for grant funding for stormwater quality/capture projects	TCM-INI-4	W/J	Ongoing
Enhanced tracking through use of online GIS MS4 Permit database	TCM-MRP-1	J	2014-2015
Incentives for irrigation reduction practices	TCM-NSWD-1	J	Ongoing
Upgraded sweeping equipment	TCM-PAA-1	J	2015-2017
Sanitary Sewer Management Plan	TCM-PAA-2	J	Ongoing
Statewide Trash Amendments (nonstructural measures)**	TCM-PAA-3	J	2015-2017
Increased street sweeping frequency or routes	TCM-PAA-4	J	2015-2017
Refocused outreach to target audiences and WQPs	TCM-PIP-1	W/J	2015
Train staff to facilitate LID and Green Streets implementation	TCM-PLD-1	J	2014
Ordinance requires LID BMPs for projects below MS4 Permit thresholds	TCM-PLD-2	J	2014-2017
Encourage retrofitting of downspouts	TCM-RET-1	J	2015
Prepare guidance documents to aid implementation of MCMs	TCM-SWM-1	W/J	2014
Exposed soil ordinance	TCM-TSS-1	J	2014-2017
Erosion repair and slope stabilization on private property	TCM-TSS-2	J	2015-2017
Private parking lot sweeping ordinance	TCM-TSS-3	J	2015-2017
Sweeping of private roads and parking lots	TCM-TSS-4	J	2015-2017
Negotiations with regulated utilities for erosion control within ROW	TCM-TSS-5	W	Ongoing
Erosion repair and slope stabilization on public property	TCM-TSS-6	J	2015-2017

*W – Watershed Group effort, J – Jurisdictional effort
** Contingent upon State Water Board's adoption of Trash Amendments

TSS REDUCTION STRATEGY

The expanded start-date ranges for the TSS Reduction Strategy (TCM-TSS-1 to 6) are set to accommodate the time needed to develop, adopt and implement model ordinances. A successfully implemented ordinance from the City of Whittier is included in this WMP as Appendix A-3-2. The remaining Cities will consider this ordinance as a template for their own TSS Reduction Strategy.

Complete implementation of this Program throughout the watershed is not expected by the end of the MS4 Permit term. However, as discussed in WMP Section 3.4, appreciable pollutant reductions may be realized with only partial implementation.

5.2 PLANNED PROJECT - PROPOSITION 84 GRANT AWARD

The cities of Downey, Norwalk, Santa Fe Springs, and Whittier are participating in a regional multi-watershed project through the Gateway Water Management Authority (GWMA). This project applied for and was awarded funding though the Proposition 84 Grant. Initiation of this project will begin as soon as the grant contracts and funding are finalized which is expected to be in the fall of 2014. The BMPs include: one (1) vegetated bioswale, six (6) tree box filters, and ten (10) bioretention tree wells. The project will install LID BMPs along transportation corridors to treat stormwater runoff and its associated pollutants.

The project is in the preliminary design phase. Installation of the BMPs is anticipated in 2016/2017. With the installation of these LID BMPs, this project is expected to reduce pollutant loads throughout the watershed. The full benefits of this project as it ties into interim and final compliance milestones will be determined during the adaptive management process.

5.3 STRUCTURAL BEST MANAGEMENT PRACTICE SCHEDULE

5.3.1 STRUCTURAL MINIMUM CONTROL MEASURES SCHEDULE

Significant pollutant reductions are anticipated through each City's effective implementation of the new structural LID BMP requirements of the Planning and Land Development Program. These new MCM provisions are described in WMP Section 3.2. Guidance documents have been prepared as an optional aid to Cities in MCM development/implementation – see Attachment 3.1.

The Planning and Land Development Program will be implemented by the Participating Cities no later than June 28, 2014.

5.3.2 STRUCTURAL TARGETED CONTROL MEASURES SCHEDULE

The RAA (see Chapter 4) demonstrates the cumulative effectiveness of BMPs to be implemented, supports BMP selection, and provides volume reduction goals optimized across the entire watershed. The results are summarized for volume reduction (represented in acre-feet) for interim and final compliance milestones.

The plan depicted in the RAA is considered a potential initial scenario. Through the adaptive management process, the participating agencies may select different types of BMPs (e.g. increase implementation of green streets and reduce implementation of regional BMPs) or substitute alternative BMPs altogether (e.g., implement dry wells instead of green streets).

The wet weather volume reductions necessary for each milestone (10%, 35% and Final) for each City show the combined total estimated BMP volume (acre-feet) for right-of-way (ROW) BMPs and regional Low Impact Development (LID) BMPs on public or private parcels. Specific green streets projects were not investigated during this initial analysis for potential BMPs, therefore, the City-specific summary lists potential regional LID BMPs that *could* be used to achieve the required interim milestones and targets. Since this WMP is a planning-level document, over time the Watershed Group will report and demonstrate that the summative effect of projects implemented add up to the required reductions for interim milestones and final targets.

Dry weather reductions are attained through a combination of non-structural practices and structural BMPs as they are implemented as part of the wet weather attainment of limits. As wet-weather BMPs are implemented, they serve to remove the dry-weather flows thus meeting the compliance set forth to achieve dry-weather reductions.

As expressed in the following tables, all participating agencies are meeting the 10% milestone. As such no structural BMPs are necessary through 2017. Where applicable, potential regional LID BMPs have been identified for the 35% milestone and final milestones. Through implementation of the WMP and adaptive management there is the potential for the BMP capacity for the final compliance milestones to change.

5.4 Pollutant Reduction Plan to Attain Interim & Final Limits

The following pages describe the pollutant reduction plans for each City for drainage areas within both the San Gabriel River and Coyote Creek. Figure 5-1 is an illustration of the total structural BMP capacity needed to comply with final WQBELs/RWLs within the Lower SGR Watershed.

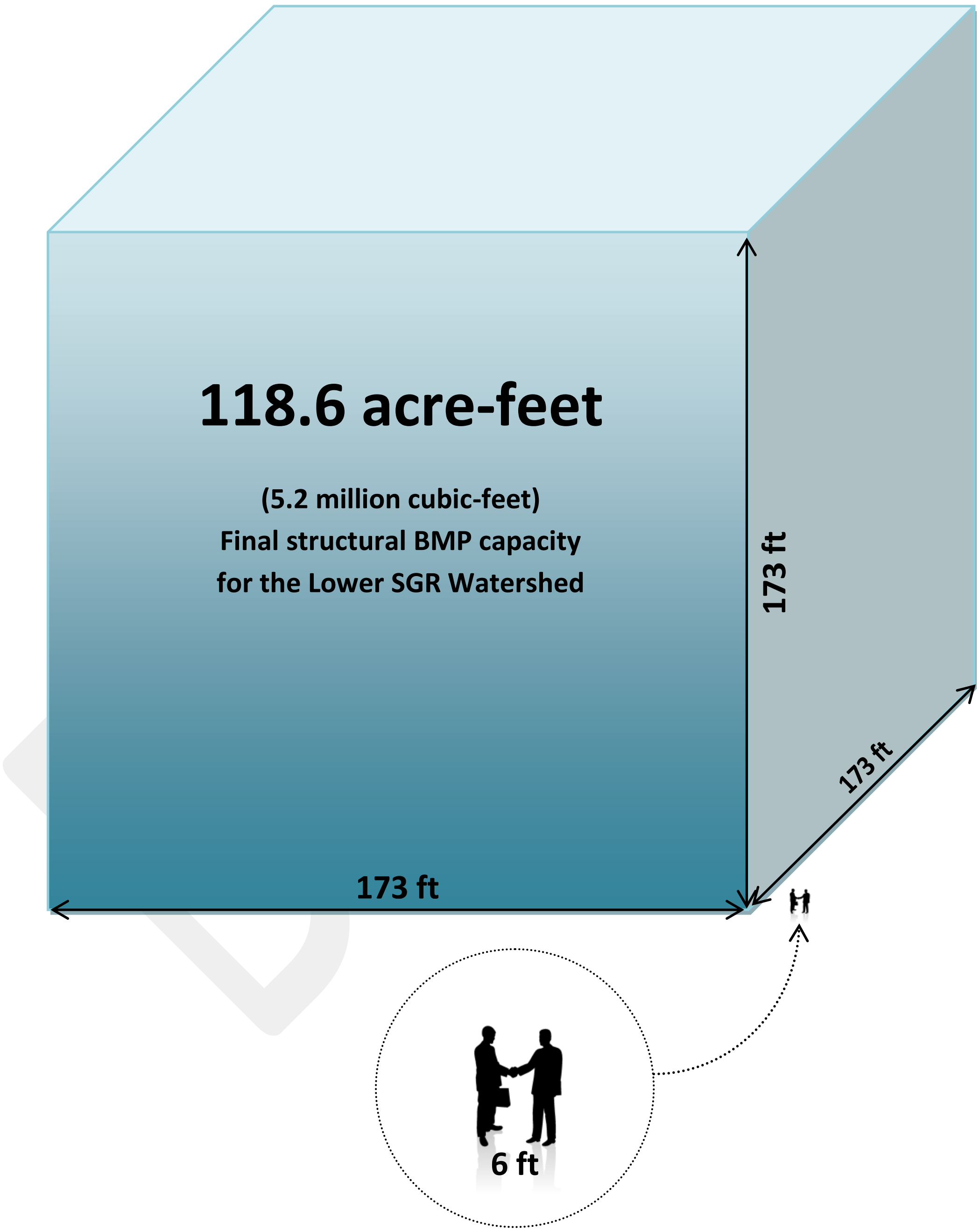

Figure 5-1: The Compliance Cube (total required BMP capacity for the Lower SGR Watershed)

5.4.1 CITY OF ARTESIA

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Artesia	10%	NS*	NS*
	35%	0.1	0.1
	Final	---	0.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Artesia within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 0.1 acre-feet by 2020 to meet the 35% interim milestone, which is equivalent to the final compliance milestone by 2026.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the remaining 0.1 acre-feet could be addressed using Right-of-Way BMPs to meet the 35% interim milestone and final compliance milestone.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Artesia	10%	NS*	NS*
	35%	1.1	1.1
	Final	0.0	1.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Artesia within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 1.1 acre-feet by 2020 to meet the 35% interim milestone, which is equivalent to the final compliance milestone.

If Padelford Park was transformed into an infiltration BMP, the potential capture volume would be 1.6 acre-feet, which would be sufficient to meet the 35% interim compliance and the final compliance. Additionally, the 1.1 acre-feet needed to meet the 35% interim milestone and final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.2 CITY OF BELLFLOWER

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Bellflower	10%	NS**	NS**
	35%	0.2	0.2
	Final	5.2	5.5

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Bellflower within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 0.2 acre-feet by 2020 to meet the 35% interim milestone, and total of 5.5 acre-feet by 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.2 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.3 CITY OF CERRITOS

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Cerritos	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.6	0.6

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Cerritos within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 0.6 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Cerritos	10%	NS**	NS**
	35%	0.0	0.0
	Final	6.4	6.5

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Cerritos within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 6.5 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.4 CITY OF DIAMOND BAR

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Diamond Bar	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.2	0.2

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Diamond Bar within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 0.2 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Diamond Bar	10%	NS**	NS**
	35%	0.3	0.3
	Final	8.7	8.9

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Diamond within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 0.3 acre-feet by 2020 to meet the 35% interim milestone, and total of 8.9 acre-feet by 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.3 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.5 City of Downey

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Downey	10%	NS*	NS*
	35%	0.0	0.0
	Final	10.4**	10.4**

* Nonstructural practices achieve 10% milestone
**Value attained after the city's existing distributed BMP volumes totaling 7.1 acre-ft were incorporated

According to the RAA results, the areas of the city of Downey within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 10.4 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.6 CITY OF HAWAIIAN GARDENS

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Hawaiian Gardens	10%	NS**	NS**
	35%	1.8	1.8
	Final	0.3	2.2

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Hawaiian Gardens within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 1.8 acre-feet by 2020 to meet the 35% interim milestone, and total of 2.2 acre-feet by 2026 for the final compliance milestone.

Since the available area in Hawaiian Gardens consists mostly of educational use, the 1.8 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.7 City of La Mirada

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
La Mirada	10%	NS*	NS*
	35%	0.0	0.0
	Final	15.2	15.2

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of La Mirada within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 15.2 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.8 CITY OF LAKEWOOD

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Lakewood	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.3	0.3

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Lakewood within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 0.3 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Lakewood	10%	NS**	NS**
	35%	1.6	1.6
	Final	0.3	1.8

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Lakewood within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 1.6 acre-feet by 2020 to meet the 35% interim milestone, and total of 1.8 acre-feet by 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 1.6 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.9 CITY OF LONG BEACH

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Long Beach	10%	NS*	NS*
	35%	2.4	2.4
	Final	0.3	2.7

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Long Beach within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 2.4 acre-feet by 2020 to meet the 35% interim milestone, and total of 2.7 acre-feet by 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 2.4 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Long Beach	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.0	0.0

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Long Beach within the Coyote Creek Watershed will not need to capture to capture and/or treat stormwater in order to meet the compliance milestones. The suggested approach for these areas is to implement the targeted nonstructural source control BMPs along with all required MCMs until further information is gathered from the adaptive management process.

5.4.10 CITY OF NORWALK

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Norwalk	10%	NS**	NS**
	35%	0.1	0.1
	Final	0.3	0.3

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Norwalk within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 0.1 acre-feet by 2020 to meet the 35% interim milestone, and total of 0.3 acre-feet by 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.1 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Norwalk	10%	NS*	NS*
	35%	0.2	0.2
	Final	4.6	4.8

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Norwalk within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% interim milestone; however, the city will need to capture 0.2 acre-feet by 2020 to meet the 35% interim milestone, and total of 4.8 acre-feet by 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.2 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.11 City of Pico Rivera

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Pico Rivera	10%	NS**	NS**
	35%	0.0	0.0
	Final	10.7	10.8

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Pico Rivera within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 10.8 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.12 City of Santa Fe Springs

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Santa Fe Springs	10%	NS*	NS*
	35%	0.0	0.0
	Final	4.9	4.9

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Santa Fe Springs within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 4.9 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Santa Fe Springs	10%	NS*	NS*
	35%	0.0	0.0
	Final	2.1	2.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Santa Fe Springs within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 2.1 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

5.4.13 CITY OF WHITTIER

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Whittier	10%	NS*	NS*
	35%	0.0	0.0
	Final	1.4	1.4

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Whittier within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 1.4 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Whittier	10%	NS*	NS*
	35%	0.0	0.0
	Final	39	39

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Whittier within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the 2017 10% or 2020 35% interim milestone; however, the city will need to capture 39 acre-feet by 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.5 ESTIMATED COSTS OF STRUCTURAL BMPS

Future costs associated with regional and Right-of-Way BMPs were estimated by using costs associated with an existing regional project (Discovery Park) and estimated costs for potential regional projects. Potential regional project costs were obtained from Los Angeles County.[1] Table 5-2 includes the estimated total costs and cost per acre-foot for regional and Right-of-Way BMPs.

The cost estimates only represent permitting, material, construction, and operation and maintenance (O&M) cost - with the exception of Discovery Park which does not take into account O&M costs. The cost of land acquisition, which is estimated to be over $5,000,000 per acre, was not included since initial regional and Right-of-Way BMP projects are planned for public lands. Because of the preliminary nature of the projects, the estimates developed for the proposed BMPs on public property lie between the preliminary/order of magnitude and budget level estimates, with an expected accuracy of about minus 25 percent to plus 40 percent.[2]

Table 5-2: Existing or potential estimated structural BMP cost

Project Name	Total Estimated Cost	BMP Capacity (acre-feet)	Cost Per Acre Foot
Bethune Park	$570,000	0.9	$1,000,000
Enterprise Park	$1,240,000	3.9	$318,000
Reid Park	$1,400,000	0.6	$2,333,000
Belvedere Park	$3,700,000	13.8	$268,000
Discovery Park	$4,500,000 *	8.0	$562,500
Johnson Park	$5,060,000	20.0	$253,000
Charles White Park	$5,300,000	21.0	$252,380
Right-of Way BMPs**	-------	0.25	$250,000

* Cost does not include O&M.
** A specific project was not used for the cost estimate. Instead various projects were averaged.

Cost were derived by assuming approximately two thirds of the projects implemented will be regional, with the remaining being Right-of-Way projects. Using general assumptions for the projects above, the following costs are anticipated:

- A cost of $2,000,000 per acre foot is anticipated for projects treating less than 1 acre-foot
- A cost of $625,000 per acre foot is anticipated for projects treating between 1 and 10 acre-feet
- A cost of $260,000 per acre foot is anticipated for projects treating more than 10 acre-feet

[1] Multi-Pollutant TMDL Implementation for the Unincorporated County Area of Los Angeles River: Part 2
[2] Multi-Pollutant TMDL Implementation for the Unincorporated County Area of Los Angeles River: Part 2

5.5.1 Total Estimated Costs of Structural BMPs

The following tables include the total estimated costs of structural BMPs for each City.

City of Artesia Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$450,000 - $840,000
	35%	0.1	0.1	
	Final	---	0.1	
Coyote Creek	10%	NS	NS	
	35%	1.1	1.1	
	Final	---	1.1	

City of Bellflower Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,100,000 - $3,850,000
	35%	0.2	0.2	
	Final	5.2	5.5	

City of Cerritos Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,700,000 - $5,000,000
	35%	0.0	0.0	
	Final	0.6	0.6	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	6.4	6.5	

City of Diamond Bar Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$3,400,000 - $6,400,000
	35%	0.0	0.0	
	Final	0.2	0.2	
Coyote Creek	10%	NS	NS	
	35%	0.3	0.3	
	Final	8.7	8.9	

City of Downey Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$3,900,000 - $7,300,000
	35%	0.0	0.0	
	Final	10.4	10.4	

City of Hawaiian Gardens Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
Coyote Creek	10%	NS	NS	$825,000 - $1,540,000
	35%	1.8	1.8	
	Final	0.3	2.2	

City of La Mirada Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
Coyote Creek	10%	NS	NS	$3,000,000 - 5,500,000
	35%	0.0	0.0	
	Final	15.2	15.2	

City of Lakewood Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$790,000 - $1,500,000
	35%	0.0	0.0	
	Final	0.3	0.3	
Coyote Creek	10%	NS	NS	
	35%	1.6	1.6	
	Final	0.3	1.8	

City of Long Beach Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$1,015,500 - $1,900,000
	35%	2.4	2.4	
	Final	0.3	2.7	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	0.0	0.0	

City of Norwalk Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$1,900,000 - $3,600,000
	35%	0.1	0.1	
	Final	0.3	0.3	
Coyote Creek	10%	NS	NS	
	35%	0.2	0.2	
	Final	4.6	4.8	

City of Pico Rivera Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$4,050,000 - $7,600,000
	35%	0.0	0.0	
	Final	10.7	10.8	

City of Santa Fe Springs Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,600,000 - $4,900,000
	35%	0.0	0.0	
	Final	4.9	4.9	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	2.1	2.1	

City of Whittier Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$7,900,000 - $14,700,000
	35%	0.0	0.0	
	Final	1.4	1.4	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	39	39	

6 FINANCIAL STRATEGY

This section outlines the financial strategy to implement the Lower SGR WMP in accordance with the MS4 Permit. The cost estimates provided herein are preliminary and based on the best available information to date. The estimates are also subject to revision as new information becomes available, including as the Watershed Control Measures (WCMs) are refined over the implementation period.

Financing the implementation of the Lower SGR WMP is the greatest challenge confronting the Watershed Group. In the absence of stormwater utility fees, the Participating Agencies have no dedicated revenue stream to pay for implementation of the WMP. In addition to current uncertainties associated with costs and funding, there are multiple uncertainties associated with future risks. The first TMDL standards compliance dates for the Lower SGR Watershed Group will be the interim metals milestones of 2017, 2020, and the final compliance date of September 30, 2026. The final non-TMDL water quality standard compliance date is projected to be sometime in 2040. Thus, there will be many deadlines that must be met despite limited resources. Member Agencies will need to set priorities and seek funding in order to meet the various compliance deadlines.

Therefore, to address the Lower SGR Water Quality Priorities (WQPs), the Watershed Group is going to pursue a multi-faceted financial strategy to match the multi-faceted Strategy for the Selection and Implementation of WCMs outlined in Chapter 3. In addition, the Watershed Group has coordinated the proposed compliance schedule (see Section 5) with the financial strategy.

The latest Los Angeles and Long Beach MS4 permits have greatly magnified the cost challenges associated with managing stormwater. The absence of a stable stormwater funding mechanism not tied to municipal General Funds is becoming ever more critical. For that reason, the City Manager Committees of the California Contract Cities Association and the League of California Cities, Los Angeles Division, formed a City Managers' Working Group (Working Group) to review stormwater funding options after the LA County proposed Clean Water, Clean Beaches funding initiative failed to move forward. The result was a Stormwater Funding Report that notes, "the Los Angeles region faces critical, very costly, and seriously underfunded stormwater and urban runoff water quality challenges." The Report found that funding stormwater programs is so complex and dynamic, and the water quality improvement measures so costly, that Permittees cannot depend on a single funding option at this time. The City Managers' report includes a variety of recommendations, including: organizational recommendations; education and outreach program recommendations; recommendations for legislation; Clean Water, Clean Beaches recommendations; local funding options; and recommendations for the Regional Water Board[1].

The Watershed Group has considered the recommendations in the Stormwater Funding Report in developing this financial strategy. A critical component of the report is the observation that moving forward with a regional stormwater fee vote (like the LA County Clean Water, Clean Beaches funding

[1]League of California Cities. (2014). Providing Sustainable Water Quality Funding in Los Angeles County. Prepared By City Managers Working Group. Los Angeles County Division May 21, 2014.

initiative) would likely not occur until after June 2015, which means that the first funds would likely not be available until property tax payments are received in 2017. Assuming revenues of approximately $6 million per year available from a funding source based on the proposed Clean Water, Clean Beaches funding initiative, the Watershed Group could expect approximately $60 million to be available over 10 years[2]. However, these amounts may not be sufficient to pay for and maintain expensive stormwater capture and dry-weather low flow diversions to the sanitary sewer if the Watershed Group had to depend on such projects to come into compliance with receiving water limitations (RWLs) and water quality-based effluent limitations (WQBELs) specified in the MS4 Permit.

The Reasonable Assurance Analysis (RAA) for the Lower SGR WMP, indicate that the volume of water required to be captured within the Watershed to comply with RWLs and WQBELs is 118.6 AF.

For cost estimation purposes, this WMP initially assumes that the Lower SGR Watershed could ultimately require the capacity to capture and infiltrate or use 118.6 AF of water. Based on cost estimates for constructing regional and Right-of-Way BMPs, as discussed in Section 5.5, such a requirement could cost the watershed between $34 million and $65 million for construction of these facilities (refer to Section 5.5 for more a detailed cost analysis).

The Watershed Group has been involved in the development of the financial strategy recommendations, and proposes to consider the recommendations of the City Managers Working Group to develop long-term solutions to stormwater quality funding. In the meantime, the Watershed Group will focus on the local funding options presented in the Stormwater Funding Report to secure the needed funding for initial implementation of the WMP.

During the early years of implementation, the Permittees anticipate having to depend largely on local fees such as commercial/industrial inspection fees, General Fund expenditures, and, potentially, Clean Water State Revolving Fund program financing agreements to fund the implementation of the WCMs. The Watershed Group will seek opportunities to leverage the limited funds available. It will do this by financially supporting the efforts of others, such as the California Stormwater Quality Association (CASQA), to seek State approval of true source control measures such as implementation of the Safer Consumer Product Regulations adopted by the Department of Toxic Substances Control in 2013. The Group will also support programs to increase water conservation, reduce dry-weather discharges to the storm drain system, and reduce TSS during wet weather. Successfully accomplishing these efforts could reduce the money needed in the long term to capture and/or treat stormwater discharges to comply with TMDLs and address other WQPs.

Concurrently, the Watershed Group proposes to work with the California Contract Cities, the Los Angeles Division of the League of California Cities, and others to educate elected officials and voters about the water quality problems facing the region and the need to develop an equitable financing

[2] Based on numbers derived for Los Cerritos Channel (LCC) during the development of the LCC WMP using expected annual revenue from a pro rata distribution of funds allocated to the Cities in the LCC Watershed and a possible proportional allocation of funds from the Watershed Authority Groups.

mechanism to fund the programs and facilities necessary to come into compliance with water quality regulations.

Legislative solutions will be necessary to clarify the application of Proposition 218 to fees for the capture and use of stormwater in light of a recent 6th Appellate Court decision and to ensure that any State water bond put on the ballot in fall 2014 contains funding for stormwater quality projects. The Group will also support local and statewide efforts to amend Proposition 218 to have stormwater fees treated in the same manner as water, sewage, and refuse fees. The Watershed Group and/or the Participating Agencies will also seek grants to implement rainwater capture and reuse or capture and infiltrate projects on publicly owned property.

In the long term, financing the WCMs for the Lower SGR Watershed will require establishing dependable revenue streams for local water quality programs. Accomplishing this formidable task will require the cooperation of many entities, including business and environmental organizations and the Regional Board.

7 LEGAL AUTHORITY

MS4 Permit §VI.C.5.b.iv.6 (LA)/ §VII.C.5.h.vi (LB)

This section covers information such as documentation and references/links to water quality ordinances for each participating that demonstrates adequate legal authority to implement and enforce Watershed Control Measures (WCMs) identified in this plan and as required in Section VI.D.5.b.iv.6 of the MS4 Permit. The goal of these WCMs is to create an efficient program that focuses on the watershed priorities by meeting the following objectives:

- Prevent or eliminate non-storm water discharges to the MS4 that are a source of pollutants from the MS4 to receiving waters.
- Implement pollutant controls necessary to achieve all applicable interim and final water quality-based effluent limitations and/or receiving water limitations pursuant to corresponding compliance schedules.
- Ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations.

The WCMs include the minimum control measures, nonstormwater discharge measures and targeted control measures (i.e. controls to address TMDL and 303(d) listings). As the requirement to incorporate these WCMs is an element of the MS4 Permits, the legal authority to implement them results from each agency's legal authority to implement the NPDES MS4 Permit.

A copy of each participating agency's legal authority certification from their chief legal counsel can be found in Appendix A-7. This certification shall be prepared annually. Table 7-1 includes the section that covers water quality ordinance for each agency with a reference link.

Table 7-1 Water quality ordinance language

<table>
<tr><th>City</th><th>Water Quality Ordinance</th><th>Reference</th></tr>
<tr><td>Artesia</td><td>Title 6-Sanitation and Health, Chapter 7, Storm Water Management and Discharge Control</td><td>http://qcode.us/codes/artesia/</td></tr>
<tr><td colspan="3"><u>6.7.02 Purpose and Intent (b)</u> -The intent of this chapter is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the Federal Clean Water Act, the California Porter-Cologne Water Quality Act and the Municipal NPDES Permit.
(c) This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal separate storm sewer system over which it has jurisdiction as required by the Municipal NPDES Permit, and thereby fully and timely comply with the terms of the Municipal NPDES Permits while the CSWMP and the WMAP are being developed by the permittes under the Municipal NPDES Permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequent adopted CSWMP and WMAP, or other programs developed under the Municipal NPDES Permit.</td></tr>
<tr><td>Bellflower</td><td>Title 13-Public Services, Chapter 13.20, Stormwater and Runoff Pollution Control</td><td>http://qcode.us/codes/bellflower</td></tr>
<tr><td colspan="3"><u>13.20.030 Purpose and Intent (B)-</u> The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and</td></tr>
</table>

<table>
<tr><td colspan="3">acts amendatory thereof or supplementary thereto, to applicable implementing regulations and the municipal NPDES permit and any amendment, revision, or re-issuance thereof.</td></tr>
<tr><td>Cerritos</td><td>Title 6- Health and Sanitation, Chapter 6.32, Stormwater and Urban Runoff Pollution Prevention Controls</td><td>http://www.codepublishing.com/ca/cerritos.html</td></tr>
<tr><td colspan="3">6.32.010 Purpose (C) - Reducing pollutants in storm water and urban runoff to the maximum extent practicable. (Ord. 777 § 1 (part), 1997)</td></tr>
<tr><td>Diamond Bar</td><td>Title 8- Health and Safety, Chapter 8.12, Division 5, Stormwater and Urban Runoff Pollution Control</td><td>http://library.municode.com/index.aspx?clientId=12790</td></tr>
<tr><td colspan="3">Sec. 8.12.1630 Purpose and Intent (b) - The intent of this division is to protect and enhance the quality of watercourses, water bodies, and wetlands within the city in a manner consistent with the Federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the municipal NPDES permit.
(c) This division is also intended to provide the city with the legal authority necessary to control discharges to and from those portions of the municipal storm water system over which it has jurisdiction as required by the municipal NPDES permit and to hold dischargers to the municipal storm water system accountable for their contributions of pollutants and flows.</td></tr>
<tr><td>Downey</td><td>Article V- Sanitation, Chapter 7, Stormwater and Urban Runoff Pollution and Conveyance Controls</td><td>http://qcode.us/codes/downey/</td></tr>
<tr><td colspan="3">Section 5701. Watershed Management Program - Notwithstanding other provisions in the Downey Municipal Codes, the MS4 Permit requires the City of Downey to implement the Watershed Management Program (WMP), and any subsequent amendments, are hereby incorporated into this Ordinance by reference. (Added by Ord. 1142, adopted 02-11-03; amended by Ord. 1320, adopted 11-12-13).</td></tr>
<tr><td>Hawaiian Gardens</td><td>Title 6- Health and Safety, Chapter 6.47, Urban Storm Water Runoff Control</td><td>http://qcode.us/codes/hawaiiangardens/</td></tr>
<tr><td colspan="3">6.47.020 Purpose and Intent (D) - Reducing pollutants in storm water and urban runoff to the maximum extent practicable in order to achieve water quality standards/receiving water limitations. (Ord. 549 § 1, 2013; Ord. 476 § 1, 2002)</td></tr>
<tr><td>La Mirada</td><td>Title 13- Water and Sewage, Chapter 13.12, Urban Runoff</td><td>http://www.amlegal.com/library/ca/lamirada.shtml</td></tr>
<tr><td colspan="3">13.12.020 Purpose and Intent (c) - Reducing pollutants in stormwater and urban runoff to the maximum extent practicable.</td></tr>
<tr><td>Lakewood</td><td>Article 05 (V) - Sanitation-Health, Chapter 8, Stormwater and Urban Runoff Pollution Control</td><td>http://weblink.lakewoodcity.org/weblink8/</td></tr>
<tr><td colspan="3">5800 - Adoption of the Los Angeles County Stormwater Runoff Pollution Control Ordinance - Except as otherwise provided in this Chapter, the stormwater runoff pollution control ordinance of the County of Los Angeles contained in Chapter 12.80 of Title 12- Environmental Protection of the Los Angeles County Code relating to control of pollutants carried by stormwater and runoff adopted by the County of Los Angeles on June 9, 1998, is hereby adopted and made a part hereof as though set forth in full. The same shall hereafter constitute the Stormwater and Runoff Pollution Control Ordinance of the City of Lakewood relating to the control of pollutants carried by stormwater and runoff and discharging into receiving water of the United States.</td></tr>
<tr><td>Long Beach</td><td>Volume II-Title 18-Building and Construction, Chapter 18.61, NPDES and SUSMP Regulations</td><td>http://library.municode.com/index.aspx?clientId=16115</td></tr>
<tr><td colspan="3">18.61.010 Purpose - The purpose of this chapter is to provide regulations and give legal effect to certain requirements of the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of Long Beach, and the subsequent requirements of the Standard Urban Storm Water Mitigation Plan (SUMSP), mandated by the California Regional Water Quality Control Board, Los Angeles Region</td></tr>
</table>

(RWQCB). The intent of these regulations is to effectively prohibit non-storm water discharges into the storm drain systems or receiving waters and to require source control BMP to prevent or reduce the discharge of pollutants into storm water to the maximum extent practicable. *The City of Long Beach is a participant member of this watershed group but is under a different MS4 Permit. Certification of legal authority will be in accordance with its MS4 Permit timeline*		
LACFCD	Flood Control District Code, Chapter 21 - Stormwater and Runoff Pollution Control	https://library.municode.com/index.aspx?clientId=16274
21.01 - Purpose and Intent - *The purpose and intent of this chapter is to regulate the stormwater and non-stormwater discharges to the facilities of the Los Angeles County Flood Control District for the protection of those facilities, the water quality of the waters in and downstream of those facilities, and the quality of the water that is being stored in water-bearing zones underground.*		
Norwalk	Title 18 - Environment, Chapter 18.04, Stormwater and Urban Runoff Pollution Control	http://qcode.us/codes/norwalk/
18.04.030 Purpose and Intent (C)- *This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal stormwater system over which it has jurisdiction as required by the municipal NPDES permit, and fully and timely comply with the terms of the municipal NPDES permit while the CSWMP and the WMAP are being developed by the permittees under the municipal NPDES permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequently adopted CSWMP and WMAP, or other programs developed under the municipal NPDES permit.*		
Pico Rivera	Title 16- Environment, Chapter 16.04, Stormwater and Urban Runoff Pollution Prevention	http://qcode.us/codes/picorivera
16.01.010 Purpose and Intent (4) - *Reducing pollutant loads in storm water and urban runoff, from land uses and activities identified in the municipal NPDES permit.* *The provisions of this chapter are adopted pursuant to the Federal Water Pollution Control Act, also known as the "Clean Water Act," codified and amended at 33 U.S.C 1251 et seq. The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and acts amendatory thereof of supplementary thereto; applicable implementing regulations; the Municipal NPDES permit, and any amendment, revisions, or re-issuance thereof. (Ord. 989 § 1 (part), 2002).*		
Santa Fe Springs	Title V: Public Works- 52, Stormwater Runoff	http://www.amlegal.com/library/ca/santafesprings.shtml
§ 52.01 Purpose and Intent- *The purpose of this chapter is to protect the health, safety and general welfare of the citizens, and to reduce the quantity of pollutants being discharged to the waters of the United States by: (F) Protecting and enhancing the quality of the waters of the United States in a manner consistent with the provisions of the Clean Water Act.*		
Whittier	Title 8-Health and Safety, Chapter 8.36, Stormwater and Runoff Pollution Control	https://library.municode.com/index.aspx?clientId=16695
8.36.030 Purpose and Intent- *The purpose of this chapter is to protect and improve water quality of receiving waters by: (E) reducing pollutant loads in stormwater and urban runoff, from land uses and activities identified in the municipal NPDES permit.*		

8 COORDINATED INTEGRATED MONITORING PROGRAM

The Participating Agencies have developed a customized coordinated integrated monitoring program (CIMP). The CIMP, based on the provisions set forth in Part IV of the MRP (Attachment E) of the MS4 Permit, assesses progress toward achieving the water quality-based effluent limitations and receiving water limitations per the compliance schedules, and progress toward addressing water quality priorities. The customized monitoring program is designed to address the Primary Objectives detailed in Attachment E, Part II.A of the MS4 Permit and includes the following program elements:

- Receiving Water Monitoring
- Storm Water Outfall Monitoring
- Non-Storm Water Outfall Monitoring
- New Development/Re-Development Effectiveness Tracking
- Regional Studies

The CIMP is included in Appendix 8-1.

9 ADAPTIVE MANAGEMENT PROCESS

Adaptive management is the process by which new information about the state of the watershed is incorporated into the WMP. The WMP is adaptively managed following the process described in Permit §IV.C.8. The process is implemented by the participating agencies every two years from the date of WMP approval by the Regional Water Board (or by the Executive Officer on behalf of the Regional Water Board). The purpose of the adaptive management process is to improve the effectiveness of the WMP based on – but not limited to – consideration of the following:

1. Progress toward achieving interim and/or final water quality-based effluent limitations and/or receiving water limitations in §VI.E and Attachments L through R of the MS4 Permit, according to established compliance schedules;
2. Progress toward achieving improved water quality in MS4 discharges and achieving receiving water limitations through implementation of the watershed control measures based on an evaluation of outfall-based monitoring data and receiving water monitoring data;
3. Achievement of interim milestones;
4. Re-evaluation of the water quality priorities identified for the Watershed Management Area (WMA) based on more recent water quality data for discharges from the MS4 and the receiving water(s) and a reassessment of sources of pollutants in MS4 discharges;
5. Availability of new information and data from sources other than the MS4 Permittees' monitoring program(s) within the WMA that informs the effectiveness of the actions implemented by the Permittees;
6. Regional Water Board recommendations; and
7. Recommendations for modifications to the Watershed Management Program solicited through a public participation process.

9.1 MODIFICATIONS

Based on the results of the adaptive management process, the participating agencies may find that modifications of the WMP are necessary to improve effectiveness. Modifications may include new compliance deadlines and interim milestones, with the exception of those compliance deadlines established in a TMDL.

9.1.1 REPORTING

Modifications are reported in the Annual Report, as required pursuant to Part XVIII.A.6 of the Permit Monitoring and Reporting Program (No. CI-6958), and as part of the Report of Waste Discharge (ROWD) required pursuant to Part II.B of Attachment D – Standard Provisions. The background and rational for these modifications are included by addressing the following points:

- Identify the most effective control measures and describe why the measures were effective and how other control measures will be optimized based on past experiences.

- Identify the least effective control measures and describe why the measures were deemed ineffective and how the control measures will be modified or terminated.
- Identify significant changes to control measures during the prior year and the rationale for the changes.
- Describe all significant changes to control measures anticipated to be made in the next year and the rationale for the changes. Those changes requiring approval of the Regional Water Board or its Executive Officer shall be clearly identified at the beginning of the Annual Report.
- Include a detailed description of control measures to be applied to New Development or Re-development projects disturbing more than 50 acres.
- Provide the status of all multi-year efforts that were not completed in the current year and will continue into the subsequent year(s).

9.1.2 IMPLEMENTATION

Modifications are implemented upon approval by the Regional Water Board Executive Officer or within 60 days of submittal if the Regional Water Board Executive Officer expresses no objections.

9.2 RECEIVING WATER LIMITATIONS

The adaptive management process fulfills the requirements in MS4 Permit §V.A.4 to address continuing exceedances of receiving water limitations.

10 REPORTING PROGRAM & ASSESSMENT

10.1 ANNUAL REPORT

PERMIT MRP §XV.A (LA/LB)

Each year on or before December 15th, the participating agencies will submit, either jointly or individually, an annual report to the Regional Water Board Executive Officer. The annual report will present a summary of information that will allow the Regional Board to assess implementation and effectiveness of the watershed management program[1].

The reporting process is intended to meet the following objectives:

- Each agency's participation in one or more Watershed Management Programs.
- The impact of each agency's storm water and non-storm water discharges on the receiving water.
- Compliance with receiving water limitations, numeric water quality-based effluent limitations, and non-storm water action levels.
- The effectiveness of control measures in reducing discharges of pollutants from the MS4 to receiving waters.
- Whether the quality of MS4 discharges and the health of receiving waters is improving, staying the same, or declining as a result watershed management program efforts, and/or TMDL implementation measures, or other Minimum Control Measures.
- Whether changes in water quality can be attributed to pollutant controls imposed on new development, re-development, or retrofit projects.

Annual Report will identify data collected and strategies, control measures and assessments implemented for each watershed within the participating agency's jurisdiction. The report will include summaries for each of the following seven sections as required by the MS4 Permit:

1) Stormwater Control Measures -Summary of New Development/Re-development Projects, actions to comply with TMDL provisions
2) Effectiveness Assessment of Stormwater Control Measures -Summary of rainfall data, provide assessment and compare water quality data, summary to whether or not water quality is improving
3) Non-Stormwater Control Measures -Summary of outfalls screening
4) Effectiveness Assessment of Non-Storm Water Control Measures -Summary of the effectiveness of control measures implemented
5) Integrated Monitoring Compliance Report - Report with summary of all identified exceedances of outfall-based stormwater monitoring data, we weather receiving water monitoring data, dry weather receiving water data and non-storm water outfall monitoring data
6) Adaptive Management Strategies -Summary of effective, less effective control measures

[1] Annual reports will cover summary from previous fiscal year beginning June 1st through July 30th.

7) Supporting Data and Information - Monitoring data summary

The participating agencies will submit annual reports as required by the MS4 Permit. The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

10.1.1 DATA REPORTING *PERMIT MRP §XIV.L (LA/LB)*

Analytical data reports will be submitted on a semi-annual basis. Data will be sent electronically to the Regional Water Board's Storm Water site at MS4stormwaterRB4@waterboards.ca.gov. These data reports will summarize:

- Exceedances of applicable WQBELs, receiving water limitations, or any available interim action levels or other aquatic toxicity thresholds.
- Basic information regarding sampling dates, locations, or other pertinent documentation.

10.1.2 CHRONIC TOXICITY REPORTING *PERMIT MRP §XII.K (LA/LB)*

Aquatic toxicity monitoring results will be submitted to the Regional Board on an annual basis as part of the integrated monitoring compliance report as well as in the semi-annual basis data report submittal.

10.2 WATERSHED REPORT *PERMIT MRP §XVII.A (LA/LB)*

The participating agencies will submit biennial watershed reports as required by the MS4 Permit to the Regional Water Board Executive Officer. This biennial report, which will be included in the annual report in odd years, will include information related to the following sections:

- Watershed Management Area
- Subwatershed (HUC-12) Description
- Description of the Permittees Drainage Area within the Subwatershed

Per MS4 Permit § XVII.B, the participating agencies may reference the Watershed Management Program (WMP) in the odd-year report, when the required information is already included or addressed in this WMP, to satisfy baseline information requirements.

The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

10.3 TMDL REPORTING *PERMIT MRP §XIX (LA/LB)*

The participating agencies will also submit an annual report to the Regional Water Board Executive Officer regarding progress of TMDL implementation within the watershed.

The TMDLs that will be addressed in the report are:

- Metals and Selenium
- Harbor Toxics

The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

Watershed Management Program Appendix 1

A-1-1 Definitions, Acronyms and Abbreviations

DEFINITIONS, ACRONYMS AND ABBREVIATIONS

The following are definitions for terms in this Watershed Management Program:

Bacteria Total Maximum Daily Load (TMDL) Dry Weather: Defined in the Bacteria TMDLs as those days with less than 0.1 inch of rainfall and those days occurring more than 3 days after a rain.

Bacteria Total Maximum Daily Load (TMDL) Wet Weather: Defined in the Bacteria TMDLs as a day with 0.1 inch or more of rain and 3 days following the rain event.

Baseline Waste Load Allocation: The Waste Load Allocation assigned before reductions are required. The progressive reductions in the Waste Load Allocations are based on a percentage of the Baseline Waste Load Allocation. The Baseline Waste Load Allocation for each jurisdiction was calculated based on the annual average amount of trash discharged to the storm drain system from a representative sampling of land use areas, as determined during the Baseline Monitoring Program.

Basin Plan: The Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

Beneficial Uses: The existing or potential uses of receiving waters as designated by the Regional Board in the Basin Plan.

Best Management Practices (BMPs): BMPs are practices or physical devices or systems designed to prevent or reduce pollutant loading from and or volume of stormwater or nonstormwater discharges to receiving waters.

Commercial Development: Any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

Commercial Malls: Any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers.

Daily Generation Rate (DGR): The estimated amount of trash deposited within a representative drainage area during a 24hour period, derived from the amount of trash collected from streets and catch basins in the area over a 30-day period.

Disturbed Area: An area that is altered as a result of clearing, grading, and/or excavation.

Effluent Limitation: Any restriction imposed on quantities, discharge rates, and concentrations of pollutants, which are discharged from point sources to waters of the U.S.

Environmentally Sensitive Areas (ESAs): An area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to stormwater mitigation requirements are: areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas

Study, Los Angeles County Department of Regional Planning (1976) and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Game's Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the Basin Plan as supporting the "Rare, Threatened, or Endangered Species (RARE)" beneficial use; and an area identified by a Permittee as environmentally sensitive.

Estuaries: Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater.

Hillside: Property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

Hydrologic Unit Code (HUC): A standardized watershed classification system in which each hydrologic unit is identified by a unique hydrologic unit code (HUC).

Illicit Connection: Any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

Illicit Discharge: Any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations.

Industrial/Commercial Facility: Any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

Industrial Park: A land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

Institutional Controls: Programmatic control measures that do not require construction or structural modifications to the MS4. Examples include street sweeping, public education, and clean out of catch basins that discharge to storm drains.

Integrated Pest Management (IPM): An ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties.

Low Impact Development (LID): LID consists of building and landscape features designed to retain or filter stormwater runoff.

Low Impact Development (LID) Plan: See "SUSMP" definition.

Maximum Extent Practicable (MEP): The process in choosing effective BMPs and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive.

National Pollutant Discharge Elimination System (NPDES): The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405.

Natural Drainage System: A natural drainage system is a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

New Development: Land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

Nonstormwater Discharge: Any discharge into the MS4 or from the MS4 into a receiving water that is not composed entirely of stormwater.

Not Detected (ND): Sample results which are less than the laboratory's minimum detection level.

Nuisance: Anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.; (3) occurs during, or as a result of, the treatment or disposal of wastes.

Receiving Water: A "water of the United States" into which stormwater runoff is or may be discharged.

Receiving Water Limitation: Any applicable numeric or narrative water quality objective or criterion, or limitation to implement the applicable water quality objective or criterion.

Redevelopment: Land-disturbing activity that results in the creation, addition, or replacement of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Significant Ecological Areas (SEAs): An area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan.

Source Control BMP: Any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution.

SUSMP: The Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP shall address the Planning and Land Development conditions and requirements of the MS4 Permit.

Wet Season: The calendar period beginning October 1 through April 15.

Acronym/Abbreviation	Full Phrase/Definition
µg/L	micrograms per Liter
303(d) List	California's Clean Water Act Section 303(d) List
ASBS	Areas of Special Biological Significance
Basin Plan	Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties
BMP	Best Management Practices
Caltrans Permit	The State Board's Caltrans NPDES Permit, Order No. 2012-0011-DWQ
CASQA	California Stormwater Quality Association
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	The State Board's Construction General Permit Order No. 2009-0009-DWQ, or as amended.
CIMP	The Lower San Gabriel River Watershed Group Coordinated Integrated Monitoring Program.
Cities	The Lower San Gabriel River Watershed Group participating cities, only.
County	The LACFCD and the LA County DPW
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
DC	Development Construction Program
ELRS	Equivalent Load Reduction Strategy
EPA	United States Environmental Protection Agency
GIS	Geographical Information System
gpd	gallons per day
GWMA	Gateway Water Management Authority
HUC	Hydrologic Unit Code
ICF	Industrial/Commercial Facilities Program
ICID	Illicit Connection and Illicit Discharge Elimination Program
IGP	The State Board's Industrial Storm Water General Permit Order No. 2014-0057-DWQ, or as amended.
INI	Initiatives (as defined in the WMP)
IPM	Integrated Pest Management
JSWMP	Jurisdictional Stormwater Management Program
LA	Load Allocations
LA County DPW	Los Angeles County Department of Public Works
LA MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175, only (excluding LB MS4 and Caltrans Permits).
LACFCD	Los Angeles County Flood Control District
LB MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2014-0024, only (excluding LA MS4 and Caltrans Permits).
LID	Low Impact Development
LID Plan	Low Impact Development Plan

Acronym/Abbreviation	Full Phrase/Definition
Lower SGR Watershed	Lower San Gabriel River Watershed
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
mg/L	milligrams per Liter
MGD	Million Gallons Per Day
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175 and Order No. R4-2014-0024.
NAICS	North American Industry Classification System
NPDES	National Pollutant Discharge Elimination System
NSWD	Nonstormwater Discharge
Ocean Plan	Water Quality Control Plan for Ocean Waters of California
PAA	Public Agency Activities Program
Participating Agencies	The Lower San Gabriel River Watershed Group participating agencies, excluding Caltrans.
PEP	Progressive Enforcement Policy
Permittees	The County of Los Angeles and 85 cities within the coastal watersheds of Los Angeles County
PIP	Public Information and Participation Program
PLD	Planning and Land Development Program
PMP	Pollutant Minimization Plan
POTW	Publicly Owned Treatment Works
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
RAA	Reasonable Assurance Analysis
RAP	Reasonable Assurance Program
REAP	Rain Event Action Plan
Regional Board	California Regional Water Quality Control Board, Los Angeles Region
RP	Responsible Party
SEA	Significant Ecological Area
SIC	Standard Industrial Classification
SMARTS	State Water Resources Control Board's Storm Water Multiple Application and Report Tracking System
SQMP	Stormwater Quality Management Programs
SSO	Sewer Leaks, sanitary sewer overflow
State Board	California State Water Resources Control Board
State Listing Policy	State Board's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List

Acronym/Abbreviation	Full Phrase/Definition
SUSMP	Standard Urban Stormwater Mitigation Plan
SWPPP	Stormwater Pollution Prevention Plan
SWQDv	Stormwater Quality Design Volume
TAC	Technical Advisory Committee
TCM	Targeted Control Measure
TMDL	Total Maximum Daily Load
TRA	Training
TSS	Total Suspended Solids
WAG	Watershed Authority Group
WDID	Waste Discharge Identification
WLA	Waste Load Allocations
WMP	The Lower San Gabriel River Watershed Group Watershed Management Program
WQBEL	Water Quality Based Effluent Limitations
WQO	Water Quality Objective
WQP	Water Quality Priority
WRP	Water Reclamation Plant

Watershed Management Program Appendix 2

A-2-1 2010 303(d) List

REGION/REGION NAME	WATER BODY NAME	POLLUTANT	POLLUTANT CATEGORY	POTENTIAL SOURCES	SOURCE CATEGORY
Regional Board 4 - Los Angeles Region	Coyote Creek	Ammonia	Nutrients	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	Coyote Creek	Copper, Dissolved	Metals/Metalloids	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Diazinon	Pesticides	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Lead	Metals/Metalloids	Major Municipal Point Source-wet weather discharge	Municipal Wastewater
Regional Board 4 - Los Angeles Region	Coyote Creek	Toxicity	Toxicity	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	Coyote Creek	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek, North Fork	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek, North Fork	Selenium	Metals/Metalloids	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 1 (Estuary to Firestone)	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 1 (Estuary to Firestone)	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Cyanide	Other Inorganics	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Lead	Metals/Metalloids	Nonpoint Source	Unspecified Nonpoint Source
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Lead	Metals/Metalloids	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 3 (Whittier Narrows to Ramona)	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Ammonia	Nutrients	Nonpoint Source	Unspecified Nonpoint Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Ammonia	Nutrients	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Total Dissolved Solids	Salinity	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Toxicity	Toxicity	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Coliform Bacteria	Pathogens	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Coliform Bacteria	Pathogens	Nonpoint Source	Unspecified Nonpoint Source

Watershed Management Program Appendix 2

A-2-2 Mass Emission Station Monitoring Results

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	2.6	0	1	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.126	0	0.018	0	0	0.019
pH	Comp	SM4500H B	0-14		7.82	7.06	8.03	7.02	8.75	8.65
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	5.5	8.2	8.58	9.38	9.18	9.61
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20	MPN/100ml	300000	500000	800000	500000	8000	3500
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	300000	300000	9000	300000	1700	70
Ratio Fecal Coliform/Total Coliform					1.0	0.6	0.011	0.6	0.21	0.02
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	800000	110000	170000	130000	800	800
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	800000	50000	170000	130000	800	800
General										
Chloride	Comp	EPA300.0	2	mg/L	29.5	9.13	78	14.8	88	87
Fluoride	Comp	EPA300.0	0.1	mg/L	0.36	0.14	0.54	0.1	0.46	1
Nitrate	Comp	EPA300.0	0.1	mg/L	7.32	1.61	8.31	2.89	2.28	8.9
Sulfate	Comp	EPA300.0	0.1	mg/L	44.5	10.4	114	22.1	125	129
Alkalinity	Comp	EPA310.1	4	mg/L	69	43	137.5	27.5	155	220
Hardness	Comp	EPA130.2	2	mg/L	130	60	180	45.6	195	340
COD	9i	EPA410.4	10	mg/L	96.1	24.4	148	24	28	87.6
TPH	Grab	EPA418.1	1	mg/L	1.4	1	2.8	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	522	160.8	792	171.1	831	2020
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	370	114	522	112	518	1250
Turbidity	Comp	EPA180.1	0.1	NTU	48	54.5	45.1	67.4	0.73	1.98
Total Suspended Solids	Comp	EPA160.2	2	mg/L	648	351	204	181	63	12
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	123	68	14.8	2.4	15	9
MBAS	Comp	EPA425.1	0.05	mg/L	0.27	0.053	0.151	0	0	0.062
Total Organic Carbon	Comp	EPA415.1	1	mg/L	29.3	7.81	17.9	4.27	5.35	10.1
BOD	Comp	SM5210B	2	mg/L	52.1	9.4	12.1	6.03	6.62	42.4
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.442	0.096	0.441	0.242	0	0
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.46	0.155	0.524	0.259	0	0
NH3-N	Comp	EPA350.3	0.1	mg/L	2.51	0.158	2.11	0	0	0.298
Nitrate-N	Comp	SM4110B	0.5	mg/L	1.65	0.364	1.87	0.6525	0.515	2.01
Nitrite-N	Comp	SM4110B	0.03	mg/L	1.01	0.198	1.42	0	0	0.365
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	3.36	0.558	6.84	1.16	0.82	1.87
Metals										
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	1118	0	0	134	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	2.99	0.83	1.22	0	0.64	0.68
Total Antimony	Comp	EPA200.8	5	ug/l	3.56	0.87	1.27	0	0.64	0.7
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	2.48	0	2.28	0	6.19	2.27
Total Arsenic	Comp	EPA200.8	5	ug/l	3.01	1.42	2.43	1.19	6.19	3.46
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	0.97	0	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	3.15	1.16	4.11	3.37	2.06	1.02
Total Chromium	Comp	EPA200.8	5	ug/l	8.49	11.7	4.55	9.25	12.5	2.6
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	11.7	4.21	4.83	4.76	3.98	6.9
Total Copper	Comp	EPA200.8	5	ug/l	45.9	9.91	17.9	12.1	9.94	10.1

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Dissolved Iron	Comp	EPA200.8	100	ug/l	0	109	163	213	0	0
Total Iron	Comp	EPA200.8	100	ug/l	1420	225	209	581	203	145
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.62	0.58	0	0	0
Total Lead	Comp	EPA200.8	5	ug/l	20.9	1.44	1.27	2.05	1.25	0.54
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	14.2	2.25	7.65	2.68	2.29	3.37
Total Nickel	Comp	EPA200.8	5	ug/l	17	15.5	9.57	6.01	18.9	4.3
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.37	0	0	0	1.92	0
Total Selenium	Comp	EPA200.8	5	ug/l	2.37	0	0	0	1.92	0
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50	ug/l	84.5	32	52	6	9.32	53
Total Zinc	Comp	EPA200.8	50	ug/l	219	52	61	41	11.6	84
Semi-Volatiles Organics (EPA 625)										
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dichloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dimethylpheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dinitropheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-chloro_3_methylpheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Pentachloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0.31	0	0.085	0.07	0	0.038

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	0	12.9	0	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.029	0.005	0.047	0	0	0.019
pH	Comp	SM4500H B	0-14		8.26	7.24	7.79	7.4	8.32	
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	7.1	8.4	9.39	8.26	8	8.9
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20	MPN/100ml	300000	300000	240000	500000	17000	50000
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	50000	300000	17000	220000	500	50000
Ratio Fecal Coliform/Total Coliform					0.17	1.0	0.071	0.44	0.029	1.0
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	24000	300000	130000	500000	230	1700
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	3000	300000	130000	500000	80	1300
General										
Chloride	Comp	EPA300.0	2	mg/L	74	25.4	20.6	23.2	167	93.2
Fluoride	Comp	EPA300.0	0.1	mg/L	0.35	0.19	0.13	0.19	0.23	0.21
Nitrate	Comp	EPA300.0	0.1	mg/L	2.5	6.63	3.87	3.88	34.9	30.9
Sulfate	Comp	EPA300.0	0.1	mg/L	102	38.3	21.9	36.1	150	117
Alkalinity	Comp	EPA310.1	4	mg/L	69	64	55	60.5	107	
Hardness	Comp	EPA130.2	2	mg/L	210	108	80	103	270	250
COD	9i	EPA410.4	10	mg/L	83.7	41.4	121	36	37.5	66.6
TPH	Grab	EPA418.1	1	mg/L	0	1	1.1	1	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	732	313	229	281	1215	1012
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	464	206	152	190	806	636
Turbidity	Comp	EPA180.1	0.1	NTU	143	963	46	457.5	0.13	9.8
Total Suspended Solids	Comp	EPA160.2	2	mg/L	630	1258	543	794	5	28
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	437	63	48.1	7	3	8
MBAS	Comp	EPA425.1	0.05	mg/L	0.209	0	0	0	0.085	0.088
Total Organic Carbon	Comp	EPA415.1	1	mg/L	10.2	6.44	6.75	6.77	7.77	7.95
BOD	Comp	SM5210B	2	mg/L	21.46	21.3	11.9	6.46	69.9	50.6
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.343	0.195	0.218	0.347	0.362	
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.356	0.713	0.236	0.349	0.411	
NH3-N	Comp	EPA350.3	0.1	mg/L	0.466	0	0	0	0.314	
Nitrate-N	Comp	SM4110B	0.5	mg/L	0.565	1.5	0.87	0.876	7.88	9.4
Nitrite-N	Comp	SM4110B	0.03	mg/L	0	0	0	0	5.81	0
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	3.58	0.372	2.44	7.64	0.314	
Metals										
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0	
Total Aluminum	Comp	EPA200.8	100	ug/l	2780	158	100	122	0	
Dissolved Antimony	Comp	EPA200.8	5	ug/l	1.68	0.98	0.78	0.51	0.55	
Total Antimony	Comp	EPA200.8	5	ug/l	3.87	1.02	0.81	0.58	0.58	
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	0	3.15	1.3	1.94	1.05	
Total Arsenic	Comp	EPA200.8	5	ug/l	4.49	6.1	1.39	2.18	1.05	
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Cadmium	Comp	EPA200.8	1	ug/l	2.15	0	0	0	0	
Dissolved Chromium	Comp	EPA200.8	5	ug/l	0	0.97	1.88	6.18	3.54	
Total Chromium	Comp	EPA200.8	5	ug/l	17.5	12.5	4.36	10.1	12.3	
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	8.98	4.23	6.01	5.82	4.39	
Total Copper	Comp	EPA200.8	5	ug/l	81.4	10.5	11.9	13.1	18.1	

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Dissolved Iron	Comp	EPA200.8	100	ug/l	221	220	311	953	0	
Total Iron	Comp	EPA200.8	100	ug/l	3680	540	431	1730	207	
Dissolved Lead	Comp	EPA200.8	5	ug/l	0.67	1.21	1.55	0	0	
Total Lead	Comp	EPA200.8	5	ug/l	56	2.52	2.16	5.39	1.38	
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	9.92	2.9	3.22	4.29	7.46	
Total Nickel	Comp	EPA200.8	5	ug/l	21.1	15.9	5.76	8.22	23.5	
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.61	0	0	0	1.95	
Total Selenium	Comp	EPA200.8	5	ug/l	3.86	0	0	0	1.95	
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Silver	Comp	EPA200.8	1	ug/l	0.43	0	0	0	0	
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	
Dissolved Zinc	Comp	EPA200.8	50	ug/l	23.8	26	22	4	36.4	
Total Zinc	Comp	EPA200.8	50	ug/l	440	74	41	48	36.4	
Semi-Volatiles Organics (EPA 625)										
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dichloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dimethylpheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dinitropheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-chloro_3_methylpheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Pentachloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0.34	0	0.41	0.035	0	0.047

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0	
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0	

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

	Sample Type	EPA Method	PQL	Units	Wet			Dry	
WEATHER CONDITION					Wet	Wet	Wet	Dry	Dry
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
Conventional									
Oil and Grease	Grab	EPA413.1	1	mg/L	0	0	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.02	0	0.017	0.007	0.01
pH	Comp	SM4500H B	0-14		7.5	6.89	6.89	7.39	8.16
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	3.02	8.12	11.28	6.6	17.1
Indicator Bacteria									
Total Coliform	Grab	SM9230B	20	MPN/100ml	50000	170000	24000	80000	2400
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	3000	110000	3000	1700	2400
Ratio Fecal Coliform/Total Coliform					0.06	0.65	0.13	0.02	1.00
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	24000	110000	17000	1100	900
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	24000	80000	13000	1100	260
General									
Chloride	Comp	EPA300.0	2	mg/L	64.3	15.1	32.4	219	103
Fluoride	Comp	EPA300.0	0.1	mg/L	0.29	0.16	0.15	0.63	0.54
Nitrate	Comp	EPA300.0	0.1	mg/L	0	6.63	12.3	0.96	17.5
Sulfate	Comp	EPA300.0	0.1	mg/L	78.8	24	53	317	158
Alkalinity	Comp	EPA310.1	4	mg/L	157.3	77	78	217	237
Hardness	Comp	EPA130.2	2	mg/L	225	92.8	112	325	395
COD	9i	EPA410.4	10	mg/L	279.1	30	38.6	70.8	125
TPH	Grab	EPA418.1	1	mg/L	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	649	277	374	1735	1767
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	408	192	250	1000	1100
Turbidity	Comp	EPA180.1	0.1	NTU	16.3	60	1.02	1.15	0.7
Total Suspended Solids	Comp	EPA160.2	2	mg/L	2061	336	102	445	9
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	394	88	25	77	7
MBAS	Comp	EPA425.1	0.05	mg/L	0.466	0.113	0.181	0.058	0
Total Organic Carbon	Comp	EPA415.1	1	mg/L	69.5	10	10.1	10.9	6.63
BOD	Comp	SM5210B	2	mg/L	119	20.3	17.3	4.31	14.4
Nutrients									
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.763	0.32	0.26	0.10	0.00
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.844	0.36	0.30	0.13	0.00
NH3-N	Comp	EPA350.3	0.1	mg/L	4.64	0.00	0.00	0.14	0.19
Nitrate-N	Comp	SM4110B	0.5	mg/L	0	1.50	2.78	0.22	3.95
Nitrite-N	Comp	SM4110B	0.03	mg/L	0.18	0.07	0.13	0.69	1.11
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	7	1.73	2.28	2.34	1.16
Metals									
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	5856	112	130	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	2.63	1.58	1.88	1.39	0.65
Total Antimony	Comp	EPA200.8	5	ug/l	4.75	1.63	2.02	1.39	0.65
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	3.44	1.91	1.78	3.94	2.85
Total Arsenic	Comp	EPA200.8	5	ug/l	7.17	1.96	1.78	3.94	3.71
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	2.46	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	5.96	1.52	3.1	7.7	4.78
Total Chromium	Comp	EPA200.8	5	ug/l	19	5.78	6.26	19.2	6.66
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	5.56	7.4	11	8.56	6.35
Total Copper	Comp	EPA200.8	5	ug/l	97.5	21.6	17.6	16.6	8.58
Dissolved Iron	Comp	EPA200.8	100	ug/l	316	0	0	0	0
Total Iron	Comp	EPA200.8	100	ug/l	20100	294	318	157	0
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.96	1.5	0	0
Total Lead	Comp	EPA200.8	5	ug/l	73.1	1.85	2.25	0.81	0.82
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0.236	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	15.1	3.94	4.53	6.62	5.3
Total Nickel	Comp	EPA200.8	5	ug/l	38	6.12	6.47	6.62	7.26
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.36	0	0	4.6	4.55
Total Selenium	Comp	EPA200.8	5	ug/l	2.85	0	0	4.6	5.64
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	1.2	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0

RB-AR13440

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
Dissolved Zinc	Comp	EPA200.8	50	ug/l	6.9	40	65	17.1	13
Total Zinc	Comp	EPA200.8	50	ug/l	530	52	90	17.1	50
Semi-Volatiles Organics (EPA 625)									
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-chloro_3_methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0
Base/Neutral									
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	48.4	0	40.7	31.5	5.2
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0.7	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	6.4	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	6.6	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Chlorinated Pesticides									
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0
Polychlorinated Biphenyls									
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Organohosphate Pesticides									
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0	0	0.104	0.181	0
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0
Herbicides									
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzec
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

RB-AR13442

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
Conventional									
Oil and Grease	Grab	EPA413.1	1	mg/L	0	0	0	0	3.3
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.012	0.022	0.015	0.023	0
pH	Comp	SM4500H B	0-14		8.17	7.68	7.64	7.49	7.92
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	9.56	9.02	10.68	8.52	10.38
Indicator Bacteria									
Total Coliform	Grab	SM9230B	20	MPN/100ml	30000	170000	3000	30000	13000
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	500	130000.00	270	110.00	500.00
Ratio Fecal Coliform/Total Coliform					0.02	0.76	0.09	0.00	0.04
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	1300	22000	1300	700	300
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	1300	17000	800	700	170
General									
Chloride	Comp	EPA300.0	2	mg/L	153	123	132	147	111
Fluoride	Comp	EPA300.0	0.1	mg/L	0.32	0.17	0.17	0.23	0.11
Nitrate	Comp	EPA300.0	0.1	mg/L	24.6	32.4	36.3	31.5	10.3
Sulfate	Comp	EPA300.0	0.1	mg/L	191	186	174	132	121
Alkalinity	Comp	EPA310.1	4	mg/L	140.8	169	152	112	107
Hardness	Comp	EPA130.2	2	mg/L	260	320	305	210	195
COD	9i	EPA410.4	10	mg/L	103.5	45.3	44.5	40.7	31.7
TPH	Grab	EPA418.1	1	mg/L	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	1116	1167	1107	1008	733
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	706	716	682	594	450
Turbidity	Comp	EPA180.1	0.1	NTU	0.55	30	1.16	0.5	0.2
Total Suspended Solids	Comp	EPA160.2	2	mg/L	10	29	80	6	23
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	4	10	14	2	11
MBAS	Comp	EPA425.1	0.05	mg/L	0.061	0.052	0.07	0.054	0.05
Total Organic Carbon	Comp	EPA415.1	1	mg/L	8.69	5.49	5.81	6.75	5.42
BOD	Comp	SM5210B	2	mg/L	16.7	5.87	14.8	3.4	3.93
Nutrients									
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.09	0.54	0.35	0.13	0.09
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.11	0.65	0.38	0.14	0.11
NH3-N	Comp	EPA350.3	0.1	mg/L	0.00	0.00	0.00	0.00	0.00
Nitrate-N	Comp	SM4110B	0.5	mg/L	5.55	7.32	8.20	7.11	2.33
Nitrite-N	Comp	SM4110B	0.03	mg/L	0.76	0.48	0.44	1.93	0.37
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	0.95	1.71	0.77	0.64	0.17
Metals									
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	198	258	178	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	0.529	0	0.6	0	0
Total Antimony	Comp	EPA200.8	5	ug/l	0.529	0	0.74	0	0.88
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	0	1.52	1.44	1.01	1.67
Total Arsenic	Comp	EPA200.8	5	ug/l	1.05	1.58	1.55	1.01	1.88
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	0.807	1.19	3.81	5.93	0
Total Chromium	Comp	EPA200.8	5	ug/l	0.807	4.76	4.74	14.6	0.86
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	2.21	4.3	5.95	4.96	4.86
Total Copper	Comp	EPA200.8	5	ug/l	12.5	16	10.5	13.9	10.7
Dissolved Iron	Comp	EPA200.8	100	ug/l	0	115	102	0	0
Total Iron	Comp	EPA200.8	100	ug/l	160	423	320	150	0
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.92	1.46	0	0
Total Lead	Comp	EPA200.8	5	ug/l	3.34	1.72	2.14	1.04	0.72
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0.234	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	3.7	4.97	5.62	4.61	3.47
Total Nickel	Comp	EPA200.8	5	ug/l	7.52	6.36	6.66	5.37	3.62
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.52	2.3	2.18	1.55	1.54
Total Selenium	Comp	EPA200.8	5	ug/l	2.69	2.39	2.58	1.55	1.65
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50	ug/l	26.9	46	42	36.8	13
Total Zinc	Comp	EPA200.8	50	ug/l	64.5	61	67	36.8	33

RB-AR13443

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
Semi-Volatiles Organics (EPA 625)									
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-chloro_3_methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	2.9	2.1	0	0
Base/Neutral									
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	42.4	43.4	19.8	18.7	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	9.5	1.7	1.9	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	1	0	0	3.1	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	7.2	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Chlorinated Pesticides									
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0
Polychlorinated Biphenyls									
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Organohosphate Pesticides									
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0	0	0	0	0
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0
Herbicides									
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

RB-AR13445

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
General Chemistry												
Cyanide	0.01	mg/L	0.004				0.010	0.000	0.000	0.000	0.008	0.013
pH	mg/L			6.5<pH<8.5			7.04	7.42	7.29	7.52	8.18	8.04
TPH	1						0.00	0.00	0.00	0.00	0.00	0.00
Oil and Grease	1	mg/L	75				0.00	0.00	0.00	0.00	0.00	0.00
Total Phenols	0.1	mg/L					0.00	9.10	0.00	0.00	0.00	0.00
Dissolved Oxygen	1	mg/L		<5			8.40		8.91	10.40	11.72	7.30
Calcium	1	mg/L					56.90	35.30	29.70	32.10	80.00	84.20
Magnesium	1	mg/L					16.00	10.20	13.60	10.70	34.00	29.20
Potassium	1	mg/L					9.95	5.10	4.47	3.75	12.50	11.70
Sodium	1	mg/L					34.40	25.70	42.30	23.00	118.00	110.00
Bicarbonate	2	mg/L					168.00	87.20	89.90		0.00	
Carbonate	2	mg/L					0.00	0.00	0.00	0.00	0.00	0.00
Chloride	2	mg/L		150			52.50	33.90	59.20	25.10	134.0	220.0
Fluoride	0.1	mg/L		2.2			0.36	0.18	0.13	0.18	0.40	0.26
Sulfate	0.1	mg/L		350			95.50	58.70	66.30	37.90	196.00	198.00
Alkalinity	0.1	mg/L					138.00	71.50	73.70	77.00	178.00	165.00
Hardness	2	mg/L					208	130	130	124	340	330
COD	10	mg/L					102.70	14.90	45.90	45.16	85.70	57.40
Specific Conductance	1	umhos/cm					598	391	451	337	1107	1072
Total Dissolved Solids	2	mg/L		1500			352	214	254	200	748	738
Turbidity	0.1	NTU	225				87.60	20.70	0.53	107.00	4.23	3.41
Total Suspended Solids	2	mg/L					723	48	18	1246	34	47
Volatile Suspended Solids	1	mg/L					140	11	6	69	15	10
MBAS	0.05	mg/L					0.31	0.07	0.00	0.00	0.06	0.06
Total Organic Carbon	1	mg/L					41.79	8.18	4.80	8.28	5.16	5.59
BOD	2	mg/L					59.70	6.79	4.58	3.30	21.00	30.60
Nutrients												
Dissolved Phosphorus	0.05	mg/L					0.27	0.19	0.10	0.10	0.00	0.00
Total Phosphorus	0.05	mg/L					0.62	0.30	0.15	0.77	0.11	0.12
Ammonia	0.1	mg/L					4.99	0.00	0.15	0.00	0.25	0.62
NH3-N	0.1	mg/L					4.12	0.00	0.12	0.00	0.21	0.51
Nitrate	0.1	mg/L					5.39	9.10	6.89	5.30	16.50	12.4
Nitrate-N	0.5	mg/L		10			1.22	2.05	1.56	1.20	3.73	2.80
Nitrite-N	0.03	mg/L		1			1.04	0.00	0.04	0.00	0.18	0.34
Kjeldahl-N	0.1	mg/L					15.30	1.49	0.89	1.87	1.37	0.64
Indicator Bacteria												
Total Coliform	20	MPN/100ml		10,000			1,400,000	240,000	240,000	17,000	17,000	9000
Fecal Coliform	20	MPN/100ml		400			140,000	17,000	90,000	2,800	170	40
Fecal Streptococcus	20	MPN/100ml					300,000	90,000	35,000	2,800	40	20
Enterococcus	20	MPN/100ml		104			300,000	90,000	35,000	1,700	40	20
Metals												
Dissolved Aluminum	100	ug/l					0.00	0.00	0.00	1215.00	0.00	0.00
Total Aluminum	100	ug/l		1000			260	776	1,240	16,100	175	0
Dissolved Antimony	5	ug/l					2.17	0.64	0.58	0.68	0.00	0.50
Total Antimony	5	ug/l		6			2.26	0.83	0.60	1.12	0.00	0.51
Dissolved Arsenic	5	ug/l					2.20	1.50	2.10	2.91	1.35	2.00
Total Arsenic	5	ug/l	32	50			2.34	1.73	2.54	6.74	1.75	2.27
Dissolved Barium	10	ug/l					36.70	29.10	32.70	95.50	51.40	50.30
Total Barium	10	ug/l					49.70	32.10	63.10	257.00	51.60	51.00
Dissolved Berylium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Beryllium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Boron	100	ug/l					530	150	108	137	348	351
Total Boron	100	ug/l					710	940	126	152	674	378
Dissolved Cadmium	1	ug/l			2.7-4.0	5.4-9.4	0.00	0.00	0.00	0.33	0.00	0.00
Total Cadmium	1	ug/l			2.9-4.4	5.8-10.3	0.00	0.00	0.00	0.82	0.00	0.00
Dissolved Chromium	5	ug/l			78.0-9119.2	680.3-999.7	1.26	1.08	1.74	0.70	0.56	12.60
Total Chromium	5	ug/l		50	246.9-377.1	2071.1-3163.5	1.87	2.68	4.91	19.20	1.42	18.80

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
Dissolved Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Copper	5	ug/l			10.8-16.8	16.4-26.8	6.16	5.36	3.57	10.20	4.59	3.59
Total Copper	5	ug/l	12		11.2-17.4	17.1-27.9	22.50	12.70	32.20	37.90	9.05	11.00
Dissolved Iron	100	ug/l					203	0	0	849	0	0
Total Iron	100	ug/l					896	1,340	1,950	15,050	104	119
Dissolved Lead	5	ug/l			3.2-5.5	81.6-141.9	0.00	0.00	0.00	11.40	0.00	0.00
Total Lead	5	ug/l	8		4.2-8.1	107.4-207.4	3.78	4.42	9.05	37.50	1.17	1.07
Dissolved Manganese	30	ug/l					0.00	0.00	0.00	79.40	0.00	0.00
Total Manganese	30	ug/l					165.00	32.40	48.30	648.00	0.00	52.10
Dissolved Mercury	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Mercury	1	ug/l	0.16	2			0.25	0.00	0.00	0.00	0.00	0.00
Dissolved Nickel	5	ug/l			65.0-96.7	561.7-870.1	9.43	3.50	2.18	2.71	5.32	5.13
Total Nickel	5	ug/l	20	100	65.1-96.9	562.8-871.8	11.30	4.99	6.66	18.30	5.36	5.82
Dissolved Selenium	5	ug/l					1.79	0.00	1.03	0.00	2.56	3.58
Total Selenium	5	ug/l	60	50			2.02	0.00	1.06	0.00	3.58	3.71
Dissolved Silver	1	ug/l				5.0-12.2	0.00	0.00	0.00	0.00	0.00	0.00
Total Silver	1	ug/l	80			5.9-14.3	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Zinc	50	ug/l			140.6-218.0	140.6-218.0	32.20	10.30	15.90	17.70	22.80	9.49
Total Zinc	50	ug/l			143.8-222.9	143.8-222.9	49.60	24.60	69.30	90.70	33.40	21.80
Semi-Volatiles												
Acenaphthylene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Acetophenone	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Antracene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aminobiphenyl	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzidine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(k)flouranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)pyrene	0.1	ug/l		0.2			0.00	0.00	0.00	0.00	0.00	0.00
Butyl benzyl phthalate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-chloroethyl)ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Chloroethoxy) methane	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Ethylhexl) phthalate	1	ug/l					0.00	0.00	0.00	0.00	26.70	0.00
Bis(2-chlorisopropyl) ether	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Bromophenyl phenyl ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chloroaniline	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Chlorophenyl phenyl ether	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chrysene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
7,12-Dimethyl-benz(a)-anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
alpha,alpha-Dimethylphenethylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenz(a,j)acridine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenzo(a,h)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,3-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.05	ug/l		5			0.00	0.00	0.00	0.00	0.00	0.00
3,3-Dichlorobenzidine	0.05	ug/l		600			0.00	0.00	0.00	0.00	0.00	0.00
Diethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
di-n-Butyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Diphenylamine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diphenylhydrazine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
di-n-Octyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Ethyl methanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin ketone	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluorene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.5	ug/l		1			0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobutadiene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachloro-cyclopentadiene	3	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Hexachloroethane	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Isophorone	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylcholanthrene	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylmethanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Naphthalene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
3-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Nitrobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-butyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-dimethyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-diphenyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-di-n-propyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitrosopiperidine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenacetin	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenanthrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Picoline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pronamide	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pyrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4,5-Tetra-chlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trichlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzoic acid	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro-3-methylphenol	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro_3_methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2- Chlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dimethylphenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dinitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,6 Dinitro-2-methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Metholphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,3,4,6-Tetrachlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-Trichlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,6-trichlophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
PCBs												
Aroclor-1016	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1221	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1232	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1242	0.5	ug/l		0.03	0.014		0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1248	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1254	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1260	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
Pesticides												
Aldrin	0.05	ug/l				3	0.00	0.00	0.00	0.00	0.00	0.00
alpha-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
beta-BHC	0.05	ug/l	0.008				0.00	0.00	0.00	0.00	0.00	0.00
delta-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
gamma-BHC (lindane)	0.05	ug/l		0.2		0.95	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane	0.05	ug/l			0.0043	2.4	0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDD	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDE	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDT	0.1	ug/l			0.001	1.1	0.00	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.1	ug/l			0.056	0.24	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 1	0.1	ug/l			0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 2	0.1	ug/l	0.018		0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan sulfate	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin	0.1	ug/l	0.004	2	0.036	0.086	0.00	0.00	0.00	0.00	0.00	0.00
Endrin aldehyde	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor Epoxide	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Methoxychlor	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Toxaphene	1	ug/l		3	0.0002	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Diazinon	0.01	ug/l		0.08			0.096	0.100	0.051	0.00	0.00	0.00
Chlorpyrifos	0.05	ug/l		0.07			0.00	0.00	0.00	0.00	0.00	0.00
Diuron	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Malathion	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Prometryn	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Simazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Atrazine	2	ug/l		3			0.00	0.00	0.00	0.00	0.00	0.00
Cyanazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Molinate	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Thiobencarb	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Herbicides												
Carbofuran	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP-Silvex	10	ug/l		70			0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP	1	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Bentazon	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Glyphosate	25	ug/l		700			0.00	0.00	0.00	0.00	0.00	0.00

[1] CTR values for metals are hardness dependent; higher hardness gives higher WQO

[2] Values of 0 represent that the constituent was not detected above the PQL as defined in the Municipal Stormwater Permit. Results are presented in accordance with Method B of the permit

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
General Chemistry												
Cyanide	0.01	mg/L	0.004				0.005	1.300	0.007	0.000	0.015	0.009
pH	mg/L			6.5<pH<8.5			7.18	6.61	6.79	6.94	8.18	8.30
TPH	1						0.00	0.00	0.00	0.00	0.00	0.00
Oil and Grease	1	mg/L	75				0.00	0.00	0.00	0.00	0.00	0.00
Total Phenols	0.1	mg/L					0.00	9.66	0.00	0.00	0.00	0.00
Dissolved Oxygen	1	mg/L		<5			6.83		9.30	9.20	15.19	10.90
Calcium	1	mg/L					56.10	12.00	29.70	12.80	96.20	120.00
Magnesium	1	mg/L					14.60	4.86	8.75	7.78	41.30	53.50
Potassium	1	mg/L					7.47	2.69	3.67	2.07	7.47	11.40
Sodium	1	mg/L					55.20	16.50	28.10	20.90	156.00	265.00
Bicarbonate	2	mg/L					195.00	40.30	84.50		326.00	0.00
Carbonate	2	mg/L					0.00	0.00	0.00	0.00	0.00	0.00
Chloride	2	mg/L		150			58.70	14.50	28.70	17.10	175.00	228.00
Fluoride	0.1	mg/L		2.2			0.37	0.11	0.16	0.00	0.69	0.90
Sulfate	0.1	mg/L		350			96.30	16.80	44.70	23.70	293.00	492.00
Alkalinity	0.1	mg/L					160.00	33.00	69.30	40.70	267.00	283.00
Hardness	2	mg/L					200	50	110	64	410	520
COD	10	mg/L					117.90	11.30	79.70	18.72	27.40	88.40
Specific Conductance	1	umhos/cm					607	149	349	199	1545	1,923
Total Dissolved Solids	2	mg/L		1500			364	94	192	122	966	1,354
Turbidity	0.1	NTU	225				64.90	8.43	1.38	8.67	0.81	1.24
Total Suspended Solids	2	mg/L					1312	196	105	88	74	33
Volatile Suspended Solids	1	mg/L					233	58	38	3	20	9
MBAS	0.05	mg/L					0.29	0.13	0.07	0.00	0.00	0.00
Total Organic Carbon	1	mg/L					38.20	10.07	8.70	7.45	7.22	5.59
BOD	2	mg/L					59.80	12.80	14.40	5.18	32.90	8.85
Nutrients												
Dissolved Phosphorus	0.05	mg/L					0.11	0.19	0.17	0.12	0.09	0.00
Total Phosphorus	0.05	mg/L					0.38	0.26	0.29	0.25	0.13	0.00
Ammonia	0.1	mg/L					2.83	0.00	0.64	0.16	0.76	0.14
NH3-N	0.1	mg/L					2.34	0.00	0.53	0.13	0.63	0.11
Nitrate	0.1	mg/L					1.96	4.28	4.28	4.67	13.10	23.05
Nitrate-N	0.5	mg/L		10			0.44	0.97	0.97	0.15	2.96	5.21
Nitrite-N	0.03	mg/L		1			0.68	0.00	0.17	0.07	0.36	0.17
Kjeldahl-N	0.1	mg/L					12.20	2.24	2.24	1.31	1.29	0.99
Indicator Bacteria												
Total Coliform	20	MPN/100ml		10,000			900,000	1,600,000	500,000	500,000	30,000	9,000
Fecal Coliform	20	MPN/100ml		400			110,000	30,000	300,000	14,000	11,000	800
Fecal Streptococcus	20	MPN/100ml					900,000	900,000	170,000	50,000	1,700	130
Enterococcus	20	MPN/100ml		104			900,000	300,000	170,000	22,000	1,700	130
Metals												
Dissolved Aluminum	100	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Aluminum	100	ug/l		1000			170	1,061	1,560	1,360	0	148
Dissolved Antimony	5	ug/l					2.47	0.64	1.64	0.80	0.00	0.00
Total Antimony	5	ug/l		6			2.57	1.25	2.36	1.24	0.00	0.00
Dissolved Arsenic	5	ug/l					2.74	1.37	1.66	1.13	1.70	3.58
Total Arsenic	5	ug/l	32	50			2.87	1.39	2.16	1.48	1.70	4.02
Dissolved Barium	10	ug/l					44.00	19.40	26.00	17.70	40.10	71.10
Total Barium	10	ug/l					62.90	32.90	63.10	40.90	40.10	72.20
Dissolved Berylium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Beryllium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Boron	100	ug/l					330	0	0	0	447	508
Total Boron	100	ug/l					680	960	0	0	1,450	662
Dissolved Cadmium	1	ug/l			1.4-6.6	2.0-19.6	0.00	0.00	0.00	0.00	0.00	0.00
Total Cadmium	1	ug/l			1.4-7.5	2.1-22.2	0.00	0.00	0.38	0.28	0.00	0.00
Dissolved Chromium	5	ug/l			37.1-207.7	311.0-1742.8	1.30	0.69	1.48	0.73	0.84	0.98
Total Chromium	5	ug/l		50	117.3-657.4	984.3-5515.0	1.92	3.48	5.35	3.97	0.84	2.69

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
Dissolved Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Copper	5	ug/l			5.0-29.9	7.0-50.7	7.30	7.02	5.94	6.38	4.38	5.40
Total Copper	5	ug/l	12		5.2-31.2	7.3-52.8	23.30	16.80	44.50	22.50	11.20	11.70
Dissolved Iron	100	ug/l					156	0	0	136	0	0
Total Iron	100	ug/l					698	1,874	2,050	1,355	0	103
Dissolved Lead	5	ug/l			1.2-11	30.1-288.1	0.00	0.00	0.00	1.67	0.00	0.00
Total Lead	5	ug/l	8		1.3-19.2	33.8-492.0	3.24	7.31	14.70	13.50	2.15	1.48
Dissolved Manganese	30	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Manganese	30	ug/l					395.0	40.3	64.2	57.00	0.00	0.00
Dissolved Mercury	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Mercury	1	ug/l	0.16	2			0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Nickel	5	ug/l			29.0-171.8	260.5-1544.8	10.00	3.26	3.07	2.18	3.82	4.22
Total Nickel	5	ug/l	20	100	29.0-172.1	261.0-1547.9	12.20	4.44	8.04	5.35	3.82	4.29
Dissolved Selenium	5	ug/l					1.69	0.00	0.00	0.00	2.94	7.78
Total Selenium	5	ug/l	60	50			1.76	0.00	0.00	0.00	2.94	9.29
Dissolved Silver	1	ug/l				1.1-39.1	0.00	0.00	0.00	0.00	0.00	0.00
Total Silver	1	ug/l	80			1.2-46.0	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Zinc	50	ug/l			65.1-387.3	65.1-387.3	24.70	36.10	36.60	31.00	11.40	7.60
Total Zinc	50	ug/l			66.6-396.0	66.6-396.0	47.00	65.80	153.00	79.30	24.50	27.60
Semi-Volatiles												
Acenaphthylene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Acetophenone	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Antracene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aminobiphenyl	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzidine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(k)flouranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)pyrene	0.1	ug/l		0.2			0.00	0.00	0.00	0.00	0.00	0.00
Butyl benzyl phthalate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-chloroethyl)ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Chloroethoxy) methane	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Ethylhexl) phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	14.20
Bis(2-chlorisopropyl) ether	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Bromophenyl phenyl ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chloroaniline	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Chlorophenyl phenyl ether	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chrysene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
7,12-Dimethyl-benz(a)-anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
alpha,alpha-Dimethylphenethylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenz(a,j)acridine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenzo(a,h)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,3-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.05	ug/l		5			0.00	0.00	0.00	0.00	0.00	0.00
3,3-Dichlorobenzidine	0.05	ug/l		600			0.00	0.00	0.00	0.00	0.00	0.00
Diethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
di-n-Butyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Diphenylamine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diphenylhydrazine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
di-n-Octyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Ethyl methanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin ketone	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluorene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.5	ug/l		1			0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobutadiene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachloro-cyclopentadiene	3	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Hexachloroethane	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Isophorone	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylcholanthrene	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylmethanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Naphthalene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
3-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Nitrobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-butyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-dimethyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-diphenyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-di-n-propyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitrosopiperidine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenacetin	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenanthrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Picoline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pronamide	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pyrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4,5-Tetra-chlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trichlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzoic acid	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro-3-methylphenol	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro_3_methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2- Chlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dimethylphenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dinitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,6 Dinitro-2-methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Metholphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,3,4,6-Tetrachlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-Trichlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,6-trichlophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
PCBs												
Aroclor-1016	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1221	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1232	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1242	0.5	ug/l		0.03	0.014		0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1248	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1254	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1260	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pesticides												
Aldrin	0.05	ug/l				3	0.00	0.00	0.00	0.00	0.00	0.00
alpha-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
beta-BHC	0.05	ug/l	0.008				0.00	0.00	0.00	0.00	0.00	0.00
delta-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
gamma-BHC (lindane)	0.05	ug/l		0.2		0.95	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane	0.05	ug/l			0.0043	2.4	0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDD	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDE	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDT	0.1	ug/l			0.001	1.1	0.00	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.1	ug/l			0.056	0.24	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 1	0.1	ug/l			0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 2	0.1	ug/l	0.018		0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan sulfate	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin	0.1	ug/l	0.004	2	0.036	0.086	0.00	0.00	0.00	0.00	0.00	0.00
Endrin aldehyde	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor Epoxide	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Methoxychlor	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Toxaphene	1	ug/l		3	0.0002	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Diazinon	0.01	ug/l		0.08			0.065	0.060	0.079	0.00	0.00	0.00
Chlorpyrifos	0.05	ug/l		0.07			0.00	0.00	0.00	0.00	0.00	0.00
Diuron	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Malathion	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Prometryn	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Simazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Atrazine	2	ug/l		3			0.00	0.00	0.00	0.00	0.00	0.00
Cyanazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Molinate	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Thiobencarb	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Herbicides												
Carbofuran	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP-Silvex	10	ug/l		70			0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP	1	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Bentazon	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Glyphosate	25	ug/l		700			0.00	0.00	0.00	0.00	0.00	0.00

[1] CTR values for metals are hardness dependent; higher hardness gives higher WQO
[2] Values of 0 represent that the constituent was not detected above the PQL as defined in the Municipal Stormwater Permit. Results are presented in accordance with Method B of the permit

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	1.10	0	0	0	0	0	0
Total Phenols	Grab	EPA420.1	0.10	mg/L	0	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0	0	0.01	0.014	0.01	0.018	0.016
pH	Comp	SM4500H B	0-14		7.72	7.63	7.71	8.05	7.26	8.10	8.22
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	6.05	8.16	8.57	12.26	10.97	13.90	14.38
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	50,000,000	900,000	1,600,000	22,000	160,000	22,000	17,000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	16,000,000	300,000	22,000	2,400	50,000	3,000	800
Ratio Fecal Coliform/Total Coliform					0.32	0.33	0.01	0.11	0.31	0.14	0.05
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300,000	90,000	90,000	170	17,000	3,000	130
Enterococcus	Grab	SM9230B		MPN/100ml	300,000	90,000	90,000	170	8,000	3,000	130
General											
Chloride	Comp	EPA300.0	2.00	mg/L	70.30	75.20	53.80	210.00	13.70	202.00	196.00
Fluoride	Comp	EPA300.0	0.10	mg/L	0.4	0.34	0.29	0.67	0	0.7	0.75
Nitrate	Comp	EPA300.0	0.10	mg/L	15.5	7.74	9.41	17.5	2.21	17.7	9.57
Sulfate	Comp	EPA300.0	0.10	mg/L	135.40	137.00	95.90	309.00	25.00	367.00	350.00
Alkalinity	Comp	EPA310.1	4.00	mg/L	150.7	104.5	104.5	201	41.8	247.5	220
Hardness	Comp	EPA130.2	2.00	mg/L	210	180	170	380	88	420	370
COD	Comp	EPA410.4	10.00	mg/L	148	76.547	75.64	72	0	65.2	145.3
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.0	0	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	858	712	566	2020	208	1589	2050
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	576.00	434.00	350.00	1112.00	118.00	1044.00	1340.00
Turbidity	Comp	EPA180.1	0.10	NTU	2.10	2.51	2.23	0.79	8.94	1.47	0.84
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	967	302	259	3	368	11	5
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	139	63	80	1	72	5	1
MBAS	Comp	EPA425.1	0.05	mg/L	0.6822	0.126	0.261	0.05	0.154	0.066	0.087
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	36.8	9.21	17.2	6.28	4.12	4.5	7.83
BOD	Comp	SM5210B	2.00	mg/L	29.1	13.4	28.1	9.86	10.4	8.95	8.81
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	0	0	0	0	0	0	0
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0552	0.116	0.112	0	0.122	0	0
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.1367	0.201	0.398	0	0.73	0	0
NH3-N	Comp	EPA350.3	0.10	mg/L	1.22	0.21162	0.524	0.11	0.33	0	0.15
Nitrate - N	Comp	SM4110B	0.50	mg/L	3.50	1.75	2.125	3.952	0.499	3.997	2.16
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.00	0.155	0.268	0	0.0396	0.00	0.4534
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	10.9	1.208	2.425	1.48	4.24	0.825	0.92
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2,490	615	214	0	15,000	0	104
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.56	0.5	1.65	0.51	0.82	0	0.76
Total Antimony	Comp	EPA200.8	5.00	ug/L	3.89	1.11	2.23	0.63	2.05	0.70	0.77
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	3.15	0	1.63	2.66	1.14	1.74	3.19
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.92	1.91	2.19	3.3	3.67	3.77	4.42
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	48.60	15.60	26.80	38.00	20.60	28.50	41.50
Total Barium	Comp	EPA200.8	10.00	ug/L	152.00	29.70	31.80	38.40	155.00	48.40	44.90
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.80	0.00	0	0	1.29	0	0
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.72	0.71	2.83	3.63	1.34	1.42	6.79
Total Chromium	Comp	EPA200.8	5.00	ug/L	8.37	2.84	2.86	4.1	19.5	6.41	7.31
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	10.70	6.79	12.50	5.31	4.25	6.00	5.72
Total Copper	Comp	EPA200.8	5.00	ug/L	63.20	7.52	13.70	16.7	56.9	9.13	18.8
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	339	0	0	0	0	0	0
Total Iron	Comp	EPA200.8	100.00	ug/L	4540	123	331	0	12980	0	172
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.64	0	0	0	0.77	0.5	0
Total Lead	Comp	EPA200.8	5.00	ug/L	23.30	0.95	1.87	0.77	54	0.52	0.78
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	10.00	1.84	4.37	3.58	2.84	2.09	4.91
Total Nickel	Comp	EPA200.8	5.00	ug/L	20.30	4.11	5.77	3.73	21.9	3.63	22.1
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	2.46	0	1.84	4.36	0	3.5	5.4
Total Selenium	Comp	EPA200.8	5.00	ug/L	2.83	1.96	2.15	5.99	0	6.50	7.57
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1.00	ug/L	0.26	0	0	0	0.28	0	0
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	35.00	11.90	46.00	17.5	17.6	26.10	9.09
Total Zinc	Comp	EPA200.8	50.00	ug/L	342.00	35.60	75.00	17.9	242	48.90	18.8
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
Phenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE	Sample Type	EPA Method	PQL	Units	10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Benzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	0	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0.36
Naphthalene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/L							
gamma-chlordane	Comp	EPA625	0.05	ug/L							
Chlordane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0

	Sample Type	EPA Method	PQL	Units							
WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	0	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/L	0	0	0	0	0	0	0
Prometryn	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Atrazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Simazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Malathion	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	0	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10.00	ug/L	0	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	0	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE	Sample Type	EPA Method	PQL	Units	10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	0	1.10	0	0	0	0
Total Phenols	Grab	EPA420.1	0.10	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0	0	0.012	0	0.017	0
pH	Comp	SM4500H B	0-14		8.21	7.48	7.99	7.99	7.79	7.9
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	7.12	8.31	10.2	11.00	9.49	8.40
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	90,000,000	240,000	16,000	3,000	3,000	9,000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	16,000,000	240,000	800	300	3,000	130
Ratio Fecal Coliform/Total Coliform					0.18	1.00	0.05	0.10	1.00	0.01
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	240,000	90,000	700	80	1,300	210
Enterococcus	Grab	SM9230B		MPN/100ml	240,000	90,000	700	80	1,300	210
General										
Chloride	Comp	EPA300.0	2.00	mg/L	73.10	37.50	134.00	80.40	119.00	100.00
Fluoride	Comp	EPA300.0	0.10	mg/L	0.18	0.18	0.18	0.14	0.17	0.28
Nitrate	Comp	EPA300.0	0.10	mg/L	11.5	5.49	9.09	7.07	8.85	3.74
Sulfate	Comp	EPA300.0	0.10	mg/L	153.00	53.20	158.00	98.40	155.00	179.00
Alkalinity	Comp	EPA310.1	4.00	mg/L	132	69.3	145.2	122	129.8	193
Hardness	Comp	EPA130.2	2.00	mg/L	250	112.5	255	220	250	345
COD	Comp	EPA410.4	10.00	mg/L	73	37.3814	39.94	49.9	53.4	10.6
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	0	1.6	0	0	0	0
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	863	379	974	871	944	1197
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	578.00	222.00	584.00	474.00	582.00	666.00
Turbidity	Comp	EPA180.1	0.10	NTU	1.32	8.07	0.59	1.33	1.25	0.68
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	517	933	11	9	31	9
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	60	109	3	5	8	6
MBAS	Comp	EPA425.1	0.05	mg/L	0.1919	0.106	0	0.065	0.061	0
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	8.57	12.47	5.08	4.99	4.63	2.76
BOD	Comp	SM5210B	2.00	mg/L	6.04	39.7	8.56	7.6	21.1	4.63
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	0	0	0	0	0	0
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0794	0.139	0.064	0.078	0.058	0.097
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0992	0.266	0.088	0.095	0.103	0.157
NH3-N	Comp	EPA350.3	0.10	mg/L	0.665	0.21162	0.322	0.54	0.589	0.12
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.60	1.24	2.053	1.596	1.998	0.845
Nitrite - N	Comp	SM4110B	0.03	mg/L	0	0.207	0	0	0.377	0
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	5.44	0.9982	0.871	2.72	1.448	0.44
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2,140	575	112	174	0	262
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	0.93	0	0	0	0	0
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.41	0.88	0.00	0	0.00	0
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.65	0	1.21	1.24	1.2	2.56
Total Arsenic	Comp	EPA200.8	5.00	ug/L	2.79	1.36	1.80	1.51	1.82	3.18
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	46.00	12.30	43.10	50.40	39.2	71.20
Total Barium	Comp	EPA200.8	10.00	ug/L	100.00	29.60	55.00	51.40	54.0	82.70
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.51	0.00	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.87	0.00	4.37	2.47	1.19	4.75
Total Chromium	Comp	EPA200.8	5.00	ug/L	6.82	1.92	5.26	3.04	3.88	4.79
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	3.49	3.04	3.55	3.69	4.67	2.6
Total Copper	Comp	EPA200.8	5.00	ug/L	34.50	6.79	6.83	10.6	5.31	17.6
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0
Total Iron	Comp	EPA200.8	100.00	ug/L	4290	232	138	287	112	469
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.00	0	0	0	0.71	0
Total Lead	Comp	EPA200.8	5.00	ug/L	14.20	1.01	0.77	1.4	0.94	1.12
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	5.54	1.50	3.68	3.51	3.31	6.04
Total Nickel	Comp	EPA200.8	5.00	ug/L	12.10	3.54	4.51	4.56	4.62	21
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.97	0	1.95	0	2.31	1.42
Total Selenium	Comp	EPA200.8	5.00	ug/L	2.12	0.00	2.57	1.49	2.71	2
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1.00	ug/L	0.00	0.00	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	24.00	9.84	19.00	17.1	29.10	4.16
Total Zinc	Comp	EPA200.8	50.00	ug/L	175.00	32.80	36.00	23.3	55.60	19.8
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
Phenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	0	0	22.8	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Benzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/L						
gamma-chlordane	Comp	EPA625	0.05	ug/L						
Chlordane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/L	0	0.03	0	0	0	0
Prometryn	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Atrazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Simazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Malathion	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10.00	ug/L	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	1.400		-99	1.300	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.010	0.005	0.010	0.007
pH	Comp	SM4500H B	0-14		7.540	7.680	7.680	7.670	8.110	8.130
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	8.180		8.790	7.880	16.650	14.900
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	170,000.000		300,000.000	170,000.000	20.000	5,000.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	170,000.000		9,000.000	17,000.000	20.000	1,300.000
Ratio Fecal Coliform/Total Coliform					1.000		0.030	0.100	1.000	0.260
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	170,000.000		14,000.000	30,000.000	20.000	40.000
Enterococcus	Grab	SM9230B		MPN/100ml	110,000.000		14,000.000	24,000.000	20.000	40.000
General										
Chloride	Comp	EPA300.0	2.00	mg/L	85.500	45.400	42.700	52.100	176.000	23.400
Fluoride	Comp	EPA300.0	0.10	mg/L	0.390	0.299	0.289	0.345	0.650	0.967
Nitrate	Comp	EPA300.0	0.10	mg/L	15.400	-99	-99	-99	12.800	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	135.000	76.700	59.200	85.300	292.000	399.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	151.800	133.100	91.300	100.100	258.500	201.300
Hardness	Comp	EPA130.2	2.00	mg/L	250.000	190.000	140.000	180.000	380.000	350.000
COD	Comp	EPA410.4	10.00	mg/L	139.000	58.680	77.550	51.100	58.070	21.059
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.500		-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	965.000	532.000	472.000	612.000	1820.000	2200.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	604.000	310.000	278.000	252.000	1008.000	1264.000
Turbidity	Comp	EPA180.1	0.10	NTU	4.900	1.760	1.560	1.260	2.680	0.410
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	216.000	382.000	75.000	88.000	8.000	6.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	54.000	85.000	25.000	33.000	6.000	2.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.264	0.124	0.161	0.121	-99	0.059
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	30.500	11.100	17.900	14.700	4.430	7.850
BOD	Comp	SM5210B	2.00	mg/L	13.700	12.800	29.700	17.900	22.900	19.000
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.220	0.120	0.169	0.135	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.604	1.160	0.353	0.359	-99	0.050
NH3-N	Comp	EPA350.3	0.10	mg/L	0.800	0.220	0.420	0.230	-99	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	3.480	-99	-99	-99	2.710	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.155	-99	-99	-99	0.216	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	3.280	3.940	2.960	2.380	0.840	1.240
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2370.000	1820.000	1530.000	2170.000	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.160	1.490	2.230	2.280	0.570	0.770
Total Antimony	Comp	EPA200.8	5.00	ug/L	3.500	2.850	3.440	3.720	0.690	0.810
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.930	3.010	2.220	1.880	3.860	3.510
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.120	6.980	3.380	2.620	4.040	4.320
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	47.000	28.100	30.600	32.500	61.700	40.900
Total Barium	Comp	EPA200.8	10.00	ug/L	121.000	132.000	63.800	68.000	67.400	43.700
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.690	0.610	0.250	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	2.560	1.790	3.070	1.700	5.500	3.660
Total Chromium	Comp	EPA200.8	5.00	ug/L	7.490	11.500	5.750	5.080	5.810	3.720
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	1.060	1.600	0.880	0.300	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	1.060	1.600	0.880	0.300	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	11.500	7.950	13.300	11.000	4.200	7.080
Total Copper	Comp	EPA200.8	5.00	ug/L	66.600	73.200	50.300	45.500	28.300	28.700
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	71.000	272.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	3830.000	5490.000	1040.000	1900.000	184.000	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.620	1.100	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	19.000	21.400	10.300	10.400	0.830	0.810
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	7.650	3.940	4.950	5.060	4.290	4.010
Total Nickel	Comp	EPA200.8	5.00	ug/L	16.200	13.700	8.720	9.460	6.520	4.640
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.540	4.020	1.300	1.310	8.160	5.130
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.950	4.290	1.650	1.580	8.590	5.570
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.300	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	71.700	27.800	39.600	31.900	9.210	12.100
Total Zinc	Comp	EPA200.8	50.00	ug/L	208.000	216.000	123.000	120.000	15.900	33.500
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	0.147
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99
Other										
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.970	0.270	0.510	0.280	0.100	0.110
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		1.000	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.009		0.027	-99	-99	0.020
pH	Comp	SM4500H B	0-14		7.340	7.380	7.810	7.830	8.050	7.860
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	8.480		9.090	8.810	9.640	9.300
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	240,000.000		160,000.000	30,000.000	17,000.000	9,000.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	14,000.000		1,300.000	2,200.000	2,100.000	230.000
Ratio Fecal Coliform/Total Coliform					0.058		0.008	0.073	0.124	0.026
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	11,000.000		1,100.000	800.000	230.000	170.000
Enterococcus	Grab	SM9230B		MPN/100ml	11,000.000		1,100.000	800.000	230.000	170.000
General										
Chloride	Comp	EPA300.0	2.00	mg/L	86.600	51.900	93.300	50.000	101.000	92.500
Fluoride	Comp	EPA300.0	0.10	mg/L	0.210	0.227	0.288	0.256	0.260	0.233
Nitrate	Comp	EPA300.0	0.10	mg/L	10.900	-99	-99	-99	3.930	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	91.900	60.400	116.000	50.400	174.000	109.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	111.100	69.300	117.700	111.100	171.600	113.300
Hardness	Comp	EPA130.2	2.00	mg/L	210.000	150.000	200.000	180.000	310.000	220.000
COD	Comp	EPA410.4	10.00	mg/L	189.000	104.980	55.730	41.730	38.780	51.827
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	828.000	562.000	872.000	792.000	1090.000	892.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	498.000	308.000	488.000	414.000	618.000	476.000
Turbidity	Comp	EPA180.1	0.10	NTU	5.930	12.800	0.930	1.680	2.450	0.620
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	264.000	6.000	21.000	29.000	291.000	9.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	52.000	2.000	6.000	2.000	54.000	7.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.187	-99	0.076	0.060	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	34.900	8.380	8.880	6.450	2.930	3.920
BOD	Comp	SM5210B	2.00	mg/L	21.400	20.600	80.800	11.700	8.990	4.560
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.135	0.189	0.123	0.092	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.513	0.826	0.176	0.138	0.770	0.110
NH3-N	Comp	EPA350.3	0.10	mg/L	1.240	0.560	-99	-99	0.170	0.240
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.460	-99	-99	-99	0.887	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.190	0.133	0.111	0.050	-99	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	3.840	2.460	1.700	1.040	2.460	1.100
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	3450.000	2430.000	920.000	1110.000	296.000	121.000
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.120	0.970	0.810	0.840	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.900	1.490	1.140	1.060	-99	-99
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.540	2.120	1.440	1.330	2.710	1.540
Total Arsenic	Comp	EPA200.8	5.00	ug/L	2.720	2.620	1.890	1.550	3.020	1.860
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	44.500	31.200	44.200	46.500	70.100	55.500
Total Barium	Comp	EPA200.8	10.00	ug/L	107.000	65.000	61.800	65.800	74.100	61.000
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.440	-99	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.550	-99	1.310	1.060	3.840	2.100
Total Chromium	Comp	EPA200.8	5.00	ug/L	7.800	3.930	1.690	2.320	6.890	2.740
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	6.490	4.720	6.390	4.740	2.890	3.090
Total Copper	Comp	EPA200.8	5.00	ug/L	43.200	32.700	21.100	24.500	32.500	23.800
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	125.000	340.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	5130.000	2600.000	696.000	727.000	808.000	153.000
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.030	1.170	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	15.300	8.230	3.410	3.070	2.880	1.070
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	5.850	3.220	6.080	4.100	4.960	3.300
Total Nickel	Comp	EPA200.8	5.00	ug/L	12.600	6.750	8.120	6.330	5.120	4.050
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	2.420	3.560	1.560	1.090	4.720	1.320
Total Selenium	Comp	EPA200.8	5.00	ug/L	3.270	3.760	1.970	1.110	5.220	1.510
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	35.800	20.600	18.400	9.350	7.620	11.000
Total Zinc	Comp	EPA200.8	50.00	ug/L	138.000	67.200	36.200	26.300	29.800	20.700
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99
Other										
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	1.500	0.090	-99	-99	0.210	0.290
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	1.700		-99	-99	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		-99	-99	-99	-99	-99
pH	Comp	SM4500H B	0-14		7.380	7.980	7.610	8.010	7.380	8.490	7.730
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	7.890		11.600	10.370	11.800	12.200	13.400
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	24,000.000		35,000.000	50,000.000	30,000.000	1,300.000	2,400.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	9,000.000		3,000.000	1,700.000	9,000.000	800.000	130.000
Ratio Fecal Coliform/Total Coliform					0.375		0.086	0.034	0.300	0.615	0.054
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	90,000.000		13,000.000	9,000.000	14,000.000	230.000	40.000
Enterococcus	Grab	SM9230B		MPN/100ml	90,000.000		13,000.000	9,000.000	14,000.000	230.000	20.000
General											
Chloride	Comp	EPA300.0	2.00	mg/L	29.000	16.800	47.300	74.900	39.700	61.400	87.000
Fluoride	Comp	EPA300.0	0.10	mg/L	0.200	0.177	0.216	0.328	0.243	0.160	0.240
Nitrate	Comp	EPA300.0	0.10	mg/L	11.200	-99	-99	-99	-99	2.340	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	60.200	29.800	91.800	115.000	77.700	114.000	155.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	83.600	99.000	116.600	132.000	80.300	101.200	114.400
Hardness	Comp	EPA130.2	2.00	mg/L	180.000	130.000	220.000	250.000	220.000	205.000	250.000
COD	Comp	EPA410.4	10.00	mg/L	97.400	28.950	55.890	42.410	37.390	29.310	6.461
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.800		-99	-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	426.000	269.000	627.000	868.000	482.000	690.000	936.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	254.000	150.000	332.000	466.000	298.000	384.000	536.000
Turbidity	Comp	EPA180.1	0.10	NTU	8.680	9.310	1.310	1.540	2.740	1.060	0.630
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	694.000	564.000	934.000	40.000	24.000	69.000	183.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	164.000	152.000	280.000	4.000	6.000	21.000	50.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.222	0.100	0.084	0.068	0.078	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	29.100	10.700	7.930	6.910	9.050	3.510	4.950
BOD	Comp	SM5210B	2.00	mg/L	17.700	11.200	21.600	11.800	7.370	3.340	5.910
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.229	0.163	0.052	-99	-99	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.499	1.070	0.192	0.078	-99	0.180	0.050
NH_3-N	Comp	EPA350.3	0.10	mg/L	0.530	0.200	-99	-99	0.100	0.260	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.530	-99	-99	-99	-99	0.528	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.125	-99	-99	-99	-99	-99	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	4.180	3.920	4.960	1.300	1.140	1.140	1.440
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	7140.000	4720.000	11100.000	1060.000	410.000	286.000	917.000
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.170	1.070	0.930	0.780	0.900	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	2.870	3.040	4.440	1.180	1.170	-99	0.530
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.030	1.830	1.280	1.270	1.100	2.540	1.800
Total Arsenic	Comp	EPA200.8	5.00	ug/L	6.370	3.760	7.560	1.590	1.290	2.880	1.820
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	28.600	21.300	33.800	45.600	20.800	60.600	76.400
Total Barium	Comp	EPA200.8	10.00	ug/L	203.000	145.000	206.000	65.500	30.900	66.500	93.800
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	2.830	0.970	3.030	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.100	0.520	1.590	1.370	1.260	2.110	1.790
Total Chromium	Comp	EPA200.8	5.00	ug/L	20.600	11.700	21.100	1.910	1.520	2.510	3.130
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	-99	0.250	0.300	0.370	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	-99	0.250	0.300	0.370	-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	8.620	4.470	4.040	5.230	5.910	2.310	2.920
Total Copper	Comp	EPA200.8	5.00	ug/L	128.000	67.600	90.400	20.000	16.700	20.800	25.300
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	334.000	277.000	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	12400.000	6660.000	12500.000	618.000	341.000	151.000	635.000
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.700	0.980	-99	-99	0.510	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	50.500	33.700	52.200	3.700	2.480	0.690	4.880
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	0.400	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	4.540	2.310	3.720	3.070	2.430	2.190	2.540
Total Nickel	Comp	EPA200.8	5.00	ug/L	25.500	13.800	26.400	4.910	3.990	2.850	4.760
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.040	3.690	1.140	2.070	-99	5.020	1.510
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.510	3.820	2.660	2.310	-99	5.740	1.710
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.330	0.440	0.400	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	45.500	24.200	62.200	39.900	20.000	5.290	9.340
Total Zinc	Comp	EPA200.8	50.00	ug/L	442.000	361.000	1380.000	93.000	41.900	16.400	140.000
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

RB-AR13466

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.640	0.240	-99	-99	0.120	0.320	0.100
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	-99	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.009	-99	-99	0.013	0.021
pH	Comp	SM4500H B	0-14		7.400	7.800	7.840	7.750	7.840	8.350	8.030
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	9.150		10.100	8.570	10.700	16.720	17.000
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	28,000.000		300,000.000	160,000.000	24,000.000	11,000.000	1,700.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	14,000.000		16,000.000	17,000.000	16,000.000	800.000	70.000
Ratio Fecal Coliform/Total Coliform					0.500		0.053	0.106	0.667	0.073	0.041
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	130,000.000		50,000.000	160,000.000	30,000.000	800.000	20.000
Enterococcus	Grab	SM9230B		MPN/100ml	130,000.000		24,000.000	160,000.000	17,000.000	230.000	(99.000)
General											
Chloride	Comp	EPA300.0	2.00	mg/L	42.700	70.600	66.400	46.900	55.800	170.000	167.000
Fluoride	Comp	EPA300.0	0.10	mg/L	0.190	0.277	0.318	0.276	0.232	0.320	0.330
Nitrate	Comp	EPA300.0	0.10	mg/L	12.300	-99	-99	-99	-99	20.300	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	79.200	148.000	110.000	71.200	99.900	295.000	278.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	99.000	115.500	110.000	83.600	113.300	200.200	179.300
Hardness	Comp	EPA130.2	2.00	mg/L	190.000	230.000	230.000	150.000	210.000	440.000	430.000
COD	Comp	EPA410.4	10.00	mg/L	435.000	152.440	76.320	43.040	65.300	57.460	18.684
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.800		-99	-99	1.000	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	540.000	760.000	744.000	514.000	699.000	1775.000	1778.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	318.000	448.000	438.000	290.000	416.000	1046.000	940.000
Turbidity	Comp	EPA180.1	0.10	NTU	4.270	5.330	2.560	2.140	1.490	1.130	0.870
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	886.000	215.000	95.000	29.000	97.000	11.000	14.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	240.000	68.000	29.000	5.000	31.000	6.000	6.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.338	0.117	0.137	0.137	0.168	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	37.100	19.100	18.700	10.900	14.100	5.420	6.780
BOD	Comp	SM5210B	2.00	mg/L	23.300	21.300	19.800	43.900	26.500	21.700	60.800
Methyl Tertiary Butyl Ether (MTBE	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.270	0.260	0.157	0.117	0.182	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.822	0.633	0.228	0.158	0.586	0.069	-99
NH_3-N	Comp	EPA350.3	0.10	mg/L	0.710	0.210	-99	-99	0.590	0.130	0.140
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.780	-99	-99	-99	-99	4.584	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.253	0.050	-99	0.053	-99	0.332	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	5.300	3.960	4.100	1.660	3.540	0.940	0.960
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	3360.000	4350.000	1430.000	1120.000	2140.000	143.000	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.630	2.110	3.010	2.290	1.990	0.650	0.640
Total Antimony	Comp	EPA200.8	5.00	ug/L	5.870	3.010	3.980	2.870	3.680	0.780	0.740
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.260	3.300	2.870	1.890	1.810	3.550	2.080
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.910	4.260	3.340	2.180	2.610	3.830	3.020
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	40.800	41.300	43.700	24.600	32.400	49.400	43.100
Total Barium	Comp	EPA200.8	10.00	ug/L	195.000	94.300	71.700	37.100	74.400	50.800	44.500
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	1.930	0.740	0.340	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.650	1.810	3.930	2.060	2.500	4.610	2.590
Total Chromium	Comp	EPA200.8	5.00	ug/L	15.200	6.050	4.610	3.040	6.340	5.170	2.750
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.470	1.410	1.240	1.270	0.650	0.350
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.470	1.410	1.240	1.270	0.650	0.350
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	13.600	18.000	21.100	15.200	11.300	4.950	4.950
Total Copper	Comp	EPA200.8	5.00	ug/L	166.000	66.400	48.000	32.700	48.300	22.700	23.800
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	186.000	1350.000	136.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	6080.000	2350.000	1220.000	513.000	1640.000	100.000	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.560	2.880	2.710	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	573.000	13.000	8.230	4.470	14.700	0.710	0.680
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0.157	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	0.157	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	12.800	6.550	7.200	6.220	4.780	4.450	4.040
Total Nickel	Comp	EPA200.8	5.00	ug/L	32.200	12.700	10.500	8.710	9.600	5.010	4.640
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.170	5.690	3.400	1.590	2.850	10.400	5.600
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.590	5.870	3.770	1.820	3.290	11.100	9.170
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	1.700	-99	0.270	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	68.900	639.000	64.200	23.600	47.200	9.060	-99
Total Zinc	Comp	EPA200.8	50.00	ug/L	435.000	803.000	135.000	58.100	169.000	15.300	22.100
Semi-Volatiles Organics (EPA 625)											
2-Chloropheno	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichloropheno	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylpheno	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dinitropheno	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitropheno	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitropheno	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylpheno	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachloropheno	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichloropheno	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ethe	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ethe	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ethe	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ethe	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ethe	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylpheno	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	0.016	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.860	0.250	0.110	-99	0.710	0.160	0.170
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyze
2) -99 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedance

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	1.40		-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	0.40		-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.2850		-99	-99		0.01	0.0180
pH	Comp	SM4500H B	0-14		7.50	6.70	6.97	7.03	6.90	8.30	8.25
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	9.66		9.64	9.10		13.33	11.80
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	300		160000	90000		9000	1300
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	300		90000	17000		1300	20
Ratio Fecal Coliform/Total Coliform											
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	130		50000	90000		800	20
Enterococcus	Grab	SM9230B		MPN/100ml	130		50000	90000		500	20
General											
Chloride	Comp	EPA300.0	2.00	mg/L	25	27.40	59	20.80	16	221	180
Fluoride	Comp	EPA300.0	0.10	mg/L	0.3470	0.1280	0.4950	0.2170	0.1830	1.13	0.9420
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	37.90	38.80	109	31.70	26.10	403	316
Alkalinity	Comp	EPA310.1	4.00	mg/L	116.60	50	61	47.30	33	259	220
Hardness	Comp	EPA130.2	2.00	mg/L	110	100	205	85	77	325	330
COD	Comp	EPA410.4	10.00	mg/L	179	45.40	52.60	34.60	39.81	127.70	65.40
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		1.12	2.12		-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	388	346	717	256	219	1831	1585
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	272	202	468	160	130	1278	1050
Turbidity	Comp	EPA180.1	0.10	NTU	3.88	5.50	1.81	2.28	5.65	1.27	0.53
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	1556	223	35	53	84	9	3
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	322	33	3	14	22	3	3
MBAS	Comp	EPA425.1	0.05	mg/L	0.3090	0.17	0.10	0.18	0.20	0.05	0.07
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	25.20	13.10	8.49	6.87	6.26	5.25	5.39
BOD	Comp	SM5210B	2.00	mg/L	57.30	16.70	21.40	18.50	6.90	10.20	12.20
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99		-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.3530	0.2360	0.15	0.23	0.15	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	1.23	0.4990	0.15	0.23	0.17	-99	-99
NH_3-N	Comp	EPA350.3	0.10	mg/L	2.15	0.53	0.7030	0.2370	0.2680	-99	0.2420
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.61	-99	-99	-99	-99	0.03
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	10.12	2.62	6.30	1.73	0.9060	0.63	1.73
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	17400	6220	3430	784	1720	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.45	1.66	1.68	1.29	1.33	0.52	0.56
Total Antimony	Comp	EPA200.8	5.00	ug/L	9.25	2.45	3.59	1.40	2.68	0.61	0.64
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.64	1.96	2.25	1.24	1.40	3.76	3.31
Total Arsenic	Comp	EPA200.8	5.00	ug/L	15.70	2.98	4.64	1.41	2.10	4.09	3.49
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	43.80	29.90	28.70	18.60	16.80	51.40	41.30
Total Barium	Comp	EPA200.8	10.00	ug/L	620	93.80	111	25.90	58.20	52.90	48.10
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0.51	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	4.97	0.52	0.71	-99	0.45	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.11	1.56	1.37	1.23	1.17	3.47	7.26
Total Chromium	Comp	EPA200.8	5.00	ug/L	43.30	8.19	7.96	1.98	5.23	3.54	7.31
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.29	-99	-99	-99	-99	0.27
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.29	-99	0.25	0.30	0.34	0.27
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	4.03	6.92	8.22	7.29	6.75	5.03	4.27
Total Copper	Comp	EPA200.8	5.00	ug/L	351	46	54.10	15.50	32.80	9.52	22.90
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	527	-99	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	31800	7380	4760	1140	2730	103	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	2.13	-99	1.52	0.62	0.84	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	147	16.10	25.70	4.73	15.60	0.50	-99
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.1260	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	9.84	4.05	4.46	2.74	2.31	3.58	3.62
Total Nickel	Comp	EPA200.8	5.00	ug/L	58	13.10	12.10	3.56	10.50	4.18	4.29
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.07	-99	-99	-99	-99	6.40	4.77
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.94	-99	-99	-99	-99	6.86	4.92
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	2.50	-99	0.28	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	15.80	20.50	48	41.50	38.90	12.60	16
Total Zinc	Comp	EPA200.8	50.00	ug/L	2010	202	269	75.30	193	28	36.60
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99		-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	2.60	0.64	0.85	0.2870	0.3240	-99	0.2930
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates DATA is NOT AVAILABLE
2) PQL = minimum level
3) Highlighted cells show exceedances
4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	-99		-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99		-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.0054	-99		0.0240	0.0160
pH	Comp	SM4500H B	0-14		7.52		7.58	7.53		8.01	7.98
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	5.66		5.06	9.83		8.28	8.36
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	160000		90000	240000		24000	30000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	500		24000	16000		800	170
Ratio Fecal Coliform/Total Coliform											
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	2400		240000	160000		300	20
Enterococcus	Grab	SM9230B		MPN/100ml	2400		240000	90000		300	20
General											
Chloride	Comp	EPA300.0	2.00	mg/L	68.50		51.80	80.60		116	146.60
Fluoride	Comp	EPA300.0	0.10	mg/L	0.3240		0.3510	0.2890		0.6470	0.3290
Nitrate	Comp	EPA300.0	0.10	mg/L	-99		-99	-99		-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	101		62.20	78.40		118	156
Alkalinity	Comp	EPA310.1	4.00	mg/L	125.40		94	110		143	147.40
Hardness	Comp	EPA130.2	2.00	mg/L	280		160	80		215	270
COD	Comp	EPA410.4	10.00	mg/L	67.70		43.80	51.60		100.90	53.80
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		1.50	1.12		-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	811		561	693		904	1083
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	558		346	434		572	676
Turbidity	Comp	EPA180.1	0.10	NTU	1.98		2.76	1.89		0.68	0.58
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	226		102	319		37	19
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	43		14	52		6	5
MBAS	Comp	EPA425.1	0.05	mg/L	0.1570		0.09	0.11		0.06	0.16
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	18.20		5.64	4.62		5.42	5.84
BOD	Comp	SM5210B	2.00	mg/L	41.70		15.80	20.70		9.22	17.90
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99		-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.2730		0.24	0.14		0.29	0.07
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.6020		0.34	0.28		0.33	0.11
NH_3-N	Comp	EPA350.3	0.10	mg/L	-99		1.01	-99		0.5130	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99		-99	-99		-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99		0.13	0.05		-99	0.23
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	2.56		1.79	2.08		0.82	1.63
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99		-99	-99		-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	4100		1110	4660		1550	585
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.51		0.94	0.89		0.55	0.54
Total Antimony	Comp	EPA200.8	5.00	ug/L	2.46		1.20	2.10		0.73	0.65
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2		1.37	1.33		1.29	1.24
Total Arsenic	Comp	EPA200.8	5.00	ug/L	3.88		1.50	2.29		1.33	1.31
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	52.50		26.60	34.90		32.10	49.60
Total Barium	Comp	EPA200.8	10.00	ug/L	171		42.60	88.70		40.20	63.60
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.80		0.29	0.50		-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.60		1.43	1.71		2.16	5.68
Total Chromium	Comp	EPA200.8	5.00	ug/L	11.90		2.78	7.59		2.74	7.36
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99		-99	-99		-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99		-99	0.25		-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	7.88		5.45	3.44		4.29	3
Total Copper	Comp	EPA200.8	5.00	ug/L	40.40		15.20	29.90		12.90	23.60
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	-99		-99	-99		-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	8200		3770	4860		4160	1340
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.51		1.58	0.55		-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	22.40		7.12	16.10		2.30	2.28
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99		0.17	-99		0.4330	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	6.84		3.69	3.92		3.53	6.77
Total Nickel	Comp	EPA200.8	5.00	ug/L	16		5.49	9.45		4.92	7.89
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.43		-99	-99		1.47	1.83
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.83		-99	-99		1.52	1.90
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.25		-99	0.25		-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99		-99	-99		-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99		-99	-99		-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	39.60		34.30	35.40		38	29.80
Total Zinc	Comp	EPA200.8	50.00	ug/L	206		72	133		112	51.30
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99		-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99

					Wet					Dry	
WEATHER CONDITION											
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99		-99	-99		-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99		-99	-99		-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99		-99	-99		-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99		-99	-99		-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99		-99	-99		-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	-99		1.22	-99		0.6210	-99
Endrin ketone	Comp	EPA625	0.1	ug/L	-99		-99	-99		-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99		-99	-99		-99	-99

Note:
1) blank cell indicates DATA is NOT AVAILABLE
2) PQL = minimum level
3) Highlighted cells show exceedances
4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	2.6		-99	1	2.6	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.051		0.0054	-99	-99	0.01	-99
pH	Comp	SM4500H B	0-14		7.46	7	7.02	6.76	7.39	7.68	8.14
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	4		6.38	10.56	9.67	16.65	11.33
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	900000		160000	240000	50000	2400	90000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	300000		50000	16000	24000	40	17000
Ratio Fecal Coliform/Total Coliform					0.333		0.313	0.067	0.480	0.017	0.189
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300000		90000	90000	50000	130	140
Enterococcus	Grab	SM9230B		MPN/100ml	300000		90000	50000	50000	130	140
General											
Chloride	Comp	EPA300.0	2.00	mg/L	23.6	30.6	16.4	39.3	39.3	131	154
Fluoride	Comp	EPA300.0	0.10	mg/L	0.353	0.456	0.231	0.186	0.196	0.191	0.37
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	33.2	59.4	26.4	56.5	59.1	200	342
Alkalinity	Comp	EPA310.1	4.00	mg/L	146.3	72	61	46.2	80.3	167	204
Hardness	Comp	EPA130.2	2.00	mg/L	140	160	110	80	152	370	520
COD	Comp	EPA410.4	10.00	mg/L	84.6	40.7	52	39.4	44.98	67.2	487.9
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	2.25		1.75	1.37	4.5	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	435	454	269	257	445	1191	1474
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	268	250	164	152	246	796	1008
Turbidity	Comp	EPA180.1	0.10	NTU	2.7	1.86	2.52	2.68	3.76	1.5	0.68
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	5653	451	728	89	78	11	43
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	762	86	141	23	16	8	4
MBAS	Comp	EPA425.1	0.05	mg/L	0.218	0.14	0.22	0.19	0.18	0.13	0.07
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	30.5	12.1	10.5	6.84	6.23	6.23	5.89
BOD	Comp	SM5210B	2.00	mg/L	9.9	15.9	23.4	14.6	13	50.8	3
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.569	-99	0.22	0.17	0.13	0.21	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	1.22	0.847	0.25	0.21	0.13	0.29	-99
NH3-N	Comp	EPA350.3	0.10	mg/L	4.7	0.82	1.01	0.563	0.26	0.55	0.162
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.47	0.05	-99	-99	0.75	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	30.08	4.56	7.28	1.91	0.942	1.42	1.59
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	24300	3770	4090	551	1130	-99	114
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.35	1.24	1.38	0.87	0.82	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	4.63	2.38	3.33	1.17	1.47	-99	-99
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.62	2.01	1.1	1.1	1.24	1.46	1.54
Total Arsenic	Comp	EPA200.8	5.00	ug/L	10.2	3.37	2.76	1.15	1.5	1.55	1.83
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	38.3	30	24.6	22.2	25	39.6	52.8
Total Barium	Comp	EPA200.8	10.00	ug/L	876	108	133	31.5	44.5	46.1	61.5
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0.54	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	0.47	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	6.65	0.86	6.59	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.76	1.88	1.72	1.11	1.59	2.38	5.72
Total Chromium	Comp	EPA200.8	5.00	ug/L	47	7.61	17.6	1.84	2.54	2.55	6.65
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.25	-99	-99	-99	-99	0.71
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.25	-99	0.45	0.35	0.63	0.71
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	1.9	2.23	6.55	5.63	5.28	3.28	2.18
Total Copper	Comp	EPA200.8	5.00	ug/L	390	48	57.1	13.5	16.9	11.6	16.3
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	349	-99	110	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	43400	4130	7370	711	1370	113	257
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.09	-99	1.52	0.77	0.59	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	206	23.3	29	4.77	7.47	1.24	1.02
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.119	0.159	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	6.3	3.73	4.32	2.37	2.53	3.97	5.22
Total Nickel	Comp	EPA200.8	5.00	ug/L	58.2	12.5	19.7	3.3	4.51	4.81	6.42
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	1.04	3.89	4.43
Total Selenium	Comp	EPA200.8	5.00	ug/L	3.33	-99	-99	-99	1.06	4.29	5.17
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	1.4	-99	0.68	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	0.56	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	17	17.3	49.8	46.6	53.3	60	11
Total Zinc	Comp	EPA200.8	50.00	ug/L	2120	409	330	94.8	126	94.2	90
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	0.017
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	5.69	0.99	1.22	0.681	0.315	0.67	0.196
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates DATA is NOT AVAILABLE
2) PQL = minimum level
3) Highlighted cells show exceedances
4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	2.1		1.2	1.1	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.105		0.005	-99	0.0116	0.01	0.0223
pH	Comp	SM4500H B	0-14		7.96	6.85	7.85	7.18	7.11	8.14	8.02
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	5.74		9.92	9.19	11.01	16.65	19.61
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	240000		35000	160000	160000	130	22000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	35000		22000	9000	3000	80	22000
Ratio Fecal Coliform/Total Coliform					0.146		0.629	0.056	0.019	0.615	1.000
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300000		28000	24000	13000	20	1100
Enterococcus	Grab	SM9230B		MPN/100ml	300000		28000	24000	2800	20	1100
General											
Chloride	Comp	EPA300.0	2.00	mg/L	107	38.6	125	13.4	42	133	221
Fluoride	Comp	EPA300.0	0.10	mg/L	0.433	0.434	0.339	0.153	0.229	0.359	0.368
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	201	56.7	223	22.9	77.6	216	342
Alkalinity	Comp	EPA310.1	4.00	mg/L	223.3	110	193	45.1	82.5	178	215
Hardness	Comp	EPA130.2	2.00	mg/L	480	160	390	75	178	385	475
COD	Comp	EPA410.4	10.00	mg/L	103	84.6	44.8	33.2	56.46	58.7	100.2
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1		1.75	2.37	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	1666	535	1228	216	501	1271	1605
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	986	318	846	120	296	868	1096
Turbidity	Comp	EPA180.1	0.10	NTU	0.99	3.16	3.63	2.44	8.97	0.68	0.85
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	316	733	61	161	166	4	3
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	69	150	8	58	38	2	1
MBAS	Comp	EPA425.1	0.05	mg/L	0.129	0.2	-99	0.21	0.24	0.11	0.12
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	15.8	28.5	4.08	7.39	9.66	5.08	7.9
BOD	Comp	SM5210B	2.00	mg/L	60.7	16.8	4.84	11.6	13.9	32	27.5
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.188	0.409	0.09	0.22	0.14	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.559	1	0.11	0.23	0.18	0.06	-99
NH3-N	Comp	EPA350.3	0.10	mg/L	0.32	2.86	0.1	0.218	0.264	0.13	0.284
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	-99	0.1	-99	-99	0.1	0.14
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	7.36	7.38	1.13	2.14	1.3	0.7	2.3
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	18600	6270	180	1370	3100	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.68	1.77	0.59	1.3	1.74	0.68	2.11
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.96	4.46	0.67	1.53	2.92	0.77	2.32
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	3.2	2.83	2.44	1.38	1.96	2.73	3.19
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.63	5.93	2.82	1.63	2.92	2.77	3.2
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	63.2	43.1	58	19.3	32.1	56.9	55.2
Total Barium	Comp	EPA200.8	10.00	ug/L	143	206	67.4	42	91.1	64.3	63.9
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.51	1.67	-99	-99	0.46	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.93	3.89	2.47	1.14	1.93	2.35	7.01
Total Chromium	Comp	EPA200.8	5.00	ug/L	8.52	14.9	3.12	3.35	7.45	2.36	7.47
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.26	-99	0.89	0.28	0.84	0.58	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	12.8	2.23	4.36	7.36	9.45	6.35	5.2
Total Copper	Comp	EPA200.8	5.00	ug/L	46.4	129	10.6	21.7	46.5	12.9	19.8
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	-99	274	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	3290	8770	388	2050	2310	111	120
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	-99	0.78	-99	0.69	0.92	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	12.6	48	1.4	9.18	21.1	0.68	0.71
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.111	0.133	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	7.59	7.86	3.9	3.27	4.79	3.74	5.1
Total Nickel	Comp	EPA200.8	5.00	ug/L	13.9	28.8	5.06	5.87	12.3	4.81	6.17
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	6.46	-99	5.54	-99	1.67	6.41	6.57
Total Selenium	Comp	EPA200.8	5.00	ug/L	7.24	1.67	6.94	-99	2.03	6.6	6.68
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	-99	0.55	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	23.9	13.5	15	45.9	47.2	11.8	14.2
Total Zinc	Comp	EPA200.8	50.00	ug/L	238	870	93.1	98.9	192	33.4	45
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.39	3.46	0.121	0.264	0.319	0.16	0.344
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates DATA is NOT AVAILABLE
2) PQL = minimum level
3) Highlighted cells show exceedances
4) -99 indicates a reported value cannot be achieved

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Conventional																		
Oil and Grease	Grab	EPA1664A / EPA413.1	1	mg/L	2.1	1.1	1.1				3.6		0.7			-99	0.9	0.5
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99	-99	-99				-99		-99			-99	-99	-99
Cyanide	Grab	SM4500-CNE	0.01	mg/L	-99	-99	-99				-99		-99			0.015	0.01	0.014
pH	Comp	SM4500H B	0.00	NONE	7.38	6.98	7.42				7.1		7.3			8.42	8.23	8.66
Dissolved Oxygen	Grab	SM4500 (OG)	1.00	mg/L	11.1	10.3	9.87				9.54		13.6			20.7	12.1	14.5
Indicator Bacteria																		
Total Coliform	Grab	SM9221B/SM9221E	20.00	MPN/100ml	16000000	30000	240000				160000		5000			1700	5000	3000
Fecal Coliform	Grab	SM9221E/SM9221B	20.00	MPN/100ml	2200000	24000	90000				5000		1300			300	230	800
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	1700000	240000	240000				17000		50000			230	230	40
Enterococcus	Grab	SM9230B	20.00	MPN/100ml	1700000	240000	130000				17000		50000			80	230	40
General																		
Chloride	Comp	SM4110B	2.00	mg/L	29	31.9	20.8				21.4		19.6			153	149	193
Fluoride	Comp	SM4110B	0.10	mg/L	0.33	0.14	-99				0.1		-99			0.93	0.95	1.15
Nitrate	Comp	SM4110B	0.10	mg/L	10.4	7.51	5.34				4.1		3.59			17.2	7.33	5.28
Sulfate	Comp	SM4110B	1.00	mg/L	45.9	53.3	34.7				35.7		33			261	239	332
Alkalinity	Comp	SM2320B	1.00	mg/L	66	50	61				55		41			254	215	234
Hardness	Comp	SM2340C	2.00	mg/L	130	75	90				100		60			400	310	356
COD	Comp	SM5220D	10.00	mg/L	102	50.5	71.9				161		35.1			97.1	78.3	62
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.62	1.5	1				0.87		0.5			-99	-99	-99
Specific Conductance	Comp	SM2510B	1.00	umhos/cm	367	344	252				266		231			1776	1472	1962
Total Dissolved Solids	Comp	SM2540C	2.00	mg/L	240	222	162				164		134			1148	952	1200
Turbidity	Comp	SM2130B	0.10	NTU	5.67	9.39	44.4				6.65		14.1			2.03	1.48	0.98
Total Suspended Solids	Comp	SM25400D	1.00	mg/L	1038	159	431	87	27	202	235	90	191	85	97	9	17	6
Volatile Suspended Solids	Comp	SM2540E	1.00	mg/L	231	47	62				53		50			4	8	2
MBAS	Comp	SM5540-C	0.05	mg/L	0.36	0.3	-99				0.29		0.1			0.12	0.37	0.16
Total Organic Carbon	Comp	SM5310B / EPA415.1		mg/L	27.4	10.2	10.7				10.7		4.65			5.32	17.5	28
BOD	Comp	SM5210B	2.00	mg/L	39	15.3	13.3				10.3		6.51			18.8	10.8	11.2
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Nutrients																		
Dissolved Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.23	0.25	0.48				0.22		0.12			-99	0.05	-99
Total Phosphorus	Comp	SM4500-PE	0.05	mg/L	1.02	0.49	1.21				0.49		0.59			-99	0.06	0.06
NH3-N	Comp	SM4500-NH3 F	0.10	mg/L	0.61	0.43	0.33				-99		0.12			-99	-99	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.35	1.7	1.21				0.93		0.81			2.75	1.66	1.19
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.08	-99	-99				-99		-99			0.13	-99	0.07
Kjeidahl-N	Comp	SM4500-NHorg C	0.10	mg/L	7.04	1.49	0.97				0.82		0.81			0.8	1.8	1.22
Metals																		
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99				-99		118			-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	872	189	2280				1020		1930			-99	-99	-99
Dissolved Antimony	Comp	EPA200.8	0.50	ug/L	2.71	1.28	0.95				1.27		0.84			0.53	1.73	0.81
Total Antimony	Comp	EPA200.8	0.50	ug/L	5.55	2.14	1.56				3.41		1.76			0.56	1.79	0.82
Dissolved Arsenic	Comp	EPA200.8	1.00	ug/L	2.49	1.36	1.43				1.64		0.87			3.06	3.13	4.71
Total Arsenic	Comp	EPA200.8	1.00	ug/L	6.76	2.16	3.24				4.26		1.73			3.22	3.28	5.19
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	34.2	25.9	34.7				21.8		20.3			48.7	48.7	45.8
Total Barium	Comp	EPA200.8	10.00	ug/L	256	62	247				125		66.4			55.6	51.1	51.4
Dissolved Beryllium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Beryllium	Comp	EPA200.8	0.50	ug/L	0.28	-99	0.48				0.21		0.12			-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	0.25	ug/L	-99	-99	0.11				-99		-99			0.23	-99	-99
Total Cadmium	Comp	EPA200.8	0.25	ug/L	1.49	2.01	2.55				0.76		0.38			0.25	-99	-99
Dissolved Chromium	Comp	EPA200.8	0.50	ug/L	1.98	1.37	1.09				1.66		1.58			1.34	4.06	4.56
Total Chromium	Comp	EPA200.8	0.50	ug/L	21	5.43	23.8				18		8.59			2.23	4.38	5.66
Dissolved Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	0.27	0.37				0.39		0.54			0.59	0.33	-99
Total Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	0.27	0.37				0.39		0.54			0.59	0.33	-99
Dissolved Copper	Comp	EPA200.8	0.50	ug/L	14.3	8.18	5.17				7.47		5.08			6.18	9.34	3.99
Total Copper	Comp	EPA200.8	0.50	ug/L	170	30.9	31.8				56		27.8			9.34	16.6	9.48
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	340	58.2	77.5				-99		93.3			-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	9870	3220	19900				8470		3350			119	90.8	114
Dissolved Lead	Comp	EPA200.8	0.50	ug/L	3.19	1.12	1.45				0.74		1.07			-99	-99	-99
Total Lead	Comp	EPA200.8	0.50	ug/L	58.8	12.9	36				30.8		15.2			0.59	0.68	0.76
Dissolved Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	1.00	ug/L	7.42	3.71	2.3				2.62		1.84			3.99	5.49	3.91
Total Nickel	Comp	EPA200.8	1.00	ug/L	23.8	10.1	19.8				15.3		7.1			4.52	6.21	4.69
Dissolved Selenium	Comp	EPA200.8	1.00	ug/L	0.95	-99	0.93				-99		-99			4.79	3.67	5.81
Total Selenium	Comp	EPA200.8	1.00	ug/L	1.67	1.01	1.19				0.54		-99			4.8	3.69	6.26
Dissolved Silver	Comp	EPA200.8	0.25	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Silver	Comp	EPA200.8	0.25	ug/L	0.57	0.52	-99				0.24		0.11			-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	0.44				0.11		-99			-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	10.00	ug/L	9870	44.4	13.6				27.8		30.5			9.89	20.2	14.7
Total Zinc	Comp	EPA200.8	10.00	ug/L	774	193	173				266		128			15.6	23.5	19.6
Semi-Volatiles Organics (EPA 625)																		
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Base/Neutral																		
Acenaphthene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Acenaphthylene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Anthracene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	2	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-Chloroethyl vinyl ether	Comp	EPA624	2.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chrysene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Diethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dimethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Fluoranthene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Isophorone	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Naphthalene	Comp	EPA625	0.20	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Nitrobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chlorinated Pesticides																		
Aldrin		EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
alpha-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
beta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
delta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
alpha-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
gamma-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDD	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDE	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDT	Comp	EPA608	0.01	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dieldrin	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan I [alpha]	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan II [beta]	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan sulfate	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endrin	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endrin aldehyde	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Heptachlor	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Heptachlor Epoxide	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Toxaphene	Comp	EPA608	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Polychlorinated Biphenyls																		
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Organophosphate Pesticides																		
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Herbicides																		
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-D	Comp	EPA515.3	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Other																		
Ammonia	Comp	SM4500-NH3 F	0.1	mg/l	0.74	0.52	0.4				-99		0.14			-99	-99	-99
Endrin ketone	Comp	EPA625	1	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances
5) Wet weather suspension of fecal coliform objective applies to 2008-09Event06, 2008-09Event09, and 2008-09Event21

RB-AR13486

Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Conventional																	
Oil and Grease	Grab	EPA1664A / EPA413.1	1	mg/L	-99	0.6	-99			0.7		-99			0.5	1.3	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99	-99	-99			-99		-99			-99	-99	-99
Cyanide	Grab	SM4500-CNE	0.01	mg/L	0.01	-99	0.01			0.009		-99			0.015	0.01	0.013
pH	Comp	SM4500H B	0.00	NONE	8.22	6.92	7.34			7.52		7.48			8.29	7.53	8.53
Dissolved Oxygen	Grab	SM4500 (OG)	1.00	mg/L	7.83	7.84	9.29			9.44		12.7			9.36	8.18	8.03
Indicator Bacteria																	
Total Coliform	Grab	SM9221B/SM9221E	20.00	MPN/100ml	1700000	240000	28000			2200		5000			9000	160000	1700
Fecal Coliform	Grab	SM9221E/SM9221B	20.00	MPN/100ml	900000	50000	1400			80		1300			1300	500	230
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	170000	300000	500			40		800			230	-99	-99
Enterococcus	Grab	SM9230B	20.00	MPN/100ml	170000	240000	500			40		800			230	-99	-99
General																	
Chloride	Comp	SM4110B	2.00	mg/L	93.7	22.8	55.1			34.1		48.5			166	81.9	108
Fluoride	Comp	SM4110B	0.10	mg/L	0.52	-99	0.12			0.11		0.13			0.29	0.51	0.91
Nitrate	Comp	SM4110B	0.10	mg/L	24.7	7.61	12.1			7.24		4.99			27.2	25.1	26.2
Sulfate	Comp	SM4110B	1.00	mg/L	120	40.7	76.2			52.7		58.3			219	113	117
Alkalinity	Comp	SM2320B	1.00	mg/L	138	50	72			55		89			172	119	151
Hardness	Comp	SM2340C	2.00	mg/L	230	90	145			105		150			325	210	236
COD	Comp	SM5220D	10.00	mg/L	66.5	66.9	46.2			60.3		65.1			63.2	60.5	25
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99	0.75	0.37			1.12		-99			-99	-99	-99
Specific Conductance	Comp	SM2510B	1.00	umhos/cm	845	275	499			364		486			1241	828	1045
Total Dissolved Solids	Comp	SM2540C	2.00	mg/L	554	180	302			214		290			764	516	620
Turbidity	Comp	SM2130B	0.10	NTU	3.25	18.1	6.33			30.5		16.1			1.22	1.84	1.3
Total Suspended Solids	Comp	SM25400D	1.00	mg/L	16	211	261	64	55	113	74	156	87	76	13	21	17
Volatile Suspended Solids	Comp	SM2540E	1.00	mg/L	4	45	37			8		24			6	7	3
MBAS	Comp	SM5540-C	0.05	mg/L	0.37	0.1	0.08			-99		0.03			0.09	0.26	0.08
Total Organic Carbon	Comp	SM5310B / EPA415.1		mg/L	13.2	8.94	7.11			5.68		5.33			4.91	10.1	9.5
BOD	Comp	SM5210B	2.00	mg/L	13.7	11.8	8			4.56		7.42			14.8	11.7	10.6
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99	-99	-99			-99		-99			-99		-99
Nutrients																	
Dissolved Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.23	0.23	0.15			0.3		0.07			-99	0.33	0.28
Total Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.58	0.44	0.44			0.41		0.13			-99	0.42	0.47
NH3-N	Comp	SM4500-NH3 F	0.10	mg/L	0.97	0.31	-99			-99		0.11			0.33	0.38	0.4
Nitrate - N	Comp	SM4110B	0.50	mg/L	5.58	1.72	2.73			1.63		1.13			6.14	5.67	5.91
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.04	-99			-99		-99			0.07	-99	0.04
Kjeidahl-N	Comp	SM4500-NHorg C	0.10	mg/L	2.44	3.24	0.6			0.62		0.9			1.25	1.98	1.18
Metals																	
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99			-99		165			-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	-99	635	675			2340		1360			-99	-99	292
Dissolved Antimony	Comp	EPA200.8	0.50	ug/L	1.14	0.94	0.6			0.61		0.53			0.47	0.88	0.62
Total Antimony	Comp	EPA200.8	0.50	ug/L	1.24	2.05	1.19			1.05		0.89			0.62	0.89	0.68
Dissolved Arsenic	Comp	EPA200.8	1.00	ug/L	1.57	1.22	1.08			0.99		1.13			1.18	1.43	1.6
Total Arsenic	Comp	EPA200.8	1.00	ug/L	1.7	2.87	2.24			2.8		1.9			1.23	1.51	1.61
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	37.7	22.3	29.1			26.2		33.3			56.4	34.3	42.3
Total Barium	Comp	EPA200.8	10.00	ug/L	50.8	120	85.2			153		63.1			64.8	35.9	52
Dissolved Beryllium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Beryllium	Comp	EPA200.8	0.50	ug/L	-99	0.22	0.17			0.39		0.11			-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	0.25	ug/L	-99	-99	-99			-99		0.1			0.12	-99	-99
Total Cadmium	Comp	EPA200.8	0.25	ug/L	-99	0.74	0.47			0.54		0.37			0.14	-99	-99
Dissolved Chromium	Comp	EPA200.8	0.50	ug/L	2.98	0.99	1.1			1.42		2.19			1.05	0.78	1.7
Total Chromium	Comp	EPA200.8	0.50	ug/L	3.53	15.4	11.6			25.7		6.91			3.02	1.03	1.73
Dissolved Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	-99	0.25			0.26		0.38			0.35	-99	-99
Total Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	-99	0.25			0.26		0.38			0.35	-99	-99
Dissolved Copper	Comp	EPA200.8	0.50	ug/L	5.76	4.84	3.47			3.26		3.12			2.95	5.21	3.73
Total Copper	Comp	EPA200.8	0.50	ug/L	11.4	43.8	23.9			31.4		15.7			7.11	10.7	10.5
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	80.7	125	-99			95.9		150			-99	52.6	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	452	10300	7740			17700		2970			375	119	618
Dissolved Lead	Comp	EPA200.8	0.50	ug/L	0.81	1.72	1.1			1.06		1.01			0.25	0.29	0.23
Total Lead	Comp	EPA200.8	0.50	ug/L	1.97	42.3	14.6			17.7		7.49			1.49	0.8	1.8
Dissolved Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	0.15			-99		-99			-99	0.11	-99
Dissolved Nickel	Comp	EPA200.8	1.00	ug/L	4.42	3.01	2.66			4.53		2.38			4.32	4.2	4.69
Total Nickel	Comp	EPA200.8	1.00	ug/L	5.23	15.3	9.38			18.6		6.43			5	4.82	5.82
Dissolved Selenium	Comp	EPA200.8	1.00	ug/L	1.23	0.71	0.68			-99		-99			2.11	1.23	1.22
Total Selenium	Comp	EPA200.8	1.00	ug/L	1.42	0.97	0.71			-99		0.6			2.36	1.4	1.41
Dissolved Silver	Comp	EPA200.8	0.25	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Silver	Comp	EPA200.8	0.25	ug/L	-99	0.24	-99			0.11		-99			-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Total Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			0.2		-99			-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	10.00	ug/L	35.7	18.5	23.2			14.9		16.4			34.7	26.3	31.5
Total Zinc	Comp	EPA200.8	10.00	ug/L	48.4	223	143			100		58			46.1	28.2	44.2
Semi-Volatiles Organics (EPA 625)																	
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			0.89	-99	-99
Base/Neutral																	
Acenaphthene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Acenaphthylene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Anthracene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	2	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-Chloroethyl vinyl ether	Comp	EPA624	2.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chrysene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Diethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dimethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Fluoranthene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Isophorone	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Naphthalene	Comp	EPA625	0.20	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Nitrobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chlorinated Pesticides																	
Aldrin		EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
alpha-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
beta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
delta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Gamma-BHC (Lindane)	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
alpha-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
gamma-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDD	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDE	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDT	Comp	EPA608	0.01	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dieldrin	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan I [alpha]	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan II [beta]	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan sulfate	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endrin	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endrin aldehyde	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Heptachlor	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Heptachlor Epoxide	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Toxaphene	Comp	EPA608	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Polychlorinated Biphenyls																	
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Organophosphate Pesticides																	
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Herbicides																	
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-D	Comp	EPA515.3	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Other																	
Ammonia	Comp	SM4500-NH3 F	0.1	mg/l	1.18	0.38	-99			-99		0.13			0.4	0.46	0.48
Endrin ketone	Comp	EPA625	1	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances
5) Wet weather suspension of fecal coliform objective applies to 2008-09Event06, 2008-09Event09, and 2008-09Event21

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**9,000***	**1,300***	300	**1,400***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	40	230	300	80
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	40	230	300	80
Bacteria	Total Coliform	MPN/100mL	SM9221B	50,000	2,400	3,000	16,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	<0	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.034***	0.01	0.016	0.02
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	15.6	20	15.2	18
Conventionals	Oil and Grease	mg/L	EPA1664A	<0.4	<0.4	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.31	8.04	8.18	**8.58***
General	Alkalinity as CaCO3	mg/L	SM2320B	275	220	289	275
General	Ammonia	mg/L	SM4500-NH3 F	0.55	0.121	0.121	0.133
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	14.5	14.8	12.1	24
General	Chemical Oxygen Demand	mg/L	SM5220D	368	74.8	55.8	117
General	Chloride	mg/L	SM4110B	262	205	194	237
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.05	<0.05	<0.05	<0.05
General	Fluoride	mg/L	SM4110B	1.23	1.11	1.23	1.18
General	Hardness as CaCO3	mg/L	SM2340C	380	355	410	400
General	Kjeldahl-N	mg/L	SM4500-NHorg C	3.3	0.92	0.62	0.76
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.45	0.1	0.1	0.11
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	4.49	8.22	17.7	12.5
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	1.01	2.03	4	2.82
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.06	0.058	<0.01	0.133
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.11	<0.05	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510B	1836	1590	1800	1830
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	439	329	357	423
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	1,276	1,080	1,250	1,260
General	Total Organic Carbon	mg/L	SM5310B	11.2	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	9.74	4.7	21
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<0.4	<0.4	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	141	78	14	16
General	Turbidity	NTU	SM2130B	3.89	3.08	0.98	1.88
General	Volatile Suspended Solids	mg/L	SM2540E	38	25	2	5

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.85	0.794	0.557	0.562
Metals	Dissolved Arsenic	ug/L	EPA200.8	5.92	4.58	5.35	3.77
Metals	Dissolved Barium	ug/L	EPA200.8	55	55	49.9	49.1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.44	0.938	1.42	1.34
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	5.36	4.82	4.17	5.34
Metals	Dissolved Iron	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	>0.2&<0.5	<0.2	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.3	2.97	3.91	3.42
Metals	Dissolved Selenium	ug/L	EPA200.8	6.39	4.38	9.64	5.61
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	12.4	8.2	<1	24.3
Metals	Aluminum	ug/L	EPA200.8	303	187	<50	166
Metals	Antimony	ug/L	EPA200.8	0.93	0.875	0.663	0.644
Metals	Arsenic	ug/L	EPA200.8	6.06	4.93	5.4	4.09
Metals	Barium	ug/L	EPA200.8	73.4	74.4	59.6	61.8
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	2.01	0.965	4.28	2.14
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	14	13.5	9.12	11.3
Metals	Iron	ug/L	EPA200.8	700	417	118	<50
Metals	Lead	ug/L	EPA200.8	2.17	1.51	<0.2	1.17
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.63	4.52	4.76	4.52
Metals	Selenium	ug/L	EPA200.8	**6.49***	4.48	**9.77***	**6.08***
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	46.6	71.6	38.5	40.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.33	<0.67	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<0.03	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<0.04	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<0.2	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<0.1	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are

QNS = Quantity Not Sufficient

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**800***	300	230	**800***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	20	800	300	<20
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	20	800	300	<20
Bacteria	Total Coliform	MPN/100mL	SM9221B	2,200	9,000	3,000	24,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	<0	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.021	0.02	**0.025***	0.01
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.79	10.4	11.8	12.4
Conventionals	Oil and Grease	mg/L	EPA1664A	<0.4	<0.4	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.19	7.98	7.82	8.01
General	Alkalinity as CaCO3	mg/L	SM2320B	179	151	165	165
General	Ammonia	mg/L	SM4500-NH3 F	0.92	0.581	0.678	0.169
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	9.72	25.3	41.2	5.9
General	Chemical Oxygen Demand	mg/L	SM5220D	116	84.3	66.1	57.9
General	Chloride	mg/L	SM4110B	138	**161***	113	118
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.16	0.09	0.13	0.07
General	Fluoride	mg/L	SM4110B	0.59	0.314	0.417	0.244
General	Hardness as CaCO3	mg/L	SM2340C	260	265	280	20
General	Kjeldahl-N	mg/L	SM4500-NHorg C	1.64	1.36	1.94	0.58
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.76	0.48	0.56	0.14
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	24.3	22.1	27	6.17
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	5.5	4.99	6.1	1.39
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	<0.03	0.13	0.177	<0.03
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.18	0.1	0.19	0.08
General	Specific Conductance	umhos/cm	SM2510B	1027	1080	1010	1000
General	Sulfate	mg/L	EPA300.1	**NS**	NS	NS	NS
General	Sulfate	mg/L	SM4110B	**443***	172	117	199
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	694	706	668	670
General	Total Organic Carbon	mg/L	SM5310B	6.2	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	7.79	6.64	17.9
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<0.4	<0.4	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	14	31	28	23
General	Turbidity	NTU	SM2130B	1.46	1.18	0.73	2.79
General	Volatile Suspended Solids	mg/L	SM2540E	3	15	4	8

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.62	0.603	0.588	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.14	1	2.2	1.93
Metals	Dissolved Barium	ug/L	EPA200.8	44.9	50.6	52.6	73.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.95	0.808	1.74	1.19
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	3.15	3.08	4.61	2.85
Metals	Dissolved Iron	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	>0.2&<0.5	>0.2&<0.5	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.61	3.19	3.47	4.39
Metals	Dissolved Selenium	ug/L	EPA200.8	1.53	1.35	5.27	1.2
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	42.2	43.7	56.6	22.1
Metals	Aluminum	ug/L	EPA200.8	106	116	<50	453
Metals	Antimony	ug/L	EPA200.8	0.63	0.632	0.712	0.793
Metals	Arsenic	ug/L	EPA200.8	1.21	1.09	2.34	2.31
Metals	Barium	ug/L	EPA200.8	48.1	57.3	62.2	97.1
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	0.276	<0.1
Metals	Chromium	ug/L	EPA200.8	1.5	0.872	2.99	1.27
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	8.39	10.1	9.94	9.82
Metals	Iron	ug/L	EPA200.8	200	256	229	667
Metals	Lead	ug/L	EPA200.8	0.98	1.32	0.893	2.14
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.03	4.24	4.46	5.69
Metals	Selenium	ug/L	EPA200.8	1.8	1.61	**5.54***	1.37
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	61.2	103	80	45.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.33	<0.67	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<0.03	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<0.04	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<0.2	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	>1.7&<5	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<0.1	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are

QNS = Quantity Not Sufficient

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	1,600,000**	3,000**	50,000**	90,000**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	900,000	230	240,000	240,000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	900,000	230	240,000	300,000
Bacteria	Total Coliform	MPN/100mL	SM9221B	5,000,000	9,000	240,000	160,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	NS	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.03***	0.02	0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	6.41	7.92	11.1	10
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.52	7.33	6.96	7.35
General	Alkalinity as CaCO3	mg/L	SM2320B	55	55	55	41
General	Ammonia	mg/L	SM4500-NH3 F	0.835	0.719	0.318	0.378
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	30.3	17	9.62	5.38
General	Chemical Oxygen Demand	mg/L	SM5220D	64.1	60.7	286	28.9
General	Chloride	mg/L	SM4110B	22.5	10.2	15.4	10.1
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.28	0.26	0.12	0.11
General	Fluoride	mg/L	SM4110B	0.179	0.251	0.184	0.237
General	Hardness as CaCO3	mg/L	SM2340C	110	60	70	40
General	Kjeldahl-N	mg/L	SM4500-NHorg C	4.24	2.1	1.28	2.12
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<1	<1	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.63	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.69	0.594	0.263	0.312
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	3.72	4.17	3.8	2.95
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	0.8	0.941	0.857	0.665
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.09	<0.01	<0.01	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.78	0.38	0.27	0.13
General	Specific Conductance	umhos/cm	SM2510B	264	138	208	105
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	35.7	13.4	24	14
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	182	94	126	70
General	Total Organic Carbon	mg/L	SM5310B	NS	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	18	15.5	8.75	7.17
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	503	184	132	440
General	Turbidity	NTU	SM2130B	6.8	17.1	13.5	18.2
General	Volatile Suspended Solids	mg/L	SM2540E	112	49	35	138
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	2.08	1.16	1.73	0.798
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.74	1.22	1.27	1.39
Metals	Dissolved Barium	ug/L	EPA200.8	27.8	17.5	20.2	17.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.879	0.964	0.791	0.807
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	10.8	**9.09***	8.6	4.37
Metals	Dissolved Iron	ug/L	EPA200.8	166	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	0.951	1.29	0.623	0.86
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	6.8	4.02	3.03	1.61
Metals	Dissolved Selenium	ug/L	EPA200.8	1.14	<0.5	<0.5	1.69
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	61.8	65.1	50.1	32.9
Metals	Aluminum	ug/L	EPA200.8	236	2140	1820	4480
Metals	Antimony	ug/L	EPA200.8	2.13	3.27	3.07	2.56
Metals	Arsenic	ug/L	EPA200.8	1.81	2.8	2.13	2.97
Metals	Barium	ug/L	EPA200.8	31.9	78.7	59.5	105
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	0.553	0.316	0.863
Metals	Chromium	ug/L	EPA200.8	1.44	6.56	5.07	9.96
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	21.6	49.6	35.7	38.2
Metals	Iron	ug/L	EPA200.8	240	3400	3640	6930
Metals	Lead	ug/L	EPA200.8	2.2	20.8	15.8	31.1
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	7.59	9.63	8.86	10.6
Metals	Selenium	ug/L	EPA200.8	1.22	<0.5	<0.5	1.74
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	62.6	257	175	258
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.67	<0.67	<0.33	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.3	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67	<1.67	7.38
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017	<0.017	0.622
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	0.467

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are re|
QNS = Quantity Not Sufficient
* Exceedance of Water Quality Objective
** Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	5,000,000**	300	90,000**	2,200**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	1,600,000	500	160,000	130,000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	1,600,000	500	160,000	240,000
Bacteria	Total Coliform	MPN/100mL	SM9221B	24,000,000	5,000	1,600,000	240,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	NS	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.03***	<0.005	0.008	0.02
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.41	11.1	11.1	9.9
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	7.25	7.2	7.13	7.71
General	Alkalinity as CaCO3	mg/L	SM2320B	96	83	41	69
General	Ammonia	mg/L	SM4500-NH3 F	1.89	0.138	<0.1	0.807
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	32.9	15.6	7.52	12.8
General	Chemical Oxygen Demand	mg/L	SM5220D	72.1	64.8	196	36.4
General	Chloride	mg/L	SM4110B	53.4	46.7	22.8	47.7
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.39	0.29	0.07	0.15
General	Fluoride	mg/L	SM4110B	0.274	0.347	0.129	0.243
General	Hardness as CaCO3	mg/L	SM2340C	160	140	80	30
General	Kjeldahl-N	mg/L	SM4500-NHorg C	5.3	0.96	0.718	1.76
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<1	<1	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.58	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	1.56	0.114	<0.1	0.667
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	13.6	12.4	4.8	8.18
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	3.1	2.79	1.08	1.85
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.09	<0.01	<0.01	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.86	0.31	0.2	0.22
General	Specific Conductance	umhos/cm	SM2510B	508	493	230	393
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	67.1	62.3	32.7	59.4
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	350	314	154	266
General	Total Organic Carbon	mg/L	SM5310B	NS	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	20.2	11.7	5.78	5.6
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	252	57	117	400
General	Turbidity	NTU	SM2130B	6.66	11.6	16.7	197
General	Volatile Suspended Solids	mg/L	SM2540E	51	12	17	46
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	446	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	1.8	1.08	0.713	0.671
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.78	1.51	<0.2	1.71
Metals	Dissolved Barium	ug/L	EPA200.8	31.5	48.5	20.5	30.5
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.74	2	0.673	0.995
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	7.91	11.6	4.53	3.89
Metals	Dissolved Iron	ug/L	EPA200.8	133	513	<50	114
Metals	Dissolved Lead	ug/L	EPA200.8	1.39	6.61	0.722	1.03
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	6.14	>0.5&<1	2.96	2.42
Metals	Dissolved Selenium	ug/L	EPA200.8	1.77	<0.5	<0.5	1.94
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	33.1	85.5	28.3	**44.6***
Metals	Aluminum	ug/L	EPA200.8	107	1140	2490	5530
Metals	Antimony	ug/L	EPA200.8	1.86	1.52	1.24	1.37
Metals	Arsenic	ug/L	EPA200.8	1.84	1.97	1.78	3.19
Metals	Barium	ug/L	EPA200.8	35.3	62.2	57.4	116
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	0.55
Metals	Chromium	ug/L	EPA200.8	2.23	3.19	5.45	12.4
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	12.7	21.3	20.8	24.7
Metals	Iron	ug/L	EPA200.8	201	1270	4690	9530
Metals	Lead	ug/L	EPA200.8	1.77	8.58	9.05	17.3
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	6.81	5.91	7.47	11.8
Metals	Selenium	ug/L	EPA200.8	2.02	1.29	<0.5	2.33
Metals	Silver	ug/L	EPA200.8	0.354	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	41.9	89.9	81.9	103
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.67	<0.67	<0.33	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.3	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	>3.33&<10	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are re|

QNS = Quantity Not Sufficient

* Exceedance of Water Quality Objective

** Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	16000*	230
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	24000	230
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	24000	230
Bacteria	Total Coliform	MPN/100mL	SM9221B	240000	240000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.014	0.014
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	10	16.1
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.33	8.27
General	Alkalinity as CaCO3	mg/L	SM2320B	289	347
General	Ammonia	mg/L	SM4500-NH3 F	0.278	0.23
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	15	23.7
General	Chemical Oxygen Demand	mg/L	SM5220D	53.3	47.4
General	Chloride	mg/L	SM4110B	213	263
General	Dissolved Phosphorus	mg/L	SM4500-PE	<0.05	<0.05

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
General	Fluoride	mg/L	SM4110B	1.05	1.32
General	Hardness as CaCO3	mg/L	SM2340C	395	510
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.92	0.88
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	0.23	0.19
General	Nitrate (NO3)	mg/L	SM4110B	10.5	21.2
General	Nitrate-N	mg/L	SM4110B	2.38	4.78
General	Nitrite-N	mg/L	SM4110B	0.0392	0.0362
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510B	1810	2250
General	Sulfate	mg/L	SM4110B	376	519
General	Total Dissolved Solids	mg/L	SM2540C	1260	1490
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	6.47	15.4
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	46	12
General	Turbidity	NTU	SM2130B	2.4	1.22
General	Volatile Suspended Solids	mg/L	SM2540E	28	8
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	7.2	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.792	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	3.06	3.04
Metals	Dissolved Barium	ug/L	EPA200.8	62.5	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.1	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	12.7	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	125	<50
Metals	Dissolved Lead	ug/L	EPA200.8	1.3	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.06	<0.5

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Metals	Dissolved Selenium	ug/L	EPA200.8	5.3	5.31
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	39.8	<1
Metals	Aluminum	ug/L	EPA200.8	285	105
Metals	Antimony	ug/L	EPA200.8	1.02	<0.2
Metals	Arsenic	ug/L	EPA200.8	4.33	3.08
Metals	Barium	ug/L	EPA200.8	77.2	<1
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	5.75	<0.5
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	13.2	<0.5
Metals	Iron	ug/L	EPA200.8	453	<50
Metals	Lead	ug/L	EPA200.8	1.57	<0.2
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.75	<0.5
Metals	Selenium	ug/L	EPA200.8	6.17	7.06
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	66.3	<1
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA625	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL
NS = Not Sampled

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	NS	20
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	NS	20
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	NS	20
Bacteria	Total Coliform	MPN/100mL	SM9221B	NS	800
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	NS	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	NS	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	NS	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	NS	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	NS	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	NS	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	NS	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	NS	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	NS	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	NS	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	NS	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	NS	0.017
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	NS	10.2
Conventionals	Oil and Grease	mg/L	EPA1664A	NS	<1.44
Conventionals	pH	pH units	SM4500H B	NS	8.36
General	Alkalinity as CaCO3	mg/L	SM2320B	NS	173
General	Ammonia	mg/L	SM4500-NH3 F	NS	0.411
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	NS	19.9
General	Chemical Oxygen Demand	mg/L	SM5220D	NS	37.5
General	Chloride	mg/L	SM4110B	NS	130
General	Dissolved Phosphorus	mg/L	SM4500-PE	NS	0.11

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
General	Fluoride	mg/L	SM4110B	NS	0.396
General	Hardness as CaCO3	mg/L	SM2340C	NS	330
General	Kjeldahl-N	mg/L	SM4500-NHorg C	NS	10.6
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	NS	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	NS	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	NS	0.34
General	Nitrate (NO3)	mg/L	SM4110B	NS	19.4
General	Nitrate-N	mg/L	SM4110B	NS	4.38
General	Nitrite-N	mg/L	SM4110B	NS	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	NS	0.13
General	Specific Conductance	umhos/cm	SM2510B	NS	1070
General	Sulfate	mg/L	SM4110B	NS	164
General	Total Dissolved Solids	mg/L	SM2540C	NS	736
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	20
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	NS	<1.5
General	Total Suspended Solids	mg/L	SM2540D	NS	15
General	Turbidity	NTU	SM2130B	NS	2.42
General	Volatile Suspended Solids	mg/L	SM2540E	NS	7
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	NS	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	NS	<0.015
Herbicides	Glyphosate	ug/L	EPA547	NS	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	NS	62.2
Metals	Dissolved Antimony	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Barium	ug/L	EPA200.8	NS	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	NS	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	NS	138
Metals	Dissolved Lead	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	NS	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	NS	<0.5

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Metals	Dissolved Selenium	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	NS	61.8
Metals	Aluminum	ug/L	EPA200.8	NS	255
Metals	Antimony	ug/L	EPA200.8	NS	<0.2
Metals	Arsenic	ug/L	EPA200.8	NS	<0.2
Metals	Barium	ug/L	EPA200.8	NS	<1
Metals	Beryllium	ug/L	EPA200.8	NS	<0.1
Metals	Cadmium	ug/L	EPA200.8	NS	<0.1
Metals	Chromium	ug/L	EPA200.8	NS	<0.5
Metals	Chromium +6	ug/L	EPA218.6	NS	<0.25
Metals	Copper	ug/L	EPA200.8	NS	<0.5
Metals	Iron	ug/L	EPA200.8	NS	440
Metals	Lead	ug/L	EPA200.8	NS	<0.2
Metals	Mercury	ug/L	EPA245.1	NS	<0.1
Metals	Nickel	ug/L	EPA200.8	NS	<0.5
Metals	Selenium	ug/L	EPA200.8	NS	<0.5
Metals	Silver	ug/L	EPA200.8	NS	<0.1
Metals	Thallium	ug/L	EPA200.8	NS	<0.1
Metals	Zinc	ug/L	EPA200.8	NS	65.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	NS	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	NS	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	NS	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	NS	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	NS	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	NS	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	NS	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	NS	<0.065

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	NS	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA625	NS	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	NS	<1.67

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	NS	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	NS	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	NS	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	NS	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL
NS = Not Sampled

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	500000*	240000*	240000*	90000**	5000*
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	1600000	240000	28000	240000	3500
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	1600000	300000	160000	240000	3500
Bacteria	Total Coliform	MPN/100mL	SM9221B	9000000	300000	240000	1600000	50000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	NS	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	NS	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	NS	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	NS	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	NS	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	NS	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	NS	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	NS	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	NS	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.012	<0.005	0.007	<0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	7.74	7.19	10	10.1	10.1
Conventionals	Oil and Grease	mg/L	EPA1664A	>1.44&<5	>1.44&<5	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.07	NS	7.14	6.34*	6.41*
General	Alkalinity as CaCO3	mg/L	SM2320B	110	NS	60.5	38.5	132
General	Ammonia	mg/L	SM4500-NH3 F	0.617	NS	0.898	0.303	0.944
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	146	NS	11.5	7.03	27.9
General	Chemical Oxygen Demand	mg/L	SM5220D	98.8	NS	21.6	20.8	61
General	Chloride	mg/L	SM4110B	33.5	NS	28.9	10.8	65
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.15	NS	0.13	0.15	0.063
General	Fluoride	mg/L	SM4110B	0.206	NS	0.327	0.246	0.434
General	Hardness as CaCO3	mg/L	SM2340C	130	NS	110	50	170
General	Kjeldahl-N	mg/L	SM4500-NHorg C	2.18	NS	3.78	0.76	5.62
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.81	NS	>0.01&<0.5	>0.01&<0.5	0.73
General	NH3-N	mg/L	SM4500-NH3	0.51	NS	0.742	0.25	0.78
General	Nitrate (NO3)	mg/L	SM4110B	5.21	NS	4.35	2.63	5.35
General	Nitrate-N	mg/L	SM4110B	1.18	NS	0.982	0.594	1.21
General	Nitrite-N	mg/L	SM4110B	0.0705	NS	<0.03	<0.03	0.0395
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.21	NS	0.18	0.17	0.076
General	Specific Conductance	umhos/cm	SM2510B	389	NS	359	152	562
General	Sulfate	mg/L	SM4110B	47.1	NS	49.6	17	110
General	Total Dissolved Solids	mg/L	SM2540C	270	NS	224	94	380
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	31.6	NS	39.5	20.9	42.2
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	716	417	240	85	305

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
General	Turbidity	NTU	SM2130B	25	NS	5.28	10.6	6.61
General	Volatile Suspended Solids	mg/L	SM2540E	171	NS	61	19	76
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	NS	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	NS	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	12.3	NS	11	<5	18.1
Metals	Dissolved Aluminum	ug/L	EPA200.8	995	NS	482	380	421
Metals	Dissolved Antimony	ug/L	EPA200.8	<0.2	NS	<0.2	<0.2	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	2.51	NS	2.31	<0.2	2.32
Metals	Dissolved Barium	ug/L	EPA200.8	127	NS	<1	<1	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	NS	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	1760	NS	1100	592	785
Metals	Dissolved Lead	ug/L	EPA200.8	22.5	NS	10.3	7.33	11.1
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	12.8	NS	<0.5	<0.5	<0.5
Metals	Dissolved Selenium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	500*	NS	150*	115*	252*
Metals	Aluminum	ug/L	EPA200.8	4980	NS	2330	1470	1330
Metals	Antimony	ug/L	EPA200.8	6.82	NS	<0.2	<0.2	<0.2
Metals	Arsenic	ug/L	EPA200.8	2.7	NS	2.34	<0.2	2.92
Metals	Barium	ug/L	EPA200.8	218	NS	<1	<1	110
Metals	Beryllium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	1.41	NS	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	15.9	NS	10.5	<0.5	10.4
Metals	Chromium +6	ug/L	EPA218.6	<0.25	NS	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	116	NS	<0.5	<0.5	<0.5
Metals	Iron	ug/L	EPA200.8	8030	NS	4780	2360	2490
Metals	Lead	ug/L	EPA200.8	32.9	NS	14	11.1	15.9
Metals	Mercury	ug/L	EPA245.1	<0.1	NS	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	23.2	NS	<0.5	<0.5	12.1
Metals	Selenium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Silver	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	640	NS	176	138	268
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	NS	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	NS	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.33	NS	<0.33	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	NS	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	NS	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065

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Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA 420.1	<0.03	<0.03	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<2.5	<2.5	<2.5	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33

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Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	NS	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL
NS = Not Sampled
*Exceedance of Water Quality Objective
**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	NS	30000*	3000**	170000**	800**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	NS	160000	2400	300000	2400
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	NS	160000	2400	300000	2400
Bacteria	Total Coliform	MPN/100mL	SM9221B	NS	300000	240000	2400000	90000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	NS	NS	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	NS	NS	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	NS	NS	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	NS	NS	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	NS	NS	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	NS	NS	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	NS	NS	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	NS	NS	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	NS	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	NS	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	NS	NS	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	NS	<0.005	<0.005	<0.005	0.012
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	NS	8.51	9.84	10.6	11.1
Conventionals	Oil and Grease	mg/L	EPA1664A	NS	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	NS	NS	7.12	6.34*	6.48*
General	Alkalinity as CaCO3	mg/L	SM2320B	NS	NS	49.5	55	99
General	Ammonia	mg/L	SM4500-NH3 F	NS	NS	0.653	0.278	0.666
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	NS	NS	6.88	5.43	18.9
General	Chemical Oxygen Demand	mg/L	SM5220D	NS	NS	<10	30	33.1
General	Chloride	mg/L	SM4110B	NS	NS	31.5	35.9	71.3
General	Dissolved Phosphorus	mg/L	SM4500-PE	NS	NS	0.12	0.1	0.105
General	Fluoride	mg/L	SM4110B	NS	NS	0.17	0.203	0.345
General	Hardness as CaCO3	mg/L	SM2340C	NS	NS	100	115	175
General	Kjeldahl-N	mg/L	SM4500-NHorg C	NS	NS	2.24	0.72	1.22
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	NS	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	NS	NS	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	NS	NS	0.54	0.23	0.55
General	Nitrate (NO3)	mg/L	SM4110B	NS	NS	5.7	6.09	11.6
General	Nitrate-N	mg/L	SM4110B	NS	NS	1.29	1.37	2.62
General	Nitrite-N	mg/L	SM4110B	NS	NS	<0.03	<0.03	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	NS	NS	0.17	0.13	0.108
General	Specific Conductance	umhos/cm	SM2510B	NS	NS	321	345	577
General	Sulfate	mg/L	SM4110B	NS	NS	44	53.8	98
General	Total Dissolved Solids	mg/L	SM2540C	NS	NS	202	208	360
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	NS	93.5	59.5	7.61
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	NS	<1.5	<1.5	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	NS	122	43	61	24

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
General	Turbidity	NTU	SM2130B	NS	NS	4.21	18.2	5.26
General	Volatile Suspended Solids	mg/L	SM2540E	NS	NS	10	8	21
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	NS	NS	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	NS	NS	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	NS	NS	8.99	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	NS	NS	183	635	125
Metals	Dissolved Antimony	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Barium	ug/L	EPA200.8	NS	NS	<1	<1	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	NS	NS	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	NS	NS	348	875	267
Metals	Dissolved Lead	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Selenium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	NS	NS	71.1	69.1	<1
Metals	Aluminum	ug/L	EPA200.8	NS	NS	730	2950	483
Metals	Antimony	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Arsenic	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Barium	ug/L	EPA200.8	NS	NS	<1	<1	<1
Metals	Beryllium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Chromium +6	ug/L	EPA218.6	NS	NS	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Iron	ug/L	EPA200.8	NS	NS	1510	4780	975
Metals	Lead	ug/L	EPA200.8	NS	NS	6.06	7.9	<0.2
Metals	Mercury	ug/L	EPA245.1	NS	NS	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Selenium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Silver	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	NS	NS	73.1	77.4	88.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	NS	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	NS	NS	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	NS	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	NS	NS	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	NS	NS	<0.33	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	NS	NS	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	NS	NS	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA 420.1	NS	<0.03	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<2.5	<2.5	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	NS	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	NS	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	NS	NS	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	240000**	160000**	16000**	50000**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	500000	240000	30000	240000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	500000	240000	30000	240000
Bacteria	Total Coliform	MPN/100mL	SM9221B	300000	350000	300000	500000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.01	0.014	0.008	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.39	12.8	10.8	10.1
Conventionals	Oil and Grease	mg/L	EPA1664A	>1.44&<5	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.51	7.99	7.24	7.68
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	52.8	62.7	49.5	66
General	Ammonia	mg/L	SM4500-NH3 D	1.17	0.339	1.25	0.23
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	27.6	24.6	8.7	16.4
General	Chemical Oxygen Demand	mg/L	SM5220D	47.1	27	22	29
General	Chloride	mg/L	EPA300.0	20.9	35.5	13.7	19.7
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.263	0.13	0.0579	0.08
General	Fluoride	mg/L	EPA300.0	0.279	0.179	0.193	0.17
General	Hardness as $CaCO_3$	mg/L	SM2340C	100	120	70	90
General	Kjeldahl-N	mg/L	SM4500-NHorg C	2.34	0.88	7.62	1.18
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.55	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	0.97	0.28	1.03	0.19
General	Nitrate (NO_3)	mg/L	EPA300.0	7.99	4.48	3.5	3.44
General	Nitrate-N	mg/L	EPA300.0	1.8	1.01	0.79	0.776
General	Nitrite-N	mg/L	EPA300.0	0.0343	<0.01	>0.01&<0.03	<0.01
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.272	0.14	0.06	0.09
General	Specific Conductance	umhos/cm	SM2510 B	258	369	173	243
General	Sulfate	mg/L	EPA300.0	30.3	59.4	17.8	30.4
General	Total Dissolved Solids	mg/L	SM2540C	208	218	110	134
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	22.9	13.5	8.23	5.24
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5

Appendix B.1. 2011-2012 Wet Weather Concentrations

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
General	Total Suspended Solids	mg/L	SM2540D	402	379	253	420
General	Turbidity	NTU	SM2130B	29.3	19.5	5.75	9.5
General	Volatile Suspended Solids	mg/L	SM2540E	96	109	81	126
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	11	<5	7.83	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	910	498	348	880
Metals	Dissolved Antimony	ug/L	EPA200.8	2.09	1.41	1.01	1.38
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.89	1.57	1.27	2.59
Metals	Dissolved Barium	ug/L	EPA200.8	95.6	50.2	40.1	79
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	0.619	>0.1&<0.25	>0.1&<0.25	0.542
Metals	Dissolved Chromium	ug/L	EPA200.8	3.82	2.2	1.34	2.65
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	**39.1***	**25.8***	**19.5***	**32.7***
Metals	Dissolved Iron	ug/L	EPA200.8	1710	830	590	1610
Metals	Dissolved Lead	ug/L	EPA200.8	15.1	12.7	7.88	18.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	9.11	5.22	3.81	7.18
Metals	Dissolved Selenium	ug/L	EPA200.8	>0.5&<1	>0.5&<1	<0.5	>0.5&<1
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	**378***	132	**126***	**258***
Metals	Aluminum	ug/L	EPA200.8	2010	1300	1310	2880
Metals	Antimony	ug/L	EPA200.8	3.78	2.48	2.14	3.3
Metals	Arsenic	ug/L	EPA200.8	2.13	1.96	1.36	3.41
Metals	Barium	ug/L	EPA200.8	112	66.7	56.6	107
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	>0.1&<0.5
Metals	Cadmium	ug/L	EPA200.8	0.827	0.303	0.333	0.644
Metals	Chromium	ug/L	EPA200.8	8.98	5.19	4.85	8.03
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	50.6	36.5	29.2	49.1
Metals	Iron	ug/L	EPA200.8	3480	2650	2150	5100
Metals	Lead	ug/L	EPA200.8	20.5	16.9	10	25.5
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	12.3	7.8	6.78	11
Metals	Selenium	ug/L	EPA200.8	1.2	>0.5&<1	>0.5&<1	1.05
Metals	Silver	ug/L	EPA200.8	0.321	>0.1&<0.25	>0.1&<0.25	>0.1&<0.25
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	408	135	164	332
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065

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Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	0.15	0.12	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

^Method detection level exceeds the waer quality benchmark.

Appendix B.1. 2011-2012 Wet Weather Concentrations

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	90000**	220000**	800**	170
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	240000	240000	800	1300
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	240000	240000	1300	1300
Bacteria	Total Coliform	MPN/100mL	SM9221B	2400000	1600000	24000	16000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.015	0.013	0.013	0.009
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	6.61	9.68	10.5	10.3
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	7.77	7.82	7.64	7.69
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	73.7	123	97.9	105
General	Ammonia	mg/L	SM4500-NH3 D	0.532	<0.1	0.496	0.411
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	13	10.9	9.1	9.18
General	Chemical Oxygen Demand	mg/L	SM5220D	>10&<20	>10&<20	>10&<20	>10&<20
General	Chloride	mg/L	EPA300.0	47.3	93.9	79.9	83
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.262	0.13	0.051	0.12
General	Fluoride	mg/L	EPA300.0	0.293	0.317	0.332	0.311
General	Hardness as $CaCO_3$	mg/L	SM2340C	130	30	200	210
General	Kjeldahl-N	mg/L	SM4500-NHorg C	1.86	0.5	4.32	1.28
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	0.44	<0.1	0.41	0.34
General	Nitrate (NO_3)	mg/L	EPA300.0	11.6	15.3	13.5	12.8
General	Nitrate-N	mg/L	EPA300.0	2.62	3.46	3.04	2.89
General	Nitrite-N	mg/L	EPA300.0	<0.01	>0.01&<0.03	0.0498	<0.01
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.28	0.16	0.06	0.14
General	Specific Conductance	umhos/cm	SM2510 B	454	798	636	712
General	Sulfate	mg/L	EPA300.0	57.7	119	87.7	102
General	Total Dissolved Solids	mg/L	SM2540C	298	472	408	402
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	11.9	7.11	8.03	5.06
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5

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Appendix B.1. 2011-2012 Wet Weather Concentrations

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
General	Total Suspended Solids	mg/L	SM2540D	129	100	118	42
General	Turbidity	NTU	SM2130B	21.3	12.9	5.65	6.06
General	Volatile Suspended Solids	mg/L	SM2540E	28	28	23	14
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	6.8	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	660	565	337	165
Metals	Dissolved Antimony	ug/L	EPA200.8	1.14	0.842	0.597	0.899
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.39	1.6	1.39	1.11
Metals	Dissolved Barium	ug/L	EPA200.8	63.9	68	55	51.8
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	>0.1&<0.25	>0.1&<0.25	>0.1&<0.25	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	2.57	2.81	1.8	1.14
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	>0.25&<5	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	15.6	**13.5***	12.8	10.5
Metals	Dissolved Iron	ug/L	EPA200.8	1140	1030	622	294
Metals	Dissolved Lead	ug/L	EPA200.8	8.39	8.09	5.13	3.3
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	5.28	5.33	5.27	6.33
Metals	Dissolved Selenium	ug/L	EPA200.8	>0.5&<1	1.51	1.36	1.15
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	132	**92.7***	70.2	69.3
Metals	Aluminum	ug/L	EPA200.8	1740	1340	1140	444
Metals	Antimony	ug/L	EPA200.8	1.77	1.37	1.13	1.23
Metals	Arsenic	ug/L	EPA200.8	1.91	1.83	1.43	1.41
Metals	Barium	ug/L	EPA200.8	78.4	88.9	73.3	62.7
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	0.429	0.251	0.266	<0.1
Metals	Chromium	ug/L	EPA200.8	7.01	5.37	4.26	2.43
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	>0.25&<5	<0.25
Metals	Copper	ug/L	EPA200.8	19.2	23.9	18.1	12.9
Metals	Iron	ug/L	EPA200.8	3120	2910	1910	735
Metals	Lead	ug/L	EPA200.8	12.9	15.4	6.52	3.94
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	7.07	37.1	7.68	7.74
Metals	Selenium	ug/L	EPA200.8	>0.5&<1	1.62	1.57	1.51
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	150	160	87.4	73.3
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065

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Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	0.183	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04

Appendix B.1. 2011-2012 Wet Weather Concentrations

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

^Method detection level exceeds the waer quality benchmark.

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**9000***	500
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	110	800
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	800	800
Bacteria	Total Coliform	MPN/100mL	SM9221B	90000	160000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.009	0.019
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	16.2	14.1
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	**8.51***	8.28
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	207	284
General	Ammonia	mg/L	SM4500-NH3 D	<0.1	<0.1
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	12.2	6.92
General	Chemical Oxygen Demand	mg/L	SM5220D	22	>10&<20
General	Chloride	mg/L	EPA300.0	159	229
General	Dissolved Phosphorus	mg/L	SM4500-PE	<0.05	<0.05
General	Fluoride	mg/L	EPA300.0	0.746	1.02
General	Hardness as $CaCO_3$	mg/L	SM2340C	325	440
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.74	0.58
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	<0.1	<0.1
General	Nitrate (NO_3)	mg/L	EPA300.0	6.55	16.6
General	Nitrate-N	mg/L	EPA300.0	1.48	3.75
General	Nitrite-N	mg/L	EPA300.0	>0.01&<0.03	0.112
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510 B	1400	1900
General	Sulfate	mg/L	EPA300.0	267	407
General	Total Dissolved Solids	mg/L	SM2540C	840	1270
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	5.42	5.45

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	86	6
General	Turbidity	NTU	SM2130B	1.9	1.07
General	Volatile Suspended Solids	mg/L	SM2540E	31	5
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	>50&<100	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.651	0.542
Metals	Dissolved Arsenic	ug/L	EPA200.8	3.14	3.13
Metals	Dissolved Barium	ug/L	EPA200.8	72.5	51.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.915	1.43
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5
Metals	Dissolved Copper	ug/L	EPA200.8	9.45	11.7
Metals	Dissolved Iron	ug/L	EPA200.8	220	>50&<100
Metals	Dissolved Lead	ug/L	EPA200.8	3.97	1.12
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	3.89	3.73
Metals	Dissolved Selenium	ug/L	EPA200.8	3.45	5.98
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	108	51.9
Metals	Aluminum	ug/L	EPA200.8	265	>50&<100
Metals	Antimony	ug/L	EPA200.8	0.912	0.677
Metals	Arsenic	ug/L	EPA200.8	3.65	3.37
Metals	Barium	ug/L	EPA200.8	86.3	56.9
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	5.01	1.54
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5
Metals	Copper	ug/L	EPA200.8	13.5	14.4
Metals	Iron	ug/L	EPA200.8	458	148
Metals	Lead	ug/L	EPA200.8	4.7	1.55
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.51	5.2
Metals	Selenium	ug/L	EPA200.8	4.88	7.13
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	120	63
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	20	**500***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	20	130
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	20	230
Bacteria	Total Coliform	MPN/100mL	SM9221B	2200	24000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	<0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.96	5.8
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.2	7.85
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	189	198
General	Ammonia	mg/L	SM4500-NH3 D	<0.1	0.109
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	6.06	4.23
General	Chemical Oxygen Demand	mg/L	SM5220D	>10&<20	<10
General	Chloride	mg/L	EPA300.0	107	108
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.097	0.13
General	Fluoride	mg/L	EPA300.0	0.379	0.395
General	Hardness as $CaCO_3$	mg/L	SM2340C	305	340
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.38	0.38
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	<0.1	<0.1
General	Nitrate (NO_3)	mg/L	EPA300.0	3.34	4.86
General	Nitrate-N	mg/L	EPA300.0	0.754	1.1
General	Nitrite-N	mg/L	EPA300.0	<0.01	0.0359
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.106	0.16
General	Specific Conductance	umhos/cm	SM2510 B	974	984
General	Sulfate	mg/L	EPA300.0	160	160
General	Total Dissolved Solids	mg/L	SM2540C	594	630
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	2.3	2.56

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	10	14
General	Turbidity	NTU	SM2130B	0.95	1.11
General	Volatile Suspended Solids	mg/L	SM2540E	7	4
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	>0.2&<0.5	>0.2&<0.5
Metals	Dissolved Arsenic	ug/L	EPA200.8	>0.2&<1	2.48
Metals	Dissolved Barium	ug/L	EPA200.8	88.9	97.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	>0.1&<0.25
Metals	Dissolved Chromium	ug/L	EPA200.8	0.57	0.709
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	6.27	5.62
Metals	Dissolved Iron	ug/L	EPA200.8	113	133
Metals	Dissolved Lead	ug/L	EPA200.8	1.78	0.827
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	5.49	4.93
Metals	Dissolved Selenium	ug/L	EPA200.8	1.02	>0.5&<1
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	69.8	49.6
Metals	Aluminum	ug/L	EPA200.8	174	136
Metals	Antimony	ug/L	EPA200.8	0.652	0.624
Metals	Arsenic	ug/L	EPA200.8	2.54	2.65
Metals	Barium	ug/L	EPA200.8	110	111
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	>0.1&<0.25
Metals	Chromium	ug/L	EPA200.8	4.44	1.1
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	7.94	7.62
Metals	Iron	ug/L	EPA200.8	234	333
Metals	Lead	ug/L	EPA200.8	2.91	1.52
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	8.22	6.66
Metals	Selenium	ug/L	EPA200.8	2.01	1.65
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	86.4	55.1
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	>0.03&<0.1	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02

Appendix B.2. 2011-2012 Dry Weather Concentrations

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

Watershed Management Program Appendix 3

A-3-1 MCM Guidance

Public Information and Participation Program

Introduction *Permit §VI.D.5.a (LA)/ §VII.F.1 (LB)*

Each participating city is required to develop and implement a Public Information and Participation Program (PIPP) that includes the requirements listed in Permit §VI.D.5.a (LB §VII.F). This document provides guidance that the participating cities can follow to implement a PIPP in compliance with the Permit.

The objectives of the PIPP are to:

- Measurably increase the knowledge of the target audiences about the MS4, the adverse impacts of stormwater pollution on receiving waters and potential solutions to mitigate the impacts.
- Measurably change the waste disposal and stormwater pollution generation behavior of target audiences by developing and encouraging the implementation of appropriate alternatives.
- Involve and engage a diversity of socio-economic groups and ethnic communities in Los Angeles County to participate in mitigating the impacts of stormwater pollution.

PIPP Implementation *Permit §VI.D.5.b (LA)/§VII.F.2 (LB)*

The PIPP is implemented using the following approaches:

- By participating in a County-wide PIPP,
- By participating in one or more Watershed Group sponsored PIPPs, and
- individually within its jurisdiction.

Cities participating in a County-wide or Watershed Group PIPP provide contact info for their staff responsible for stormwater public education activities to the designated PIPP coordinator. Changes in contact information are provided within 30 days of the date that the change occurred.

Public Participation *Permit §VI.D.5.c (LA)/§VII.F.3 (LB)*

Public Reporting

The means for public reporting of clogged catch basin inlets and illicit discharges/dumping, faded or missing catch basin labels, and general stormwater and non-stormwater pollution prevention information is provided through the use of the countywide 888-CLEAN-LA hotline. In addition, each participating city:

- Includes the reporting information – updated when necessary – in public information and the government pages of the telephone book as they are developed or published.
- Identifies staff or departments who will serve as the contact person(s) and will make this information available on its website.
- Provides current, updated hotline contact information to the general public within its jurisdiction.

Events

Events are organized to target residents and population subgroups. The purpose of the events is to educate and involve the community in stormwater and non-stormwater pollution prevention activities, such as education seminars, clean-ups, and community catch basin stenciling.

Residential Outreach Program

Permit §VI.D.5.d (LA)/§VII.F.4 (LB)

With the exception of item 5, which is no longer an element of the countywide PIP Program, each city implements the following activities for the Residential Outreach Program as part of a countywide program:

1. Conduct stormwater pollution prevention public service announcements and advertising campaigns
2. Prepare public education materials that include information on the proper handling (i.e., disposal, storage and/or use) of:
    a. Vehicle waste fluids
    b. Household waste materials (i.e., trash and household hazardous waste, including personal care products and pharmaceuticals)
    c. Construction waste materials
    d. Pesticides and fertilizers (including integrated pest management (IPM) practices to promote reduced use of pesticides)
    e. Green waste (including lawn clippings and leaves)
    f. Animal wastes
3. Distribute activity specific stormwater pollution prevention public education materials at the following points of purchase:
    a. Automotive parts stores
    b. Home improvement centers / lumber yards / hardware stores/paint stores
    c. Landscaping / gardening centers
    d. Pet shops / feed stores
4. Maintain stormwater websites or provide links to stormwater websites via each participating city's website. This includes educational material and opportunities for the public to participate in stormwater pollution prevention and clean-up activities listed in Part VI.D.4 of the Permit.
5. Provide independent, parochial, and public schools within each participating city's jurisdiction with materials to educate school children (K-12) on stormwater pollution. Material may include videos, live presentations and other information. A useful source of materials to work with, or leverage, is other statewide agencies and associations. These associations include the State Water Board's "Erase the Waste" educational program and the California Environmental Education Interagency Network (CEEIN) to implement this requirement.
6. When implementing the above activities, use effective strategies to educate and involve ethnic communities in stormwater pollution prevention through culturally effective methods.

Industrial/Commercial Facilities Program

Each participating city is required to implement an industrial/commercial facilities program that includes the provisions listed in Permit § VI.D.6 (LB §VII.G). This document provides guidance that the participating cities can follow to implement an industrial/commercial facilities program in compliance with the Permit.

Introduction

Permit § VI.D.6.a (LA)/ §VII.G.1 (LB)

The Industrial/Commercial Facilities Program is designed to prevent illicit discharges into the MS4 and receiving waters, reduce industrial/commercial discharges of stormwater to the maximum extent practicable, and prevent industrial/commercial discharges from the MS4 from causing or contributing to a violation of receiving water limitations. The program consists of the following components:

- Track,
- Educate,
- Inspect and
- Ensure compliance with municipal ordinances at industrial/commercial facilities determined to be critical sources of pollutants in stormwater.

Track Critical Industrial/Commercial Sources

Permit § VI.D.6.b (LA)/ §VII.G.2 (LB)

The critical sources to be tracked are listed in Table ICF-1.

Table ICF-1: Critical Sources

<table>
<tr><th>Facility Category</th><th colspan="2">Facility</th></tr>
<tr><td rowspan="4">Commercial Facilities</td><td colspan="2">Restaurants</td></tr>
<tr><td colspan="2">Automotive service facilities (including those located at automotive dealerships)</td></tr>
<tr><td colspan="2">Retail Gasoline Outlets</td></tr>
<tr><td colspan="2">Nurseries and Nursery Centers (Merchant Wholesalers, Nondurable Goods, and Retail Trade)</td></tr>
<tr><td rowspan="4">Industrial Facilities</td><td colspan="2">USEPA “Phase I” Facilities[1]</td></tr>
<tr><td rowspan="3">Other federally-mandated facilities[2]</td><td>Municipal landfills</td></tr>
<tr><td>Hazardous waste treatment, disposal, and recovery facilities</td></tr>
<tr><td>Industrial facilities subject to § 313 “Toxic Release Inventory” reporting requirements of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)[3]</td></tr>
<tr><td>General Facilities</td><td colspan="2">All other commercial or industrial facilities determined to potentially contribute a substantial pollutant load to the MS4.</td></tr>
</table>

[1] as specified in 40 CFR §122.26(b)(14)(i)-(xi)
[2] as specified in 40 CFR §122.26(d)(2)(iv)(C)
[3] 42 U.S.C. § 11023

Critical source facilities are tracked in an electronic database management system. The information stored for each critical source in the inventory is listed in Table ICF-2.

Table ICF-2: Inventory Information for Critical Sources

Information Category		Information
General	Name	Facility Name
	Location	Facility address
		Facility latitude and longitude coordinates
		Receiving water
	Contact	Owner/operator name
		Mailing address
		Phone number
		Email (if available)
Business Type		Standard Industrial Classification (SIC) code and/or North American Industry Classification System (NAICS) code
		Narrative description of the activities performed and/or principal products produced
Water quality		Status of exposure of materials to stormwater
		Pollutants generated by facility activities (A-ICF-1)
		Identification of whether the facility is tributary to a waterbody segment with impairments[4] for pollutants that are also generated by the facility.
Prioritization		High, medium or low. The default priority is medium.
NPDES Permit		For applicable facilities, identify coverage under the State Water Board's General NPDES Permit for the Discharge of Stormwater Associated with Industrial Activities (Industrial General Permit) or other individual or general NPDES permits or any waiver issued by the Regional or State Water Board pertaining to stormwater discharges.
		For Industrial General Permit facilities, identify whether the facility has filed a No Exposure Certification with the State Water Board.

Update Inventory

The critical sources inventory is updated at least annually. The update is accomplished through the collection of new information from sources such as field activities and readily available inter/intra-agency records (e.g. business licenses, pretreatment permits, sanitary sewer connection permits and the State Water Resources Control Board's Storm Water Multiple Application and Report Tracking System (SMARTS)).

[4] CWA § 303(d) listed or subject to a TMDL

Prioritization

Prioritizing facilities by their potential water quality impact provides an excellent opportunity to optimize the effectiveness of the Industrial/Commercial Facilities Program. The three inventory fields under the "Water Quality" category of Table ICF-2 provide information that allows for such a facility prioritization. Based on these fields, the following tables establish a method to prioritize all industrial/commercial facilities into three graded tiers – High, Medium and Low. The City may follow an alternative prioritization method provided it results in a similar three-tiered scheme. In order to maintain a minimum inspection frequency equivalent to the mandates of the MS4 Permit, a condition must be applied to the prioritization process. This condition is explained on the following page.

Prioritization factors

Factor	Description
A	Status of exposure of materials and industrial/commercial activities to stormwater
B	Identification of whether the facility is tributary to a waterbody segment with impairments[5] for pollutants that are also generated by the facility
C	Other factors determined by the City, such as size of facility, presence of exposed soil or history of stormwater violations

Utilizing these factors, follow steps 1, 2 and 3 below:

1. Collect necessary information to evaluate factors

Factor	Initial method	Subsequent method
A	Satellite imagery	Results of stormwater inspection
B	Cross reference Table ICF-4 or 5 with tributary TMDL/ 303(d) pollutants*	Cross reference inspection results with tributary TMDL/ 303(d) pollutants
C	Varies	

* See Pages ICF-9 and 10.

2. Evaluate factors

Factor	Result	Score
A	Low or no exposure	0
	Moderate exposure	½
	Significant exposure	1
B	No**	0
	Yes***	1
C	Low	0
	Medium	½
	High	1

** No pollutant generation/impairment matches
*** ≥ 1 pollutant generation/impairment matches

3. Prioritize facilities

		C Score		
		0	½	1
A×B Score	0	Low	Medium	High
	½	Medium	High	High
	1	High	High	High

This method serves only as a guide to prioritization. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C.

Figure ICF-1: Industrial/Commercial Facility Prioritization Scheme

[5] CWA § 303(d) listed or subject to a TMDL

Step 3 may also be expressed by the relationships $A \cdot B + C \geq 1 \rightarrow$ High, $1 > A \cdot B + C > 0 \rightarrow$ Medium and $A \cdot B + C = 0 \rightarrow$ Low. The purpose of multiplying A and B is to scale the impact of the presence of the pollutants at a facility (B) by the likelihood that they will be discharged to the MS4 (A). Factor C quantifies water quality concerns that are independent of A or B and as such is incorporated through addition. The purpose of this numerical approach is to provide consistency to the prioritization process. It is intended solely as a guide. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C as listed in Figure ICF-1.

Prioritization Condition

The facility prioritization impacts the inspection frequency. In fact the main objective of prioritizing the facilities is to adjust the inspection schedule to focus efforts on water quality priorities. The intent is not to reduce the total number of inspections. In order to maintain a total number of inspections in line with the expectations of the MS4 Permit (i.e. result in the same number of average inspections per year as a semi-quinquennial frequency), one additional condition must be imposed:

> ***The total number of low priority facilities is less than or equal to 3 times the number of high priority facilities.***
>
> *Prioritization condition*

Prioritization Frequency

The default priority for a facility is Medium. Prioritization and reprioritization may be conducted at any time based on the discretion of the City. Figure ICF-2 is a flowchart of the prioritization process.

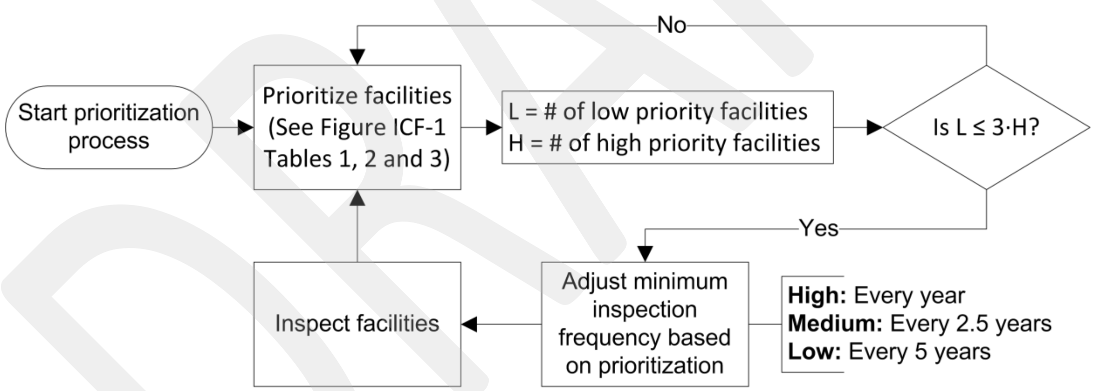

Figure ICF-2: Prioritization Process

Educate Industrial/Commercial Sources

Permit § VI.D.6.c (LA)/ §VII.G.3 (LB)

At least once during the five-year period of the MS4 Permit, the owner/operator of each of the inventoried critical sources is notified of the BMP requirements applicable to the facility/source.

Business Assistance Program

The Business Assistance Program provides technical information to businesses to facilitate their efforts to reduce the discharge of pollutants in stormwater. Assistance is targeted to select business sectors or small businesses upon a determination that their activities may be contributing substantial pollutant loads to the MS4 or receiving water. Assistance may include technical guidance and provision of educational materials. The Program includes at least one of the following components:

- **Technical Guidance** – Provide on-site technical assistance, telephone, or e-mail consultation regarding the responsibilities of businesses to reduce the discharge of pollutants, procedural requirements, and available guidance documents. Guidance methods include but are not limited to:
    - Technical guidance through the critical source inspection program. During an inspection the inspector provides to the business owner/operator 1) on-site technical assistance and 2) contact information for continued consultation. The inspector may also refer staff to relevant fact sheets from the *CASQA Industrial and Commercial BMP Handbook*.
    - Technical guidance initiated with businesses through an informational letter, email, webpage or social media. The notice provides contact information of relevant stormwater staff for business assistance as well as hyperlinks to available guidance documents such as the *CASQA Industrial and Commercial BMP Handbook*.
- **Educational Materials** – Distribute stormwater pollution prevention educational materials to operators of 1) auto repair shops, car wash facilities, restaurants and 2) mobile sources including automobile/equipment repair, washing, or detailing, power washing services, mobile carpet, drape, or upholstery cleaning services, swimming pool, water softener, and spa services, portable sanitary services and commercial applicators and distributors of pesticides, herbicides and fertilizers, if present. Material sources and distribution methods include but are not limited to:
    - Distribution method – The presence of these businesses within an agency's jurisdiction may be determined through business licenses or other readily available inter/intra-agency records.
    - Material sources – Educational materials are available at USEPA's Nonpoint Source (NPS) Outreach Toolbox at http://cfpub.epa.gov/npstbx/index.html. The toolbox is a database of nationwide public education materials that is intended for use by state and local campaigns. The toolbox contains a variety of resources to help develop an effective and targeted outreach campaign.

Inspect Critical Industrial/Commercial Sources

Modified from Permit §VI.D.6.d-e (LA)/ §VII.G.4-5(LB)

Frequency of Inspections

Following the facility prioritization method described in this guidance document, the City will inspect high priority facilities annually, medium priority facilities semi-quinquennially (once every 2.5 years) and low priority facilities quinquennially (once every five years). The frequencies may be altered by the exclusions defined in the following section. The prioritization condition on Page ICF-4 ensures at least the same average number of inspections conducted per year as the semi-quinquennial frequency defined in the MS4 Permit.

The City will conduct the first compliance inspection of industrial/commercial facilities within one year of the approval of the Watershed Management Program by the Executive Officer. There will be a minimum interval of six months between the first and the second mandatory compliance inspections.

Exclusions to the Frequency of Industrial Inspections

Exclusion of Facilities Previously Inspected by the Regional Water Board
The State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS) database[6] is reviewed at defined intervals to determine if an industrial facility has recently been inspected by the Regional Water Board. The first interval is two years after the effective date of the MS4 Permit (LA: December 28, 2014, LB: March 28,, 2016) and the second interval is four years after the effective date (LA: December 28, 2016, LB: March 28, 2018). If it is determined through the review that the Regional Water Board conducted an inspection of a facility within the prior 24 month period, then the facility does not require an inspection.

No Exposure Verification
The initial inspection identifies those facilities that have filed a No Exposure Certification with the State Water Board. Three to four years after the effective date of the MS4 Permit, a second inspection is performed for at least 25% of the facilities identified to have filed a No Exposure Certification. The purpose of this inspection is to verify the continuity of the no exposure status.

Scope of Inspections

A template inspection form is included as Attachment ICF-A.

Scope of Commercial Inspections
Commercial critical source facilities are inspected to confirm that stormwater and non-stormwater BMPs are effectively implemented in compliance with municipal ordinances. At each facility, inspectors verify that the operator is implementing effective source control BMPs for each corresponding activity. The implementation of additional BMPs is required where stormwater from the MS4 discharges to a significant ecological area (SEA), a water body subject to TMDL provisions[7], or a CWA §303(d) listed impaired water body. For those BMPs that are not adequately protective of water quality standards, additional site-specific controls may be required.

Scope of Mandatory Industrial Facility Inspections
At each industrial critical source the inspector confirms that the facility

- Has a current Waste Discharge Identification (WDID) number for coverage under the Industrial General Permit, and that a Storm Water Pollution Prevention Plan (SWPPP) is available on-site; or
- Has applied for, and has received a current No Exposure Certification for facilities subject to this requirement;
- Is effectively implementing BMPs in compliance with municipal ordinances. Facilities must implement the source control BMPs identified in Table ICF-3, unless the pollutant generating activity does not occur. Additional BMPs must be implemented where stormwater from the MS4 discharges to a water body subject to TMDL Provisions in Part VI.E of the MS4 Permit, or a CWA § 303(d) listed impaired water body. If the specified BMPs are not adequately protective of water quality standards, additional site-specific controls may be required. For critical sources that discharge to MS4s that discharge to SEAs, operators must implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to

[6] SMARTS is accessible at https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp
[7] As described in Part VI.E of the MS4 Permit

exceedances of water quality standards.

- Applicable industrial facilities identified as not having either a current WDID or No Exposure Certification are notified that they must obtain coverage under the Industrial General Permit and will be referred to the Regional Water Board per the Progressive Enforcement Policy procedures identified in Part VI.D.2 of the MS4 Permit.

Source Control BMPs

Permit § VI.D.6.f (LA)/ §VII.G.6 (LB)

Effective source control BMPs for the activities listed in Table ICF-3 are implemented at commercial and industrial facilities, unless the pollutant generating activity does not occur:

Significant Ecological Areas (SEAs)

Permit § VI.D.6.g (LA)/ §VII.H (LB)

For critical sources that discharge to MS4s that discharge to SEAs, each Permittee will require operators to implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards.

Progressive Enforcement

Permit § VI.D.6.h (LA)/ §VII.I (LB)

Each Permittee will implement its Progressive Enforcement Policy to ensure that Industrial / Commercial facilities are brought into compliance with all stormwater requirements within a reasonable time period. See Part VI.D.2 of the MS4 Permit for requirements for the development and implementation of a Progressive Enforcement Policy.

Table ICF-3: Source Control BMPs at Commercial and Industrial Facilities

Pollutant-Generating Activity	**BMP Description**	**BMP Fact Sheet***
Unauthorized Non-Storm water Discharges	Effective elimination of non-stormwater discharges	SC-10
Accidental Spills/ Leaks	Implementation of effective spills/ leaks prevention and response procedures	SC-11
Vehicle/ Equipment Fueling	Implementation of effective fueling source control devices and practices	SC-20
Vehicle/ Equipment Cleaning	Implementation of effective equipment/vehicle cleaning practices and appropriate wash water management practices	SC-21
Vehicle/ Equipment Repair	Implementation of effective vehicle/ equipment repair practices and source control devices	SC-22
Outdoor Liquid Storage	Implementation of effective outdoor liquid storage source controls and practices	SC-31
Outdoor Equipment Operations	Implementation of effective outdoor equipment source control devices and practices	SC-32
Outdoor Storage of Raw Materials	Implementation of effective source control practices and structural devices	SC-33
Storage and Handling of Solid Waste	Implementation of effective solid waste storage/ handling practices and appropriate control measures	SC-34
Building and Grounds Maintenance	Implementation of effective facility maintenance practices	SC-41
Parking/ Storage Area Maintenance	Implementation of effective parking/ storage area designs and housekeeping/ maintenance practices	SC-43
Stormwater Conveyance System Maintenance	Implementation of proper conveyance system operation and maintenance protocols	SC-44
Pollutant-Generating Activity	**BMP Description from Regional Water Board Resolution No. 98-08**	
Sidewalk Washing	1. Remove trash, debris, and free standing oil/grease spills/leaks (use absorbent material, if necessary) from the area before washing; and 2. Use high pressure, low volume spray washing using only potable water with no cleaning agents at an average usage of 0.006 gallons per square feet of sidewalk area.	
Street Washing	Collect and divert wash water to the sanitary sewer – publically owned treatment works (POTW). Note: POTW approval may be needed.	

* Source: CASQA Industrial and Commercial Stormwater BMP Handbook, 2003

Table ICF-4: Potential Pollutants from Industrial Activities*

Activity or Facility Type	Potential Pollutants								
	Sediments	Nutrients	Metals	Organics and Toxicants**	Floatable Materials	Oxygen-Demanding Substances	Oil and Grease	Bacteria	Pesticides
Vehicle & Equipment Fueling			✕	✕					
Vehicle & Equipment Washing and Steam Cleaning	✕	✕	✕	✕		✕	✕		
Vehicle & Equipment Maintenance and Repair			✕	✕			✕		
Outdoor Loading & Unloading of Materials	✕	✕	✕	✕	✕	✕	✕		
Outdoor Container Storage of Liquids		✕	✕	✕		✕	✕		✕
Outdoor Process Equipment Operations and Maintenance	✕		✕	✕			✕		
Outdoor Storage of Raw Materials, Products, and Byproducts	✕	✕	✕	✕	✕	✕	✕		
Waste Handling & Disposal			✕	✕	✕	✕	✕	✕	
Contaminated or Erodible Surface Areas	✕	✕	✕	✕	✕	✕	✕	✕	
Building and Grounds Maintenance	✕	✕	✕		✕	✕		✕	✕
Building Repair, Remodeling, and Construction	✕		✕		✕	✕			
Parking/Storage Area Maintenance			✕	✕	✕		✕		

* Source: CASQA Industrial and Commercial Stormwater BMP Handbook, 2003

** This includes all toxic pollutants other than pesticides

Table ICF-5: Potential Pollutants by Industrial/Commercial Facility Type*

Activity or Facility Type	Potential Pollutants: Sediments	Nutrients	Metals	Organics and Toxicants**	Floatable Materials	Oxygen-Demanding Substances	Oil and Grease	Bacteria	Pesticides
Vehicle mechanical repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Airplane mechanical repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Boat mechanical repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Equipment repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Automobile and other vehicle body repair or painting			✕	✕			✕		
Mobile automobile or other vehicle washing	✕	✕	✕			✕	✕		
Automobile (or other vehicle) parking lots and storage			✕		✕		✕		
Retail or wholesale fueling			✕	✕	✕		✕		
Pest control services									✕
Eating or drinking establishments		✕		✕	✕	✕	✕	✕	✕
Mobile carpet, drape or furniture cleaning	✕			✕					
Cement mixing or cutting	✕								
Masonry	✕								
Painting and coating			✕	✕			✕		
Botanical or zoological gardens and exhibits	✕	✕			✕	✕		✕	✕
Landscaping	✕	✕			✕	✕		✕	✕
Nurseries and greenhouses	✕	✕			✕	✕		✕	✕
Golf courses, parks and other recreational areas/facilities	✕	✕			✕	✕		✕	✕
Cemeteries	✕	✕			✕	✕		✕	✕
Pool and fountain cleaning		✕	✕	✕	✕	✕		✕	
Marinas			✕	✕	✕	✕	✕	✕	
Port-a-Potty servicing		✕			✕	✕		✕	

* Source: Orange County Drainage Area Management Plan, 2003

** This includes all toxic pollutants other than pesticides

Planning and Land Development Program

The Cities are required to implement a Planning and Land Development program that includes the provisions listed in the MS4 Permit (LA MS4 Permit §VI.D.7, LB MS4 Permit §VII.J). This document provides guidance that the participating cities can follow to implement a Planning and Land Development program in compliance with the MS4 Permit.

Introduction *Permit §VI.D.7.a (LA)/§VII.J.1 (LB)*

The Planning and Land Development Program for all New Development and Redevelopment projects subject to the MS4 Permit includes measures to:

- Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.
- Minimize the adverse impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code §21000 et seq.).
- Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing Low Impact Development (LID) design principles to mimic pre-development hydrology through infiltration, evapotranspiration and rainfall harvest and use.
- Maintain existing riparian buffers and enhance riparian buffers when possible.
- Minimize pollutant loadings from impervious surfaces such as roof tops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including Source Control BMPs such as good housekeeping practices), LID Strategies, and Treatment Control BMPs.
- Properly select, design and maintain LID and Hydromodification Control BMPs to address pollutants that are likely to be generated, reduce changes to pre-development hydrology, assure long-term function, and avoid the breeding of vectors.[1]
- Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources in the following order of preference:
    - On-site infiltration, bioretention and/or rainfall harvest and use.
    - On-site biofiltration, off-site groundwater replenishment, and/or off-site retrofit.

[1] Treatment BMPs when designed to drain within 96 hours of the end of rainfall minimize the potential for the breeding of vectors. See California Department of Public Health *Best Management Practices for Mosquito Control in California* (2012) at http://www.westnile.ca.gov/resources.php

Applicability *Permit §VI.D.7.b (LA)/§VII.J.2-3 (LB)*

New Development Projects

The New Development and Redevelopment categories below will require a Standard Urban Stormwater Mitigation Plan (SUSMP), also known as a Low Impact Development (LID) Plan, containing stormwater mitigation measures in compliance with MS4 Permit requirements. Development projects subject to conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s), are listed below:

1. All development projects (including single family hillside homes) equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious surface area
2. Industrial parks with 10,000 square feet or more of surface area
3. Commercial malls with 10,000 square feet or more surface area
4. Retail gasoline outlets with 5,000 square feet or more of surface area
5. Restaurants (SIC 5812) with 5,000 square feet or more of surface area
6. Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces
7. Automotive service facilities (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area
8. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA), where the development will:
    a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and
    b. Create 2,500 square feet or more of impervious surface area
9. Redevelopment projects in subject categories that meet Redevelopment thresholds identified below

Redevelopment Projects

Redevelopment projects subject to agency conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s), are:

1. Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on development categories identified above.
2. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.
3. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire

development.

4. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency Redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.
5. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

Special Provisions

1. Street and road construction of 10,000 square feet or more of impervious surface area
   a. These projects will follow an approved green streets manual to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects. The Cities will require a Standard Urban Mitigation Plan (SUSMP), also known as a Low Impact Development (LID) Plan, containing stormwater mitigation measures in compliance with the approved green streets manual requirements.
2. Single family hillside homes will require a less extensive plan. To the extent that an agency may lawfully impose conditions, mitigation measures or other requirements on the development or construction of a single-family home in a hillside area as defined in the applicable agency's Code and Ordinances, the Cities will require that during the construction of a single-family hillside home, the following measures are implemented:
   a. Conserve natural areas
   b. Protect slopes and channels
   c. Provide storm drain system stenciling and signage
   d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability
   e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

New Development/ Redevelopment
Project Performance Criteria

Permit §VI.D.7.c (LA)/§VII.J.4 (LB)

Integrated Water Quality/Flow Reduction/Resources Management Criteria

All New Development and Redevelopment projects identified above will control pollutants, pollutant loads, and runoff volume emanating from the project site by: (1) minimizing the impervious surface area and (2) controlling runoff from impervious surfaces through infiltration, bioretention and/or rainfall harvest and use.

Projects will retain on-site the Stormwater Quality Design Volume (SWQDv) defined as the runoff from the 0.75-inch, 24-hour rain event or the 85th percentile, 24-hour rain event, as determined from the Los Angeles County 85th percentile precipitation isohyetal map[2], *whichever is greater*. Exceptions include technical infeasibility, opportunity for regional groundwater replenishment, local ordinance equivalence, or hydromodification, as described in the sections below.

When evaluating the potential for on-site retention, the Cities will consider the maximum potential for evapotranspiration from green roofs and rainfall harvest and use.

Alternative Compliance for Technical Infeasibility or Opportunity for Regional Groundwater Replenishment

In instances of technical infeasibility or where a project has been determined to provide an opportunity to replenish regional groundwater supplies at an offsite location, the Cities may allow projects to comply with the MS4 Permit through the alternative compliance measures as described below:

1. To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Conditions where technical infeasibility may result including those indicated in

[2] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

2. Table PLD- **1** below. To utilize alternative compliance measures to replenish groundwater at an offsite location, the project applicant will demonstrate *(i)* why it is not advantageous to replenish groundwater at the project site, *(ii)* that groundwater can be used for beneficial purposes at the offsite location, and *(iii)* that the alternative measures will also provide equal or greater water quality benefits to the receiving surface water than the Water Quality/Flow Reduction/Resource Management Criteria.

Table PLD- 1: Technical Infeasibility Criteria

1.	The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv on-site.
2.	Locations where seasonal high groundwater is within 5 to 10 feet of the surface,
3.	Locations within 100 feet of a groundwater well used for drinking water,
4.	Brownfield development sites where infiltration poses a risk of causing pollutant mobilization,
5.	Other locations where pollutant mobilization is a documented concern. Pollutant mobilization is considered a documented concern at or near properties that are contaminated or store hazardous substances underground.
6.	Locations with potential geotechnical hazards
7.	Smart growth and infill or Redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the on-site volume retention requirement.

Alternative Compliance Measures

When a project applicant has demonstrated that it is technically infeasible to retain 100 percent of the SWQDv on-site, or is proposing an alternative offsite project to replenish regional groundwater supplies, the agency will require one of the following mitigation options:

1. On-site Biofiltration

If using biofiltration due to demonstrated technical infeasibility, then the project must biofiltrate 1.5 times the portion of the SWQDv that is not reliably retained on-site, as calculated by Equation 1 below.

$$B_v = 1.5 * [SWQD_v - R_V]$$ *Equation 1*

Where:

Bv = biofiltration volume

SWQDv = the stormwater runoff from a 0.75 inch, 24-hour storm or the 85th percentile storm[3], *whichever is greater*.

Rv = volume reliably retained on-site

The MS4 Permit does not mention flowrate based biotreatment BMPs; however, proprietary biotreatment systems are often sized using flowrate rather than volume. Additionally, in cases where a pump is needed prior to entering the biotreatment BMP, the system requires sizing based on the controlled flow from the pump. Therefore, if it is infeasible to size a biotreatment BMP with volume-based calculations, the flowrate may be substituted in lieu of volume. Similarly, the flow rate must be determined using the design storm of 0.75 inch, 24-hour storm event or the 85th percentile storm[1], whichever is greater.

Conditions for On-site Biofiltration include the following:

a. Biofiltration systems will meet the design specifications provided in Attachment H to the MS4 Permit unless otherwise approved by the Regional Water Board Executive Officer.

[3] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

b. Biofiltration systems discharging to a receiving water that is included on the Clean Water Act section 303(d) list of impaired water quality-limited water bodies due to nitrogen compounds or related effects will be designed and maintained to achieve enhanced nitrogen removal capability. See Attachment H of the MS4 Permit for design criteria for underdrain placement to achieve enhanced nitrogen removal.

2. Offsite Infiltration

Offsite infiltration when implemented will use infiltration or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv, less the volume of stormwater runoff reliably retained on-site, at an approved offsite project and provide pollutant reduction (treatment) of the stormwater runoff discharged from the project site in accordance with the Water Quality Mitigation Criteria. The required offsite mitigation volume will be calculated by Equation 2 below.

$$M_v = 1.0 * [SWQD_v - R_v]$$ *Equation 2*

<u>Where</u>:

M_v = mitigation volume

$SWQD_v$ = runoff from the 0.75 inch, 24-hour storm event or the 85th percentile storm[4], *whichever is greater*

R_v = the volume of stormwater runoff reliably retained on-site.

3. Groundwater Replenishment Projects

Regional projects to replenish regional groundwater supplies at offsite locations may be proposed, provided the groundwater supply has a designated beneficial use in the Basin Plan. Regional groundwater replenishment projects must use infiltration, groundwater replenishment, or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv for New Development and Redevelopment projects, subject to conditioning and approval for the design and implementation of post-construction controls, within the approved project area. The projects must provide pollutant reduction (treatment) of the stormwater runoff discharged from development projects, within the project area, subject to conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution in accordance with the Water Quality Mitigation Criteria.

Regional groundwater replenishment projects being implemented in lieu of onsite controls will mitigate the volume as calculated using Equation 2 above.

Regional groundwater replenishment projects will be located in the same sub-watershed (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) as the New Development or Redevelopment projects which did not implement on-site retention BMPs. Locations outside of the HUC-12 but within the HUC-10 subwatershed area may be considered if there are no opportunities within the HUC-12 subwatershed or if greater pollutant reductions and/or groundwater

[4] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

replenishment can be achieved at a location within the expanded HUC-10 subwatershed. *The use of a mitigation, groundwater replenishment, or retrofit project outside of the HUC-12 subwatershed is subject to the approval of the Executive Officer of the Regional Water Board*.

4. Offsite Project -Retrofit Existing Development

   Use infiltration, bioretention, rainfall harvest and use and/or biofiltration BMPs to retrofit an existing development, with similar land uses as the New Development or land uses associated with comparable or higher stormwater runoff event mean concentrations (EMCs) than the new development. Comparison of EMCs for different land uses will be based on published data from studies performed in southern California. The retrofit plan will be designed and constructed to:

   a. Intercept a volume of stormwater runoff equal to the mitigation volume (Mv) as described above in Equation 2, except biofiltration BMPs will be designed to meet the biofiltration volume or flowrate as described in Equation 1, and

   b. Provide pollutant reduction (treatment) of the stormwater runoff from the project site as described in the Water Quality Mitigation Criteria.

5. Conditions for Offsite Projects

   Project applicants seeking to utilize these alternative compliance provisions may propose other offsite projects, which the agency in which the project is located may approve if they meet the requirements of this subpart.

   a. Location of offsite projects. Offsite projects will be located in the same sub-watershed (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) as the New Development or Redevelopment project. Locations outside of the HUC-12 but within the HUC-10 subwatershed area may be considered if there are no opportunities within the HUC-12 subwatershed or if greater pollutant reductions and/or groundwater replenishment can be achieved at a location within the expanded HUC-10 subwatershed. *The use of a mitigation, groundwater replenishment, or retrofit project outside of the HUC-12 subwatershed is subject to the approval of the Executive Officer of the Regional Water Board.*

   b. Project applicant must demonstrate that equal benefits to groundwater recharge can be met on the project site.

   c. A prioritized list of potential offsite mitigation, groundwater replenishment and/or retrofit projects will be developed within each agency, and when feasible, the mitigation will be directed to the highest priority project within the same HUC-12 or if approved by the Regional Water Board Executive Officer, the HUC-10 drainage area, as the New Development project.

   d. Infiltration/bioretention will be the preferred LID BMP for offsite mitigation or groundwater replenishment projects. Offsite retrofit projects may include green streets, parking lot retrofits, green roofs, and rainfall harvest and use. Biofiltration BMPs may be considered for retrofit projects when infiltration, bioretention or rainfall harvest and use is technically infeasible.

   e. The agency in which the project is located will develop a schedule for the completion of offsite projects, including milestone dates to identify, fund, design, and construct the projects. Offsite

projects will be completed as soon as possible, and at the latest, within 4 years of the certificate of occupancy for the first project that contributed funds toward the construction of the offsite project, unless a longer period is otherwise authorized by the Executive Officer of the Regional Water Board. For public offsite projects, the agency in which the project is located must provide in their annual reports a summary of total offsite project funds raised to date and a description (including location, general design concept, volume of water expected to be retained, and total estimated budget) of all pending public offsite projects. Funding sufficient to address the offsite volume must be transferred to the agency (for public offsite mitigation projects) or to an escrow account (for private offsite mitigation projects) within one year of the initiation of construction.

f. Offsite projects must be approved by the agency in which the project is located and may be subject to approval by the Regional Water Board Executive Officer, if a third-party petitions the Executive Officer to review the project. Offsite projects will be publicly noticed on the Regional Water Board's website for 30 days prior to approval.

g. The project applicant must perform the offsite projects as approved by either the agency or the Regional Water Board Executive Officer or provide sufficient funding for public or private offsite projects to achieve the equivalent mitigation stormwater volume.

6. Regional Stormwater Mitigation Program

An agency or agency group may apply to the Regional Water Board for approval of a regional or sub-regional stormwater mitigation program to substitute in part or wholly for New and Redevelopment requirements for the area covered by the regional or sub-regional stormwater mitigation program. Upon review and a determination by the Regional Water Board Executive Officer that the proposal is technically valid and appropriate, the Regional Water Board may consider for approval such a program if its implementation meets all of the following requirements:

a. Retains the runoff from the 85th percentile, 24-hour rain event or the 0.75 inch, 24-hour rain event, whichever is greater;

b. Results in improved stormwater quality;

c. Protects stream habitat;

d. Promotes cooperative problem solving by diverse interests;

e. Is fiscally sustainable and has secure funding; and

f. Is completed in five years including the construction and start-up of treatment facilities.

7. Water Quality Mitigation Criteria

All New Development and Redevelopment projects that have been approved for offsite mitigation or groundwater replenishment projects will also provide treatment of stormwater runoff from the project site. These projects will design and implement post-construction stormwater BMPs and control measures to reduce pollutant loading as necessary to:

a. Meet the pollutant specific benchmarks listed in Table PLD2 at the treatment systems outlet or prior to the discharge to the MS4, and

b. Ensure that the discharge does not cause or contribute to an exceedance of water quality standards at the agency's downstream MS4 outfall.

The project proponent may be allowed to install flow-through modular treatment systems including sand filters, or other proprietary BMP treatment systems with a demonstrated efficiency at least equivalent to a sand filter. The sizing of the flow through treatment device will be based on a rainfall intensity of 0.2 inches per hour, or the one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, *whichever is greater*.

Table PLD- 2: Benchmarks Applicable to New Development Treatment BMPs.

Conventional Pollutants					
Pollutant	Suspended Solids mg/L	Total P mg/L	Total N mg/L	TKN mg/L	
Effluent Concentration	14	0.13	1.28	1.09	
Metals					
Pollutant	Total Cd µg/L	Total Cu µg/L	Total Cr µg/L	Total Pb µg/L	Total Zn µg/L
Effluent Concentration	0.3	6	2.8	2.5	23

New developments and redevelopments will not cause or contribute to an exceedance of applicable water quality-based effluent limitations established in the MS4 Permit pursuant to Total Maximum Daily Loads (TMDLs).

8. Hydromodification (Flow/ Volume/ Duration) Control Criteria

All New Development and Redevelopment projects located within natural drainage systems will implement hydrologic control measures, to prevent accelerated downstream erosion and to protect stream habitat in natural drainage systems. The purpose of the hydrologic controls is to minimize changes in post-development hydrologic stormwater runoff discharge rates, velocities, and duration. This will be achieved by maintaining the project's pre-project stormwater runoff flow rates and durations.

<u>*Description*</u>

Hydromodification control in natural drainage systems will be achieved by maintaining the Erosion Potential (Ep) in streams at a value of 1, unless an alternative value can be shown to be protective of the natural drainage systems from erosion, incision, and sedimentation that can occur as a result of flow increases from impervious surfaces and prevent damage to stream habitat in natural drainage system tributaries[5]. Hydromodification mitigation approaches should meet the criteria below:

a. Hydromodification control may include one, or a combination of on-site, regional or sub-regional hydromodification control BMPs, LID strategies, or stream and riparian buffer restoration measures. Any in-stream restoration measure shall not adversely affect the beneficial uses of the natural drainage systems.

b. Natural drainage systems that are subject to the hydromodification assessments and controls,

[5] See Attachment J of the MS4 Permit, "*Determination of Erosion Potential*"

as described in this section, include all drainages that have not been improved (e.g., channelized or armored with concrete, shotcrete, or rip-rap) or drainage systems that are tributary to a natural drainage system, except as provided in Exemptions to Hydromodification Controls, see below. The clearing or dredging of a natural drainage system does not constitute an "improvement."

c. Until the State Water Board or the Regional Water Board adopts a final Hydromodification Policy or criteria, the Hydromodification Control Criteria described in this section will be implemented to control the potential adverse impacts of changes in hydrology that may result from New Development and Redevelopment projects located within natural drainage systems.

Exemptions to Hydromodification Controls

New Development and Redevelopment projects may be exempt from implementation of hydromodification controls where assessments of downstream channel conditions and proposed discharge hydrology indicate that adverse hydromodification effects to beneficial uses of Natural Drainage Systems are unlikely. Conditions for exemptions include the following:

a. Projects involving replacement, maintenance or repair of an agency's existing flood control facility, storm drain, or transportation network.

b. Redevelopment Projects in the center of urban areas that do not increase the effective impervious area or decrease the infiltration capacity of pervious areas compared to the pre-project conditions.

c. Projects that have any increased discharge directly or via a storm drain to a sump, lake, area under tidal influence, into a waterway that has a 100-year peak flow (Q100) of 25,000 cfs or more, or other receiving water that is not susceptible to hydromodification impacts.

d. Projects that discharge directly or via a storm drain into concrete or otherwise engineered (not natural) channels (e.g., channelized or armored with rip rap, shotcrete, etc.), which, in turn, discharge into receiving water that is not susceptible to hydromodification impacts.

e. LID BMPs implemented on single family homes are sufficient to comply with hydromodification criteria.

Hydromodification Control Criteria

The Hydromodification Control Criteria to protect natural drainage systems are as follows:

a. Except for exemptions described above, projects disturbing an area greater than 1 acre but less than 50 acres within natural drainage systems will be presumed to meet pre-development hydrology if one of the following demonstrations is made:

   i. The project is designed to retain on-site, through infiltration, evapotranspiration, and/or harvest and use, the stormwater volume from the runoff of the 95th percentile, 24-hour storm, or

ii. The runoff flow rate, volume, and velocity for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour rainfall event and the duration for the post-development condition is not less than the pre-development condition for the 2-year, 24-hour rainfall event. This condition may be substantiated by simple screening models, including those described in Hydromodification Effects on Flow Peaks and Durations in Southern California Urbanizing Watersheds (Hawley et al., 2011) or other models acceptable to the Executive Officer of the Regional Water Board, or

> The MS4 Permit states projects will meet Hydromodification Control Criteria if "*The...duration for the post-development condition* ***do[es] not exceed*** *the pre-development condition for the 2-year, 24-hour rainfall event*." The runoff duration (Tc) is generally associated with longer values resulting in lower concern for hydromodification impacts. Implementation of LID BMPs generally results in runoff not immediately (or not at all) discharging from the site, increasing the time of concentration. Thus, the interpretation presented herein is that Hydromodification Control Criteria would be met if the runoff duration for the post-development condition is **not less than** the pre-development condition for the 2-year, 24-hour rainfall event.

iii. The Erosion Potential (Ep) in the receiving water channel will approximate 1, as determined by a Hydromodification Analysis Study and the equation presented in Attachment J of the MS4 Permit. Alternatively, agencies can opt to use other work equations to calculate Erosion Potential with Executive Officer approval.

b. Projects disturbing 50 acres or more within natural drainage systems will be presumed to meet pre-development hydrology based on the successful demonstration of one of the following conditions:

i. The site infiltrates on-site at least the runoff from a 2-year, 24hour storm event, or

ii. The runoff flow rate, volume, and velocity for the post-development condition does not exceed the pre-development condition for the 2-year, 24-hour rainfall event and the duration for the post-development condition is not less than the pre-development condition for the 2-year, 24-hour rainfall event. These conditions must be substantiated by hydrologic modeling acceptable to the Regional Water Board Executive Officer, or

iii. The Erosion Potential (Ep) in the receiving water channel will approximate 1, as determined by a Hydromodification Analysis Study and the equation presented in Attachment J of the MS4 Permit.

Alternative Hydromodification Criteria

The requirement for Hydromodification Controls will be satisfied by implementing the hydromodification requirements in the County of Los Angeles Low Impact Development Manual (2009) for all projects disturbing an area greater than 1 acre within natural drainage systems.

3. Watershed Equivalence

Regardless of the methods through which applicants implement alternative compliance measures,

the subwatershed-wide (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) result of all development must be at least the same level of water quality protection as would have been achieved if all projects utilizing these alternative compliance provisions had complied with the Integrated Water Quality/Flow Reduction/Resource Management Criteria, described herein.

4. Annual Report

Annual Reports will be provided to the Regional Water Board to include a list of mitigation project descriptions and estimated pollutant and flow reduction analyses (compiled from design specifications submitted by project applicants, as approved. Within 4 years of the MS4 Permit adoption, the Annual Reports will include a comparison of the expected aggregate results of alternative compliance projects to the results that would otherwise have been achieved by retaining on site the SWQDv.

Implementation

Permit §VI.D.7.d (LA)/§VII.J.5 (LB)

Local Ordinance Equivalence

Alternative requirements in the local ordinances for the agencies of this WMP will provide equal or greater reduction in stormwater discharge pollutant loading and volume as would have been obtained through strict conformance with the Integrated Water Quality/Flow Reduction Resources Management Criteria, Alternative Compliance Measures for Technical Infeasibility, or Opportunity for Regional Groundwater Replenishment sections herein and, if applicable, the Hydromodification (Flow/Volume Duration) Control Criteria section herein.

Project Coordination

A process for effective approval of post-construction stormwater control measures will be developed to include:

a. Detailed LID site design and BMP review including review of BMP sizing calculations, BMP pollutant removal performance, and municipal approval; and

b. An established structure for communication and delineated authority between and among municipal departments that have jurisdiction over project review, plan approval, and project construction through memoranda of understanding or an equivalent agreement.

Maintenance Agreement and Transfer

Prior to issuing approval for final occupancy, the Cities will require that all New Development and Redevelopment projects subject to post-construction BMP requirements, with the exception of simple LID BMPs implemented on single family residences, provide an operation and maintenance plan, monitoring plan, where required, and verification of ongoing maintenance provisions for LID practices, Treatment Control BMPs, and Hydromodification Control BMPs including but not limited to: final map conditions, legal agreements, covenants, conditions or restrictions, CEQA mitigation requirements, conditional use permits, and/ or other legally binding maintenance agreements (see Attachments PLD-A and PLD-B for MCA and MCA Termination sample templates, respectively). Agencies will require maintenance records be kept on site.

Verification at a minimum will include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either:

a. A signed statement from the public entity assuming responsibility for BMP maintenance; or

b. Written conditions in the sales or lease agreement, which require the property owner or tenant to assume responsibility for BMP maintenance and conduct a maintenance inspection at least once a year; or

c. Written text in project covenants, conditions, and restrictions (CCRs) for residential properties assigning BMP maintenance responsibilities to the Home Owners Association; or

d. Any other legally enforceable agreement or mechanism that assigns responsibility for the maintenance of BMPs.

All development projects subject to post-construction BMP requirements will provide a plan for the operation and maintenance of all structural and treatment controls. The plan will be submitted for examination of relevance to keeping the BMPs in proper working order. Where BMPs are transferred to agency for ownership and maintenance, the plan will also include all relevant costs for upkeep of BMPs in the transfer. Operation and Maintenance plans for private BMPs will be kept on-site for periodic review by agency inspectors.

A tracking system and an inspection and enforcement program will be maintained for New Development and Redevelopment post-construction stormwater as shown in Table PLC-3. Enforcement action will be taken per the established Progressive Enforcement Policy as appropriate based on the results of the inspection. See Section for requirements for the development and implementation of a Progressive Enforcement Policy (Appendix A-3-1_PEP).

Table PLD-3: Tracking, Inspection, and Enforcement Program Components

Program	Description	Components	
GIS or other Electronic System	A GIS or other electronic system will be implemented for tracking projects that have been conditioned for post-construction BMPs.	− Municipal Project ID − State WDID No. − Project Acreage − BMP Type and Description − BMP Location (coordinates) − Date of Maintenance Agreement − Date of Acceptance	− Maintenance Records − Inspection Date and Summary − Corrective Action − Date Certificate of Occupancy Issued − Replacement or Repair Date
Inspections[6]	Inspect all development sites upon completion of construction and prior to the issuance of occupancy	Proper installation of: − LID measures, − Structural BMPs,	

[6] The inspection may be combined with other inspections provided it is conducted by trained personnel.

	certificates.	– Treatment control BMPs, and – Hydromodification control BMPs.
Operation and Maintenance[7]	Verify proper operation and maintenance of post-construction BMPs. Inspection at least once every 2 years after project completion.	– Follow a Post-construction BMP Maintenance Inspection checklist (See Attachment PLD-C) – Assess operation and maintenance conditions relating to post-construction BMPs, including BMP repair, replacement, or re-vegetation.

Plan Certification

Each SUSMP/LID Plan should contain proper certifications. The following approach is suggested for SUSMP/LID Plan submittals:

- Form signed by the property owner/applicant stating the category in which the project falls under to easily define the NPDES requirements (see Attachment PLD-D for Form PC sample template).
- Form signed by the property owner/applicant certifying that the BMPs will be implemented, monitored, and maintained per SUSMP/LID Plan requirements (see Attachment PLD-E for Form P1 sample template).
- Form signed and stamped by a California registered civil engineer stating the proposed structural BMPs and certifying the methods and requirements are in compliance with the MS4 Permit requirements (see Attachment PLD-F for Form P2 sample template).

[7] For post-construction BMPs operated and maintained by parties other than the agency in which the BMP(s) is located, the agency will require the other parties to document proper maintenance and operations.

Development Construction Program

The Cities are required to develop, implement and enforce a construction program that includes the provisions listed in MS4 Permit §VI.D.8 (LB §VII.K). This document provides guidance to assist the Cities in implementing a construction program in compliance with the MS4 Permit.

Objectives *Permit §VI.D.8.a (LA)/§VII.K.1 (LB)*

The objectives of the construction program are to:

- Prevent illicit construction-related discharges of pollutants into the MS4 and receiving waters.
- Implement and maintain structural and non-structural BMPs to reduce pollutants in stormwater runoff from construction sites.
- Reduce construction site discharges of pollutants to the MS4 to the MEP.
- Prevent construction site discharges to the MS4 from causing or contributing to a violation of water quality standards.

Erosion and Sediment Control Ordinance *Permit §VI.D.8.b (LA)/ §VII.K.1 (LB)*

The construction program requires an established, enforceable erosion and sediment control ordinance for all construction sites that disturb soil.

Applicability *Permit §VI.D.8.c (LA)/ §VII.K.1.v (LB)*

The construction program addresses construction activity as defined in Table DC-1.

Table DC-1: Definitions

Construction Activity	
Definition	Any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in land disturbance.
Examples	Grading, vegetation clearing, soil compaction, paving, repaving and linear underground/overhead projects (LUPs) that result in land disturbance.
Exclusions	Emergency construction required to immediately protect public health and safety, *routine maintenance* as defined below and agricultural activities.
Routine Maintenance (construction program exclusion)	
Definition	Projects required to maintain the integrity of structures, including but not limited to the following:
Examples	Maintaining the original line and grade, hydraulic capacity, or original purpose of the facility.
	Performing restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
	Performing road shoulder work, regrading dirt/gravel roadways/shoulders and cleaning out ditches.
	Update existing lines (includes replacing with new materials or pipe) and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
	Repair leaks
Exclusion	New lines (i.e. not associated with existing facilities and not part of a project to update or replace existing lines) or facilities constructed to comply with applicable codes, standards and regulations.

The greater part of the construction program is dedicated to construction sites that disturb one acre or more of soil (with the exception of agricultural activities). This coincides with the size threshold for coverage under the State Water Resources Control Board's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. The program provisions exclusive to sites less than one acre are addressed first.

Construction Sites Less than One Acre

Permit §VI.D.8.d (LA)/§VII.K.1.vi (LB)

BMPs (< 1 acre)

Through the use of the erosion and sediment control ordinance and/or building permit, construction sites are required have in place an effective combination of erosion and sediment control BMPs from Table DC-2 to prevent erosion and sediment loss and the discharge of construction wastes.

Table DC-2: Applicable Set of BMPs for All Construction Sites

BMP Type	BMP
Erosion Controls	Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Site Entrance/Exit
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

Inventory (< 1 acre)

All construction sites with soil disturbing activities that require a permit, regardless of size, are identified and stored in an inventory. Existing permit databases or other tracking systems may be used to file this information. The list of permitted sites is provided to the Regional Water Board upon request.

Inspections (< 1 acre)

Construction sites are inspected on as needed based on the evaluation of the factors that are a threat to water quality. In evaluating the threat to water quality, the following factors are considered: soil erosion potential, site slope, project size and type, sensitivity of receiving water bodies, proximity to receiving water bodies, nonstormwater discharges, past record of noncompliance by the operators of the construction site and any water quality issues relevant to the particular MS4.

Enforcement (< 1 acre)

The Progressive Enforcement Policy (MS4 Permit §VI.D.2) is implemented to ensure that construction sites are brought into compliance with the erosion and sediment control ordinance within a reasonable time period.

Construction Sites One Acre or Greater

Operators of public and private construction sites within a city's jurisdiction are required to select, install, implement, and maintain BMPs that comply with the erosion and sediment control ordinance.

Construction Site Inventory / Electronic Tracking System *Permit §VI.D.8.g (LA)/§VII.K.1.ix (LB)*

An electronic system is used to inventory all issued grading permits, encroachment permits, demolition permits, building permits, or construction permits (and any other municipal authorization to move soil and/ or construct or destruct that involves land disturbance). A database management system or GIS system is recommended. This inventory is continuously updated as new sites are permitted and sites are completed. The inventory / tracking system contains at a minimum the items listed in Table DC-3.

Table DC-3: Inventory Information for Constructions Sites

Information Type		Information
General	Name	Project Name
	Location	Site address and/or latitude and longitude coordinates
		Receiving water
	Contact	Names of owner and contractor
		Mailing addresses of owner and contractor
		Phone numbers of owner and contractor
		Emails (if available) of owner and contractor
Status		Start and end dates
		Permit approval date and anticipated completion date
		Erosion and Sediment Control Plan (ESCP) approval date
		Status of NOI submittal and CGP coverage
		Current construction phase (where feasible)
Size		Size of project and area of disturbance
Water quality		Proximity to waterbodies listed as impaired[1] by sediment related pollutants
		Proximity to waterbodies for which a sediment-related TMDL has been adopted and approved by USEPA
		Status as a significant threat to water quality (based on a consideration of factors listed in Appendix 1 to the CGP)
Inspection		Inspection frequency
Post construction		List of post-construction structural BMPs subject to O&M requirements

Construction Plan Review and Approval Procedures *Permit §VI.D.8.h (LA)/§VII.K.1.x (LB)*

Plan review procedures are developed and implemented such that the following minimum requirements are met:

- Prior to issuing a grading or building permit, each operator of a construction activity within the city's jurisdiction of which the project is located is required to prepare and submit an ESCP prior to the disturbance of land for review and written approval. The construction site operator is prohibited from commencing construction activity prior to receipt of written approval by the city of which the project is located. An ESCP is not approved unless it contains appropriate site-

[1] CWA §303(d) listed or subject to a TMDL

specific construction site BMPs that meet the minimum requirements of the erosion and sediment control ordinance.

- ESCPs must include the elements of a Storm Water Pollution Prevention Plan (SWPPP). SWPPPs prepared in accordance with the requirements of the Construction General Permit can be accepted as ESCPs.
- At a minimum, the ESCP must address the following elements:
  - Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside of the disturbed area.
  - Methods used to protect native vegetation and trees.
  - Sediment/Erosion Control.
  - Controls to prevent tracking on and off the site.
  - Nonstormwater controls (e.g., vehicle washing, dewatering, etc.).
  - Materials Management (delivery and storage).
  - Spill Prevention and Control.
  - Waste Management (e.g., concrete washout/waste management; sanitary waste management).
  - Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
- The ESCP must include the rationale for the selection and design of the proposed BMPs, including quantifying the expected soil loss from different BMPs.
- The ESCP must be developed and certified by a Qualified SWPPP Developer (QSD).
- All structural BMPs must be designed by a licensed California Engineer.
- The landowner or the landowner's agent must sign a statement on the ESCP as follows (see Attachment DC-A for sample OC-1 template):

  "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law."

- Prior to issuing a grading or building permit, the city of which the project is located verifies that the construction site operators have existing coverage under applicable permits, including, but not limited to the State Water Board's Construction General Permit, and State Water Board 401 Water Quality Certification.
- A checklist is used to conduct and document review of each ESCP (see Attachment DC-B for the ESCP Checklist sample template).

BMP Implementation Level *Permit §VI.D.8.i (LA)/§VII.K.1.xi (LB)*

The Cities will implement technical standards for the selection, installation and maintenance of construction BMPs for all construction sites within its jurisdiction.

The BMP technical standards require:

- The use of BMPs that are tailored to the risks posed by the project. Sites are ranked from Low Risk (Risk 1) to High Risk (Risk 3). Project risks are calculated based on the potential for erosion from the site and the sensitivity of the receiving water body. Receiving water bodies that are listed on the Clean Water Act (CWA) Section 303(d) list for sediment or siltation are considered High Risk. Likewise, water bodies with designated beneficial uses of SPWN, COLD, and MIGR are also considered High Risk. The combined (sediment/receiving water) site risk is calculated using the methods provided in Appendix 1 of the Construction General Permit. At a minimum, the BMP technical standards include requirements for High Risk sites as defined in Table DC-7.
- The use of BMPs for all construction sites, sites equal or greater to 1 acre, and for paving projects per Table DC-6 and Table DC-8.
- Detailed installation designs and cut sheets for use within ESCPs.
- Maintenance expectations for each BMP, or category of BMPs, as appropriate.

Permittees are encouraged to adopt respective BMPs from latest versions of the California BMP Handbook, Construction or Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual and addenda. Alternatively, Permittees are authorized to develop or adopt equivalent BMP standards consistent for Southern California and for the range of activities presented in Tables DC-5 through DC-8.

The local BMP technical standards are readily available to the development community and are clearly referenced within the Cities' stormwater or development services websites, ordinances, permit approval processes and/or ESCP review forms. The local BMP technical standards are also readily available to the Regional Water Board upon request.

Local BMP technical standards are available for the BMPs listed in Tables DC-5 through DC-8.

Table DC-4: Minimum Set of BMPs for All Construction Sites

BMP Type	BMP
Erosion Controls	Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Site Entrance/Exit
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

Table DC-5: Additional BMPs Applicable to Construction Sites Disturbing 1 Acre or More

BMP Type	BMP
Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
Sediment Controls	Fiber Rolls
	Gravel Bag Berm
	Street Sweeping and/ or Vacuum
	Storm Drain Inlet Protection
	Scheduling
	Check Dam
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/ Exit
	Stabilized Construction Roadway
	Entrance/ Exit Tire Wash
Non-Storm Management	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Spill Prevention and Control

Table DC-6: Additional Enhanced BMPs for High Risk Sites

BMP Type	BMP
Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
	Slope Drains
Sediment Controls	Silt Fence
	Fiber Rolls
	Sediment Basin
	Check Dam
	Gravel Bag Berm
	Street Sweeping and/or Vacuum
	Sand Bag Barrier
	Storm Drain Inlet Protection
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/Exit
	Stabilized Construction Roadway
	Entrance/Exit Tire Wash
	Advanced Treatment Systems*
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations (Ground water dewatering only under NPDES Permit No. CAG994004)
	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management

*Applies to public roadway projects.

Table DC-7: Minimum Required BMPs for Roadway Paving or Repair Operation (For Private or Public Projects)

#	BMP
1.	Restrict paving and repaving activity to exclude periods of rainfall or predicted rainfall unless required by emergency conditions.
2.	Install gravel bags and filter fabric or other equivalent inlet protection at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat.
3.	Prevent the discharge of release agents including soybean oil, other oils, or diesel to the stormwater drainage system or receiving waters.
4.	Minimize non stormwater runoff from water use for the roller and for evaporative cooling of the asphalt.
5.	Clean equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
6.	Collect liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.
7.	Collect solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
8.	Cover the "cold-mix" asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
9.	Cover loads with tarp before haul-off to a storage site, and do not overload trucks.
10.	Minimize airborne dust by using water spray or other approved dust suppressant during grinding.
11.	Avoid stockpiling soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near stormwater drainage system or receiving waters.
12.	Protect stockpiles with a cover or sediment barriers during a rain.

Construction Site Inspection *Permit §VI.D.8.j (LA)/§VII.K.1.xii (LB)*

The Cities' legal authority is used to implement procedures for inspecting public and private construction sites. The inspection procedures are implemented as follows:

Inspection Frequency

- Inspect the public and private construction sites as specified in Table DC-8.
- All phases of construction are inspected as follows:
    - Prior to Land Disturbance – Prior to allowing an operator to commence land disturbance, each Permittee shall perform an inspection to ensure all necessary erosion and sediment structural and non-structural BMP materials and procedures are available per the erosion and sediment control plan.
    - During Active Construction, including Land Development[2] and Vertical Construction[3] – In accordance with the frequencies specified in Table DC-8, inspections are performed to ensure all necessary erosion and sediment structural and non-structural BMP materials and procedures are available per the erosion and sediment control plan throughout the construction process.
    - Final Landscaping / Site Stabilization[4] – At the conclusion of the project and as a condition of approving and/or issuing a Certificate of Occupancy, the constructed site is inspected to ensure that all graded areas have reached final stabilization and that all

[2] Activities include cuts and fills, rough and finished grading; alluvium removals; canyon cleanouts; rock undercuts; keyway excavations; stockpiling of select material for capping operations; and excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer system and/or other drainage improvement.
[3] The build out of structures from foundations to roofing, including rough landscaping.
[4] All soil disturbing activities at each individual parcel within the site have been completed.

trash, debris, and construction materials, and temporary erosion and sediment BMPs are removed.

- Based on the required frequencies above, each construction project is inspected a minimum of three times.

Table DC-8: Inspection Frequencies for Sites One Acre or Greater

<table>
<tr><th>Site</th><th>Inspection Frequency Shall Occur</th></tr>
<tr><td>All sites 1 acre or larger that discharge to a tributary listed by the state as an impaired water for sediment or turbidity under the CWA §303(d)</td><td rowspan="2">(1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA[5], (2) within 48 hours of a ½-inch rain event and at (3) least once every two weeks</td></tr>
<tr><td>Other sites 1 acre or more determined to be a significant threat to water quality[6]</td></tr>
<tr><td>All other construction sites with 1 acre or more of soil disturbance not meeting the criteria above</td><td>At least monthly</td></tr>
</table>

<ins>Inspection Standard Operating Procedures</ins>

Standard operating procedures are implemented, and revised as necessary, that identify the inspection procedures followed by the Cities' inspectors (see Attachment DC-C for suggested standard operating procedures). Inspections of construction sites – and the standard operating procedures – include, but are not limited to:

1. Verification of active coverage under the Construction General Permit for sites disturbing 1 acre or more, or that are part of a planned development that will disturb 1 acre or more and a process for referring non-filers to the Regional Water Board.
2. Review of the applicable ESCP and inspection of the construction site to determine whether all BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions (see Attachment DC-B for the ESCP Checklist sample template).
3. Assessment of the appropriateness of the planned and installed BMPs and their effectiveness.
4. Visual observation and record keeping of nonstormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff.
5. Development of a written or electronic inspection report generated from an inspection checklist used in the field (see Attachment DC-D and DC-E for the Large Site and Small Site[7] Inspection Forms, respectively).
6. Tracking of the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies listed in Table DC-8.

Enforcement *Permit §VI.D.8.k (LA)/§VII.K.1.xiii (LB)*

The Progressive Enforcement Policy is implemented to ensure that construction sites are brought into compliance with all stormwater requirements within a reasonable time period.

[5] www.srh.noaa.gov/forecast

[6] In evaluating the threat to water quality, the following factors shall be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving water bodies; proximity to receiving water bodies; nonstormwater discharges; past record of non-compliance by the operators of the construction site; and any water quality issues relevant to the particular MS4.

[7] A "large site" refers to a site greater than or equal to 1 acre while a "small site" refers to a site less than one acre.

Permittee Staff Training *Permit §VI.D.8.l(LA)/§VII.K.1.xiv(LB)*

Staff whose primary job duties are related to implementing the construction stormwater program are adequately trained.

The Cities may conduct in-house training or contract with consultants. Training is provided to the following staff positions of the MS4:

- Plan Reviewers and Permitting Staff – Staff and consultants are trained as qualified individuals, knowledgeable in the technical review of local erosion and sediment control ordinance, local BMP technical standards, ESCP requirements, and the key objectives of the State Water Board QSD program. The training is provided either internally to staff or staff is required to obtain QSD certification.
- Erosion Sediment Control/Stormwater Inspectors – Inspectors are either 1) knowledgeable in inspection procedures consistent with the State Water Board sponsored program QSD, 2) a Qualified SWPPP Practitioner (QSP) or 3) a designated person on staff trained in the key objectives of the QSD/QSP programs supervises inspection operations. The training is provided either provided internally to staff or staff is required to obtain QSD/QSP certification. Each inspector is knowledgeable of the local BMP technical standards and ESCP requirements.
- Third-Party Plan Reviewers, Permitting Staff, and Inspectors – If outside parties are utilized to conduct inspections and/or review plans, these staff are trained per the requirements listed above. Outside contractors can self-certify, providing they certify they have received all applicable training required in MS4 Permit §VI.D.8 and have documentation to that effect.

Public Agency Activities Program

Each participating city is required to develop and implement a program for public agency facilities and activities that includes the requirements listed in MS4 Permit §VI.D.9 (LB §VII.L). This document provides guidance to assist the Cities in implementing a public agency activities program in compliance with the MS4 Permit.

Objectives *Permit §VI.D.9.a (LA)/§VII.L.1 (LB)*

The objectives of the Public Agency Activities program are to:

- Minimize stormwater pollution impacts from Permittee-owned or operated facilities.
- Minimize stormwater pollution impacts from public agency activities.
- Identify opportunities to reduce stormwater pollution impacts from areas of existing development.

MS4 Permit requirements for Public Agency Facilities and Activities consist of the following components which will be discussed in more detail in the sections below:

- Public Construction Activities Management
- Public Facility Inventory
- Inventory of Existing Development for Retrofitting Opportunities
- Public Facility and Activity Management
- Vehicle and Equipment Wash Areas
- Landscape, Park, and Recreational Facilities Management
- Storm Drain Operation and Maintenance
- Streets, Roads, and Parking Facilities Maintenance
- Emergency Procedures
- Municipal Employee and Contractor Training

1. Public Construction Activities Management *Permit §VI.D.9.b (LA)/§VII.L.2 (LB)*

Each participating city is required to develop and implement a Development Construction Program that meets the requirements the Development Construction Section of this WMP, and Part VI.D.8 of the LA MS4 Permit at municipally owned or operated (i.e., public or Permittee sponsored) construction projects. In addition, each participating city is required to develop and implement a Planning and Land Development Program that meets the requirements in the Planning and Land Development Section of this WMP, and the MS4 Permit at municipally owned or operated (i.e., public or Permittee sponsored) construction projects.

2. Public Facility Inventory *Permit §VI.D.9.c (LA)/§VII.L.3 (LB)*

The Public Agency Activities Program requires the maintenance of an inventory of all Permittee-owned or operated (i.e., public) facilities that are potential sources of stormwater pollution. The incorporation of facility information into a GIS is recommended. Sources that are tracked include but are not limited to the following:

- Animal control facilities
- Chemical storage facilities
- Composting facilities

- Equipment storage and maintenance facilities (including landscape maintenance-related operations)
- Fueling or fuel storage facilities (including municipal airports)
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Materials storage yards
- Pesticide storage facilities
- Fire stations
- Public restrooms
- Public parking lots
- Public golf courses
- Public swimming pools
- Public parks
- Public works yards
- Public marinas
- Recycling facilities
- Solid waste handling and transfer facilities
- Vehicle storage and maintenance yards
- Stormwater management facilities (e.g., detention basins)
- All other Permittee-owned or operated facilities or activities that are determined to contribute a substantial pollutant load to the MS4.

The following minimum fields of information are included in the inventory for each Permittee-owned or operated facility:

- Name of facility
- Name of facility manager and contact information
- Address of facility (physical and mailing)
- A narrative description of activities performed and potential pollution sources.
- Coverage under the Industrial General Permit or other individual or general NPDES permits or any applicable waiver issued by the Regional or State Water Board pertaining to stormwater discharges.

The inventory is updated at least once during the 5-year MS4 Permit term. The update are accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (e.g., property management, land-use approvals, accounting and depreciation ledger account, and similar information).

3. Inventory of Existing Development for Retrofit Opportunities

Permit §VI.D.9.d (LA)/§VII.L.4 (LB)

The Public Agency Activities Program requires the development of an inventory of retrofitting opportunities. Retrofit opportunities are identified within the public right-of-way or in coordination with a TMDL implementation plan(s). The goals of the existing development retrofitting inventory are to address the impacts of existing development through regional or sub-regional retrofit projects that

reduce the discharges of stormwater pollutants into the MS4 and prevent discharges from the MS4 from causing or contributing to a violation of water quality standards as defined in the MS4 Permit.

Existing areas of development are screened to identify candidate areas for retrofitting using watershed models or other screening level tools. The areas of existing development identified during the screening process are then evaluated and ranked to prioritize retrofitting candidates. Criteria for this evaluation may include, but is not limited to the following:

- Feasibility, including general private and public land availability;
- Cost effectiveness;
- Pollutant removal effectiveness;
- Tributary area potentially treated;
- Maintenance requirements;
- Landowner cooperation;
- Neighborhood acceptance;
- Aesthetic qualities;
- Efficacy at addressing concern; and
- Potential improvements to public health and safety.

The results of this evaluation are considered in the following programs:

- Highly feasible projects expected to benefit water quality are given a high priority to implement source control and treatment control BMPs in the WMP.
- High priority retrofit projects are considered as candidates for off-site mitigation projects per LA MS4 Permit §VI.D.7.c.iii(4)(d) (LB §VII.J.4.iii(4)).
- Where feasible, the existing development retrofit program is coordinated with flood control projects and other infrastructure improvement programs per LA MS4 Permit §VI.D.9.e.ii(2) (LB §VII.L.5.ii(2)).

Site specific retrofit projects are encouraged through cooperation with private landowners. The following practices are considered in cooperating with private landowners to retrofit existing development:

- Demonstration retrofit projects;
- Retrofits on public land and easements that treat runoff from private
- developments;
- Education and outreach;
- Subsidies for retrofit projects;
- Requiring retrofit projects as enforcement, mitigation or ordinance compliance;
- Public and private partnerships;
- Fees for existing discharges to the MS4 and reduction of fees for retrofit implementation.

4. Public Facility and Activity Management *Permit §VI.D.9.e (LA)/§VII.L.5 (LB)*

4.1. Industrial General Permitted Facilities

Permit §VI.D.9.e.i & §VI.D.9.e.v (LA)/§VII.L.5.i (LB)

All Permittee owned or operated facilities where industrial activities are conducted that require coverage are required to obtain coverage under the Industrial General Permit by submitting a Notice of Intent (NOI) to the State Water Resources Control Board (State Board) and preparing a Stormwater

Pollution Prevention Plan (SWPPP). Facilities that may require coverage are listed by category in 40 Code of Federal Regulations (CFR) Section 122.26(b)(14), and include:

- Facilities subject to stormwater effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR Subchapter N)
- Manufacturing facilities
- Mining and oil and gas facilities
- Hazardous waste treatment, storage, or disposal facilities
- Landfills, land application sites, and open dumps that receive industrial waste
- Recycling facilities
- Steam electric generating facilities
- Transportation facilities
- Sewage treatment plants
- Certain facilities if materials are exposed to stormwater

Municipally owned or operated facilities that have obtained coverage under the IGP implement and maintain BMPs consistent with the associated SWPPP, and are therefore not required to implement and maintain the activity specific BMPs as described in the sections below.

4.2. Flood Management Projects *Permit §VI.D.9.e.ii (LA)/§VII.L.5.ii (LB)*

The following measures are implemented for municipally owned or operated flood management projects:

- Procedures are developed to assess the impacts of flood management projects on the water quality of receiving water bodies;
- Existing structural flood control facilities area evaluated to determine if retrofitting the facility to provide additional pollutant removal from stormwater is feasible.

4.3. Contracted Public Agency Activities *Permit §VI.D.9.e.iv (LA)/§VII.L.5.iv (LB)*

Any contractors hired to conduct Public Agency Activities, including, but not limited to the following must be contractually obligated to implement and maintain the activity specific BMPs outlined in the sections below:

- Storm and/or sanitary sewer system inspection and repair,
- Street sweeping,
- Trash pick-up and disposal, and
- Street and right-of-way construction and repair

It is the responsibility of each Permittee to ensure that these BMPs are being properly implemented and maintained through oversight of contracted activities. Example contractor/lessor contract language is provided in attachment PA-A.

4.4. BMPS for Municipal Activities

Permit §VI.D.9.e.iii & Permit §VI.D.9.e.vi (LA)/§VII.L.5.iii & VII.L.5.vi (LB)

Municipal maintenance and field staff are the ones responsible for implementing effective source control BMPs[1], such as those described in Table PA-1 (or an equivalent set of BMPs) when such activities occur at municipally owned or operated facilities and field operations (i.e. project sites). These sites include, but are not limited to the facility types identified in the Public Facility Inventory, and at any area that includes the activities described in Table PA-1, or that have the potential to discharge pollutants in stormwater. The Caltrans Stormwater Quality Handbook Maintenance Staff Guide (Caltrans Handbook)[2] is an additional resource that describes BMPs to prevent the stormwater-related pollutants most likely to come from common maintenance facility operations and field activities. It provides a straightforward working-level approach to implementing BMPs for common maintenance activities by categorizing these activities into Families, and associating each Family with certain types of BMPs in Activity Cut Sheets. The activities described in Sections 5-10 below are representative of typical municipal operations, and correspond to the activities and BMPs listed in Table PA-1. Where appropriate, each section will identify the appropriate Maintenance Activity Family and corresponding Caltrans Activity Cut Sheets from this table for ease of reference.

Although Table PA-1 and the CalTrans Handbook are excellent references for selecting BMPs for some of the most common municipal activities, they may not represent a comprehensive inventory of activities encountered by maintenance staff and field personnel. Likewise, for those BMPs that are not adequately protective of water quality standards, additional site-specific BMPS may be needed. For example, the implementation of additional BMPs is required where stormwater from the storm drain system discharges to a water body subject to a TMDL, a Clean Water Act §303(d) listed water body, or a significant ecological area (SEA). Attachment PA-B contains a map of SEAs in LA County and Attachment K of the LA MS4 Permit contains a matrix of Permittees and TMDLs.

[1] BMP is defined by the California Stormwater Quality Association as "*any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution*". Source Control BMPs are operational practices that prevent pollution by reducing potential pollutants at the source. They typically do not require maintenance or construction, and may consist of programmatic controls such as street sweeping. Treatment Control BMPs are methods of treatment to remove pollutants from stormwater, and can include constructed treatment devices such as an infiltration basin.

[2] The handbook is available at http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/management_ar_rwp/CTSW-RT-02-057.pdf and may also be found by entering the words "Caltrans Stormwater Quality Handbook Maintenance Staff Guide" in a web search engine.

Table PA-1: General and Activity Specific BMPs and Their Associated Caltrans Handbook Activity Cut Sheet

Maintenance Activity Family	BMP	Caltrans Activity Cut Sheet Number
General BMPs	Scheduling and Planning	B-4
	Spill Prevention and Control	
	Sanitary/Septic Waste Management	
	Material Use	
	Safer Alternative Products	
	Vehicle/Equipment Cleaning, Fueling and Maintenance	
	Illicit Connection Detection, Reporting and Removal	
	Illegal Spill Discharge Control	
	Maintenance Facility Housekeeping Practices	
Flexible Pavement	Asphalt Cement Crack and Joint Grinding/ Sealing	B-9
	Asphalt Paving	B-10
	Structural Pavement Failure (Digouts) Grinding and Paving	B-11
	Emergency Pothole Repairs	B-13
	Sealing Operations	B-14
Rigid Pavement	Portland Cement Crack and Joint Sealing	B-15
	Mudjacking and Drilling	B-16
	Concrete Slab and Spall Repair	B-17
Slope/ Drains/ Vegetation	Shoulder Grading	B-19
	Nonlandscaped Chemical Vegetation Control	B-21
	Nonlandscaped Mechanical Vegetation Control/Mowing	B-23
	Nonlandscaped Tree and Shrub Pruning, Removal	B-24
	Fence Repair	B-25
	Drainage Ditch and Channel Maintenance	B-26
	Drain and Culvert Maintenance	B-28
	Curb and Sidewalk Repair	B-30
Litter/ Debris/ Graffiti	Sweeping Operations	B-32
	Litter and Debris Removal	B-33
	Emergency Response and Cleanup Practices	B-34
	Graffiti Removal	B-36
Landscaping	Chemical Vegetation Control	B-37
	Manual Vegetation Control	B-39
	Landscaped Mechanical Vegetation Control/ Mowing	B-40
	Landscaped Tree and Shrub Pruning, Removal	B-41
	Irrigation Line Repairs	B-42
	Irrigation (Watering), Potable and Nonpotable	B-43
Environmental	Storm Drain Stenciling	B-44
	Roadside Slope Inspection	B-45
	Roadside Stabilization	B-46
	Stormwater Treatment Devices	B-48
	Traction Sand Trap Devices	B-49
Public Facilities	Public Facilities	B-50
Bridges	Welding and Grinding	B-52
	Sandblasting, Wet Blast with Sand Injection, Hydroblasting	B-54
	Painting	B-56
	Bridge Repairs	B-57
Other Structures	Pump Station Cleaning	B-59
	Tube and Tunnel Maintenance and Repair	B-61
	Tow Truck Operations	B-63
	Toll Booth Lane Scrubbing Operations	B-64
Electrical &	Sawcutting for Loop Installation	B-65
Traffic Guidance	Thermoplastic Striping and Marking	B-67
	Paint Striping and Marking	B-68
	Raised/ Recessed Pavement Marker Application/Removal	B-70

	Sign Repair and Maintenance	B-71
	Median Barrier and Guard Rail Repair	B-73
	Emergency Vehicle Energy Attenuation Repair	B-75
Storm Maintenance	Minor Slides and Slipouts Cleanup/ Repair	B-78
Management and Support	Building and Grounds Maintenance	B-80
	Storage of Hazardous Materials (Working Stock)	B-82
	Material Storage Control (Hazardous Waste)	B-84
	Outdoor Storage of Raw Materials	B-85
	Vehicle and Equipment Fueling	B-86
	Vehicle and Equipment Cleaning	B-87
	Vehicle and Equipment Maintenance and Repair	B-88
	Aboveground and Underground Tank Leak and Spill Control	B-90

5. Vehicle and Equipment Wash Areas

Permit §VI.D.9.f (LA)/§VII.L.6 (LB)

This section corresponds to Maintenance Activity Family Management and Support and corresponding Caltrans Activity Cut Sheet B-87.

Vehicle and equipment cleaning at a municipal facility may introduce a number of potential pollutants into the storm drain system. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1 for all fixed vehicle and equipment washing; including fire fighting and emergency response vehicles. In addition, maintenance and field staff are responsible for preventing discharges of wash water from entering the storm drain system. Table PA-2 shows the potential pollutants associated with vehicle and equipment cleaning.

Table PA-2: Potential Pollutants Generated from Cleaning Activities

Activity	**Potential Pollutants**					
Vehicle and Equipment Cleaning	Sediment	Nutrients	Trash	Metals	Oil & Grease	Organics

Discharges of wash waters to the storm drain system are prevented by implementing the following measures at existing facilities with vehicle or equipment wash areas:

- Wash water is self-contained and hauled away for proper disposal offsite.
- Wash areas are equipped with a clarifier, or an alternative pre-treatment device, and water is plumbed to the sanitary sewer in accordance with applicable waste water provider regulations.
- Wastewater from all new vehicle and equipment wash facilities, or redeveloped or replaced existing facilities is prevented from discharging to the MS4 by equipping the facility with a clarifier, or an alternative pre-treatment device, and plumbing water to the sanitary sewer in accordance with applicable waste water provider regulations, or by self-containing all water water/wash water and hauling to a point of legal disposal.

6. Landscape, Park, and Recreational Facilities Management

Permit §VI.D.9.g (LA)/ §VII.L.7 (LB)

This section corresponds to multiple Activity Cut Sheets within the Slope/Drains/Vegetation, Landscape, Environmental, and Management and Support Families.

Maintenance practices at parks and recreational facilities generally include fertilizer and pesticide applications, vegetation maintenance and disposal, irrigation, swimming pool chemical maintenance and draining, and trash and debris management. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1for all public right-of-

ways, flood control facilities and open channels, lakes and reservoirs, and landscape, park, and recreational facilities and activites. Table PA-3 shows the potential pollutants associated with recreational facilities..

Table PA-3: Potential Pollutants Generated from Recreational Facilities

Activity	Potential Pollutants				
Vehicle and Equipment Cleaning	Sediment	Nutrients	Trash	Bacteria	Pesticides

6.1 Model Integrated Pest Management Program

Permit §VI.D.9.g.ii & VI.D.9.g.iii (LA)/§VII.L.7.ii & VII.L.7.iii (LB)

An IPM policy is in place to minimize pesticide and fertilizer use, and encourage the use of IPM techniques for Public Agency facilities and activities. The attached IPM Program template (Attachment PA-C), adapted from the Orange County Drainage Area Management Plan (DAMP) IPM Policy developed by the University of California, Division of Agriculture and Natural Resources, provides an example of an effective IPM program. This IPM Program template is based on regulations, management guidelines, and research-based recommendations established by federal, state and local agencies and universities with particular expertise in pest management.

As part of the IPM policy, a commitment and schedule to reduce the use of pesticides that cause impairment t of surface waters is implemented through the following procedures:

- An inventory of all pesticides used by municipal departments, divisions, and operational units is prepared and updated annually.
- Pesticides used by staff and hired contractors are quantified.
- The use of IPM alternatives is demonstrated, where feasible, to reduce pesticide use.

Municipal maintenance and field staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation, or are under the direct supervision of a pesticide applicator certified in the appropriate category.

7. Storm Drain Operation and Maintenance *Permit §VI.D.9.h (LA)/ §VII.L.8 (LB)*

This section corresponds to the Litter/Debris/Graffiti Family: Litter and Debris Removal Cut Sheet, pg. B-33, and the Environmental Family: Storm Drain Stenciling Cut Sheet, pg. B-44

The storm drain system functions primarily to collect and convey surface runoff to receiving waters during storms in order to prevent flooding. It is a common municipal activity to maintain the storm drain system so that it functions hydraulically as intended during storms. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1 for storm drain operation and maintenance, and ensuring that all material removed from the MS4 does not reenter the system by dewatering solid material in a contained area and disposing of liquid material in accordance with any of the following measures:

- Self-containing and hauling off for legal disposal; or
- Applying to the land without runoff; or
- Equipping with a clarifier or alternative pre-treatment device and plumbing to the sanitary sewer in accordance with applicable waste water provider regulations.

Table PA-4 shows potential pollutants generated during storm drain operation and maintenance.

Table PA-4: Potential Pollutants Generated from Storm Drain Operation and Maintenance

Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Inspection and Cleaning of Conveyance Structures	×	×	×		×		×		×
Controlling Illicit Connections and Discharges	×	×	×	×	×	×	×	×	×
Controlling Illegal Dumping	×	×	×	×	×	×	×	×	×
Maintenance of Inlet and Outlet Structures	×		×		×	×			

7.1 Catch Basin Cleaning *Permit §VI.D.9.h.iii (LA)/ §VII.L.8.iii (LB)*

There is no preferred method for cleaning catch basins as long as the method used is successful in removing accumulated sediment and debris. The methods used are determined in the field with the goal of minimizing the amount of escaped material, and preventing this material from entering the storm drain system. A template catch basin cleaning log is provided in Attachment PA-D.

7.1.1 Catch Basins Cleaning in Areas not Subject to a Trash TMDL

In areas that are not subject to a trash TMDL, catch basin inlets are prioritized based on the amount of trash generated, and inspected according to the schedule in Table PA-5.

Table PA-5: Inspection Frequencies for Catch Basin Inlets

Trash Generating Frequency	Priority	Inspection Frequency
Consistently generates the highest volumes of trash and/or debris	A	A minimum of three times during the wet season (October-April) and once during the dry season every year
Consistently generates moderate volumes of trash and/or debris	B	A minimum of once during the wet season and once during the dry season every year
Generates low volumes of trash and/or debris	C	A minimum of once per year

An inventory of catch basins is maintained and updated regularly. This inventory includes the following components:

- GPS coordinates of each catch basin
- Priorities for inspection
- Rationale or data to support catch basin priority designations
- Inspection and cleaning records

Catch basins are cleaned as necessary based on the inspections conducted. At a minimum, catch basins determined to be at least 25% full of trash are cleaned out.

7.1.2 Catch Basin Cleaning in Areas Subject to a Trash TMDL

In areas subject to a Trash TMDL, all applicable provisions of LA MS4 Permit Section VI.E (LB Part Part VIII) in conformance with the appropriate TMDL implementation schedule, are implemented. This includes an effective combination of full capture, partial capture, institutional controls, or minimum frequency of assessment and collection as described in LA MS4 Permit Section VI.E (LB Part Part VIII).

7.2 Catch Basin Labels and Open Channel Signage

Permit §VI.D.9.h.vi (LA)/ §VII.L.8.vi (LB)

All municipally owned storm drain inlets are labeled with a "No Dumping, Drains to Ocean" message, and inspected for legibility prior to the wet season (October-April) every year. Catch basins with illegible labels are recorded and re-stenciled or re-labeled within 180 days of inspection. In addition, signs referencing local code(s) that prohibit littering and illegal dumping are posted at designated public access points to open channels, creeks, urban lakes, and other relevant water bodies.

7.3 Trash Management

Permit §VI.D.9.h.iv-v & Permit §VI.D.9.h.vii (LA)/§VII.L.8.iv-v (LB)

The following Trash Management BMPs described below are employed to mitigate the impacts of anthropogenic trash on receiving waters.

7.3.1 Trash Management at Public Events

The following measures are implemented for any event in the public right of way or wherever it is foreseeable that substantial quantities of trash and litter may be generated, including events located in areas that are subject to a trash TMDL:

- Proper management of trash and litter generated; and
- Arrangement for temporary screens to be placed on catch basins; or
- Provide clean out of catch basins, trash receptacles, and grounds in the event area within one business day subsequent to the event.

7.3.2 Trash Receptacles

Covered trash receptacles are located in areas identified as high trash generation areas and maintained and cleaned out as necessary to prevent trash overflow. Examples of areas that may be considered high trash generating areas include:

- High vehicle or pedestrian traffic areas
- Commercial areas
- Industrial areas
- Construction areas
- High density residential areas
- Areas adjacent to vacant lots

7.3.3 Additional Trash Management Practices

In areas that are not subject to a trash TMDL, additional trash management practices will be employed no later than five years after the effective date of the LA MS4 Permit (4 years after the effective date of the LB MS4 Permit). Trash excluders or equivalent devices must be installed on or in catch basins or outfalls to prevent the discharge of trash to the MS4 or receiving waters, unless the installation of such BMP(s) alone will cause flooding (not due to lack of maintenance). Alternatively, additional trash BMPs

that provide substantially equivalent removal of trash may be implemented. Additional BMPs may include, but are not limited to:

- Increased street sweeping
- Adding trash cans near trash generation sites
- Prompt enforcement of trash accumulation
- Increased trash collection on public property
- Increased litter prevention messages or trash nets within the MS4

The BMPs chosen will provide equivalent trash removal performance as excluders, and will be demonstrated though the annual report. When outfall trash capture is provided, revision of the schedule for inspection and cleanout of catch basins will also be reported in the annual report.

The State Water Resources Control Board (State Water Board) is considering the adoption of amendments to the Water Quality Control Plans for Ocean Waters of California and for the Inland Surface Water, Enclosed Bays, and Estuaries of California for Trash (Trash Amendments) citing a strong need for statewide consistency in trash management. The proposed Trash Amendments will include five elements: (1) Water Quality Objective, (2) Prohibition of Discharge, (3) Implementation, (4) Compliance Schedule, and (5) Monitoring, which will outline NPDES Permittee requirements for trash management. The development of the Trash Amendments will continue to be monitored, and any additional required trash management practices in areas not subject to a trash TMDL will be implemented per the guidance provided by these amendments.

7.4 Storm Drain Maintenance *Permit §VI.D.9.h.viii (LA)/ §VII.L.8.viii (LB)*

The following BMPs constitute the Storm Drain Maintenance Program:

- Municipally-owned open channels and drainage structures are visually inspected for debris at least annually.
- Trash and debris from is removed from open channel storm drains a minimum of once per year, before the storm season.
- The discharge of contaminants is minimized during MS4 maintenance and clean outs;
- Material removed is properly disposed of by containing and hauling away for legal disposal

7.5 Infiltration from Sanitary Sewer to MS4/Preventive Maintenance

Permit §VI.D.9.h.ix (LA)/§VII.L.8.ix (LB)

Thorough, routine, preventive surveys and maintenance of both municipally owned and operated Storm Drain Systems as well as Sanitary Sewer Systems infiltration and seepage of contaminants from the sanitary sewer system into the storm drain system is prevented. Sanitary Sewer System routine preventative maintenance is described in the Sewer System Management Plan (SSMP), which is a component of the Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems.

Where necessary, controls implemented to limit infiltration of seepage from sanitary sewers to the MS4 include:

- Adequate plan checking for construction and new development;
- Incident response training for its municipal employees that identify sanitary sewer spills;
- Code enforcement inspections;
- MS4 maintenance and inspections;
- Interagency coordination with sewer agencies; and

- Proper education of its municipal staff and contractors conducting field operations on the MS4 or its municipal sanitary sewer (if applicable).

7.6 Permittee Owned Treatment Control BMPs *Permit §VI.D.9.h.x (LA)/§VII.L.8.x (LB)*

All municipally owned treatment control BMPs, including post-construction BMPs, are regularly inspected and maintained to ensure their proper operation.
Any residual water generated during BMP maintenance is disposed of using one of the following procedures:

- Hauled away and legally disposed of; or
- Applied to the land without runoff; or
- Discharged to the sanitary sewer system; or
- Treated or filtered to remove bacteria, sediments, nutrients, and meet the limitations set in Table PA-6 below prior to discharge to the storm drain system.

Table PA-6: Discharge Limitations for Dewatering Treatment BMPs

Parameter	Units	Limitation
Total Suspended Solids	Mg/L	100
Turbidity	NTU	50
Oil and Grease	Mg/L	10

8. Streets, Roads, and Parking Facilities Maintenance

Permit §VI.D.9.i(LA)/§VII.L.9 (LB)

This section corresponds to multiple Activity Cut Sheets within the Flexible Pavement, Rigid Pavement, Litter/Debris/Graffiti, Traffic Guidance, and Management and Support Families.

Streets and roads may collect litter and debris from nearby activities, as well as from vehicular traffic. They also require routine maintenance that may generate waste materials. Table PA-7 shows potential pollutants generated from street, road, and parking facilities maintenance.

Table PA-7: Potential Pollutants Generated from Street, Road, and Parking Facility Maintenance

	Potential Pollutants						
Activity	Sediment	Trash	Metals	Bacteria	Oil & Grease	Organics	Oxygen Demanding Substances
Street and Road Maintenance	×	×	×		×	×	
Parking Facility Maintenance	×	×	×	×	×	×	×

8.1 Street Sweeping *Permit §VI.D.9.i.i-ii(LA)/§VII.L.9.i-ii (LB)*

Streets and/or street segments are swept according to the following designations:

- Priority A: Streets and/or street segments that are designated as consistently generating the highest volumes of trash and/or debris should be swept at least two times per month.
- Priority B: Streets and/or street segments that are designated as consistently generating moderate volumes of trash and/or debris should be swept at least once per month.
- Priority C: Streets and/or street segments that are designated as generating low volumes of trash and/or debris shall be swept as necessary but in no case less than once per year.

8.2 Road Reconstruction *Permit §VI.D.9.iii (LA)/§VII.L.9.iii (LB)*

Projects that include roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces implement the following BMPS:

- Restricting paving and repaving activities to exclude periods of rainfall or predicted rainfall unless required by emergency conditions.
- Installing sand bags or gravel bags and filter fabric at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat;
- Preventing the discharge of release agents including soybean oil, other oils, or diesel into the MS4 or receiving waters.
- Preventing non-stormwater runoff from water use for the roller and for evaporative cooling of the asphalt.
- Cleaning equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
- Collecting liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.
- Collecting solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
- Covering the “cold-mix” asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
- Covering loads with tarp before haul-off to a storage site, and not overloading trucks.
- Minimizing airborne dust by using water spray during grinding.
- Avoiding the stockpiling of soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near MS4 or receiving waters.
- Protecting stockpiles with a cover or sediment barriers during a rain.

8.3 Parking Facilities Maintenance *Permit §VI.D.9.iv (LA)/ §VII.L.9.iv (LB)*

Municipally owned parking lots that are uncovered and exposed to stormwater are kept clear of debris and excessive oil buildup by inspecting lots at least 2 times per month and cleaning at least once per month.

9. Emergency Procedures *Permit §VI.D.9.j (LA)/ §VII.L.10 (LB)*

Participating Agencies may conduct repairs of essential public service systems and infrastructure in emergency situations with a self-waiver of the provisions of the MS4 Permit as follows:

- Cities will abide by all other regulatory requirements, including notification to other agencies as appropriate.
- Where the self-waiver has been invoked, Cities will submit to the Regional Water Board Executive Officer a statement of the occurrence of the emergency, an explanation of the

circumstances, and the measures that were implemented to reduce the threat to water quality, no later than 30 business days after the situation of emergency has passed.

Minor repairs of essential public service systems and infrastructure in emergency situations (that can be completed in less than one week) are not subject to the notification provisions. Appropriate BMPs to reduce the threat to water quality will be implemented.

10. Municipal Employee and Contractor Training *Permit §VI.D.9.k (LA)/Permit §VII.L.11 (LB)*

An annual training program on the requirements of the overall stormwater management program is implemented for all municipal field staff whose interactions, jobs, and activities affect stormwater quality prior to June 30 every year. The Cities also ensure that contractors performing privatized/contracted municipal services have appropriate training in the stormwater management program. The goals of the annual training are to:

- Promote a clear understanding of the potential for municipal activities to pollute stormwater
- Identify opportunities to require, implement, and maintain appropriate BMPs in their line of work

In addition to the annual stormwater program training, the Cities implement an annual training program to train all of their employees and contractors who use or have the potential to use pesticides or fertilizers (whether or not they normally apply these as part of their work). Training programs address:

- The potential for pesticide-related surface water toxicity
- Proper use, handling, and disposal of pesticides
- Least toxic methods of pest prevention and control, including IPM
- Reduction of pesticide use

Outside contractors can self-certify, providing they certify they have received all applicable training required in the MS4 Permit and have documentation to that effect.

Illicit Connections & Illicit Discharges Elimination Program

Each participating city is required to develop and implement an Illicit Connections & Illicit Discharge Elimination (IC/ID) Program that includes the requirements listed in Permit §VI.D.10.a (LB §VII.M). This document provides guidance to assist the Cities in implementing an IC/ID program in compliance with the Permit.

Introduction *Permit §VI.D.10.a (LA)/§VII.M.1 (LB)*

Illicit connections and illicit discharges (IC/IDs) as defined in Table ICID-1 are potential significant sources of pollutants into and from the MS4. The Illicit Connection and Illicit Discharge (IC/ID) Program provides a comprehensive process for detecting, investigating and eliminating IC/IDs in an efficient and timely manner. The program consists of the following components:

- Procedures for conducting source investigations for IC/IDs
- Procedures for eliminating the source of IC/IDs
- Procedures for public reporting of illicit discharges
- Spill response plan and
- IC/ID education and training for City staff.

The purpose of this program is to effectively prohibit illicit discharges into the MS4.

Table ICID-1: IC/IDs Defined

Prohibition	Definition	Examples
Illicit Connections	Any man-made conveyance that is connected to the MS4 without a permit, excluding roof drains and other similar type connections.	Unpermitted channels, pipelines, conduits, inlets or outlets that are connected directly to the MS4.
Illicit Discharges	Any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes or regulations. This includes any non-stormwater discharge, except those authorized in MS4 Permit §III.A.10.2.	Sanitary wastewater, Vehicle wash water, wash-down from grease traps, motor oil, antifreeze and fuel spills into or from the MS4.

Legal Authority

Adequate Legal Authority is required to prohibit IC/IDs to the MS4 and enable enforcement capabilities to eliminate the sources of IC/IDs.

Illicit Discharge Source Investigation and Elimination *Permit §VI.D.10.b (LA)/ §VII.M.2 (LB)*

The purpose of the IC/ID Program is accomplished in part by developing clear, step-by-step written procedures for conducting investigations of illicit discharges.

Investigation

Standardized procedures for conducting investigations to identify the source of all suspected illicit discharges are included in as an attachment (Illicit Discharge Investigation and Elimination Guidance). Procedures include the following:

- **Initiation** – Investigate the source of all observed discharges. After becoming aware of an illicit discharge, conduct an investigation to identify and locate the source within 72 hours.
- **Prioritization** – Investigate illicit discharges suspected of being sanitary sewage and/or significantly contaminated first.
- **Tracking** – Track all investigations and document the information listed in Table ICID-2.

Table ICID-2: Recorded Information for Illicit Discharge Investigations

Item	Information
1	Date(s) the illicit discharge was observed
2	Results of the investigation
3	Follow-up of the investigation
4	Date the investigation was closed

Elimination

Standardized procedures to eliminate illicit discharges once the sources are located are included as an attachment. Procedures include the following:

- **Notification** – Immediately notify the responsible party (RP)/parties of the problem and require the responsible party to initiate all necessary corrective actions to eliminate the illicit discharge.
    - If it is determined that an illicit discharge originates within an upstream jurisdiction, notify the upstream jurisdiction and the Regional Board. The Notification is conducted within 30 days of determination and information is collected regarding combined efforts to identify the source.
- **Spill response** – The Spill Response Plan is implemented when the source for illicit discharges cannot be traced to a suspected RP. Permanent solutions to such discharges are described in the following section (Flow Diversion).
- **Follow-up** – Conduct and document follow-up investigations upon notification that an illicit discharge has been eliminated to verify that it has been satisfactorily eliminated and cleaned-up.
- **Enforcement** – Enforcement procedures are included in the Progressive Enforcement Policy. The Progressive Enforcement Policy includes a list of enforcement actions.

Progressive Enforcement Policy

The Progressive Enforcement Policy is implemented to ensure that illicit discharges/ illicit connections are eliminated within a reasonable time period. The procedures are followed when the source of the nature of the discharges is known. Procedures typically include:

- Written warnings for minor violations
- Formal notice of violation with specific actions and time frames for compliance
- Compensation from the RP for any costs related to remediation, inspection, investigation, clean-up and oversight activities
- Cease and desist orders

- Civil penalties (infractions), or referral for criminal penalties or further legal action.

Flow Diversion

In the event that an ongoing illicit discharge cannot be eliminated (following the full execution of legal authority and in accordance with the Progressive Enforcement Policy) or the RPs cannot be identified, the discharge is either treated or diverted to the sanitary sewer. In either instance, the Regional Board is notified within 30 days of such determination. Notification includes the following information:

- Written plan that describes the efforts that have been undertaken to eliminate the discharge.
- Description of actions to be undertaken.
- Anticipated cost and
- Schedule for completion.

Identification and Response to Illicit Connections *Permit §VI.D.10.c (LA)/§VII.M.3 (LB)*

Illicit connections can be concentrated sources of pollutants either through direct discharge or infiltration of sewage or other prohibited discharges into the MS4. To reduce this source of pollutants, the following program is implemented for the identification of illicit connections. Key components of this program include investigating and responding in order to actively prevent and eliminate illicit connections.

Investigation

Standardized procedures for identifying illicit connections are included as an attachment (Illicit Connection Investigation Guidance). Procedures include the following:

- **Initiation** – Investigate within 21 days from the discovery or upon receiving a report of a suspected illicit connection. The elements of the investigation are listed in Table ICID-3.
- **Tracking** – Track all investigations and document the information listed in Table ICID-3.

Response

If the source investigation concludes that a connection to the MS4 is both 1) permitted or documented and 2) discharging only stormwater or nonstormwater allowed under WMP NSWD SECTION or other individual or general NPDES Permits/WDRs, then the investigation is closed and no further action is taken. Upon confirmation of a connection to the MS4 is illicit, one of two options is taken:

1. **Permit or document the connection.** The permitted or documented connection may only discharge stormwater and nonstormwater allowed under WMP NSWD SECTION or other individual or general NPDES Permits/WDRs. Retaining a record of the connection and its investigation qualifies as documentation.
2. **Eliminate the connection.** The connection is eliminated within 180 days of completion of the investigation, using formal enforcement authority if necessary.

Table ICID-3: Recorded Information for Illicit Connection Investigations

Item	Information
1	Any relevant illicit discharge information from Table ICID-2
2	Source of the connection
3	Nature and volume of the discharge through the connection
4	RP for the connection (if identified)
5	Response including any formal enforcement taken

Public Reporting of Non-Stormwater Discharges and Spills *Permit §VI.D.10.d (LA)/§VII.M.4 (LB)*

Central Point of Contact

Public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s through a central contact point are promoted, publicized, and facilitated. This includes phone numbers and an internet site for complaints and spill reporting. The reporting hotline is provided to staff to leverage the field staff that has direct contact with the MS4 in detecting and eliminating illicit discharges.

The LACFCD, in collaboration with the County, provides the central point of contact and through the 888-CLEAN-LA reporting hotline and internet site.

Open Channels

Signage is posted adjacent to open channels (see MS4 Permit IV.D.9.h.vi.(4)). The signage includes information regarding dumping prohibitions and public reporting of illicit discharges.

Complaints

Written procedures are maintained that document how complaint calls are received, and tracked to ensure that all complaints are adequately addressed in the attached form (Record Keeping & Documentation). Following the adaptive management process outlined in the MS4 Permit, the procedures are periodically evaluated to determine whether changes or updates are needed to ensure that the procedures accurately document the employed methods. After the evaluation, any identified changes will be made to the procedures.

Documentation is maintained for all complaint calls. This includes recording the location of the reported spill or IC/ ID and the actions undertaken in response the complaint, including referrals to other agencies.

Spill Response Plan *Permit §VI.D.10.e (LA)/§VII.M.5 (LB)*

A spill response plan (Attachment ICID-E) is implemented for all sewage and other spills that may discharge into its MS4. The spill response plan identifies agencies responsible for spill response and cleanup, telephone numbers and e-mail address for contacts, and contains the following:

- **Agency Coordination** – Coordinate with spill response teams throughout all appropriate departments, programs and agencies so that maximum water quality protection is provided.
- **Spill Response** – Respond to spills for containment within 4 hours of becoming aware of the

spill, except where such spills occur on private property, in which case respond within 2 hours of gaining legal access to the property. Initiate investigation of all public and employee spill complaints within one business day of receiving the complaint to assess validity.

- **Reporting** – Spills that may endanger health or the environment are reported to appropriate public health agencies and the California Emergency Management Agency (Cal EMA).

Illicit Connection and Illicit Discharge Education and Training *Permit §VI.D.10.f (LA)/§VII.M.6 (LB)*

A training program regarding the identification of IC/IDs is implemented for all municipal field staff, who, as part of their normal job responsibilities (e.g., street sweeping, storm drain maintenance, collection system maintenance, road maintenance), may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4. Contact information, including the procedure for reporting an illicit discharge, is readily available to field staff.

Applicable Staff

Table ICID-4 is a list of field programs where program staff may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4. Appropriate field staff, supervising staff and contractors involved in these programs require training in IC/ID identification and reporting following the schedule provided in Table ICID-5.

<u>Contracted Staff</u>
Contractors that provide these municipal services may attend city training or certify to the participating city and retain documentation that staff has received applicable training. Otherwise this provision is accomplished through a contractual requirement for contracted staff to receive the training.

Table ICID-4: Municipal Field Programs

Main Field Program Types	Sub-Category Types/Activities
Lake Management	Fertilizer & Pesticide Management
	Mowing, Trimming/Weeding, Planting
	Managing Landscape Waste
	Controlling Litter
	Erosion Control
	Controlling Illegal Dumping
	Bacteria Control
	Monitoring
Landscape Maintenance	Mowing, Trimming/Weeding, Planting
	Irrigation
	Fertilizer & Pesticide
	Managing Landscape Waste
	Erosion Control
Roads, Streets, and Highways Operations and Maintenance	Sweeping & Cleaning
	Street Repair & Maintenance
	Bridge & Structure Maintenance
Fountains, Plazas, and Sidewalk Maintenance and Cleaning	Surface Cleaning
	Graffiti Cleaning
	Sidewalk Repair
	Controlling Litter
	Fountain Maintenance
Solid Waste Handling	Solid Waste Collection
	Waste Reduction & Recycling
	Hazardous Waste Collection
	Litter Control
Water and Sewer Utility O&M	Water Line Maintenance
	Sanitary Sewer Maintenance
	Spill/Leak/Overflow Control
Fire Department Activities	Emergency/Post-Emergency Fire Fighting Activities
	Fire Fighting Training
	Fire Station Activities

Training Schedule

The training schedule for all applicable staff is listed in Table ICID-5.

Table ICID-5: IC/ID Program Training Schedule

Category	Schedule
Current Staff	Twice during the term of the MS4 Permit
New Staff	Within 180 days of starting employment

Training Elements

The IC/ID elements addressed by the training program are listed in Table ICID-6.

Table ICID-6: Minimum IC/ID Training Program Elements

Item	Information
1	IC/ID identification, including definitions and examples
2	Investigation
3	Elimination
4	Clean-up
5	Reporting
6	Documentation

Documentation

Documentation of training program activities and training modules are retained and made available for review by the Regional Board.

PROGRESSIVE ENFORCEMENT POLICY

2014 Stormwater Enforcement Guide

Insert City Seal

RB-AR13595

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PROGRESSIVE ENFORCEMENT POLICY

STORMWATER ENFORCEMENT GUIDE

INTRODUCTION

This Stormwater Progressive Enforcement Policy (PEP) provides procedures to enforce provisions of the Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4 Order No. R4-2012-0175. Pursuant to Section VI.D.2.a of the Order, Permittees are required to develop and implement a PEP to ensure that (1) regulated Industrial/ Commercial facilities, (2) construction sites, (3) development and redevelopment sites with post-construction controls, and (4) illicit discharges are each brought into compliance with all storm water and non-storm water requirements. The PEP provides the City with a guidance for enforcing the MS4 Permit Provisions and identifies enforcement procedures designed to encourage a timely response.

PROGRESSIVE ENFORCEMENT

Progressive enforcement is an escalating series of actions that allows for the efficient and effective use of enforcement. In some situations, an informal response (written warning/inspection report) is sufficient to inform the responsible party that there is a deficiency and to require the responsible party to return to compliance. If violations continue, the enforcement response should be quickly escalated to increasingly more formal and serious actions until compliance is achieved. Progressive enforcement is not appropriate in all circumstances. For example, where there is a situation needing immediate response, immediate issuance of a cleanup and abatement order may be appropriate.

COMPLIANCE CRITERIA

The City conducts on-site compliance inspections and conducts investigations, in response to complaints, under their authority provided in their municipal code and ordinances to verify compliance. Typical noncompliance issues related to stormwater may include:

- Prohibited discharges to the storm drain system.
- Site's existing condition is likely to result in exposure of pollutants to stormwater contact and possible pollutant discharge to the storm drain system such as:
    - Poor housekeeping activities that results in pollutant exposure.
    - Unattended spills and leaks.
    - Uncovered or improperly stored wastes, materials, or other items of concern.
    - Open waste receptacles such as tallow bins, compactors, and trash bins.
    - Leaky or contaminated equipment stored or used outdoors.
    - Track-out of dirt and sediment or other materials to street or outdoor areas.
- Illicit connections to the storm drain system.
- Best Management Practices (BMPs) are not in place to address pollutant generating activities, which may include erosion and sediment controls and post construction controls.

Complaint Response

The City may receive complaints regarding stormwater ordinance from their staff members, public, local agencies, or the Regional Water Board. The City initiates, within one business day,[1] investigation of complaints from facilities within its jurisdiction. The initial investigation includes, at minimum, a limited inspection of the facility to confirm validity of the complaint and to determine if the facility is in compliance with municipal storm water ordinance and, if necessary, to oversee corrective action. Emergency complaints are investigated immediately.

PROGRESSIVE ENFORCEMENT GUIDELINES

Informal Enforcement

The City implements professional judgment regarding the circumstances surrounding an enforcement action and chooses to resolve routine noncompliance quickly and efficiently through informal means that are not accompanied by sanctions (*e.g.*, civil charges or penalties). When deemed appropriate, the City employs the procedures described below to correct noncompliance informally.

Written Warning/ Inspection Report

Under circumstances where an inspection reveals routine noncompliance that can be corrected within a reasonably short time, staff may choose to issue a written warning/inspection report that describes the minor deficiencies/violations and includes a schedule for correcting the noncompliance[2]. The purpose of the written warning is to give the responsible party an opportunity to comply voluntarily and thus avoid sanctions that might be imposed by an escalated enforcement response.

For residential zones, the City employs an informal enforcement process and escalates to formal enforcement actions for those residents that do not comply with stormwater regulations.

Formal Enforcement / Administrative Enforcement

In the event that the City determines, based on an inspection or illicit discharge investigation conducted, that a responsible party has failed to adequately comply with the informal enforcement process within the required timeframe, the City may initiate administrative enforcement actions or will implement enforcement actions as established through authority in its municipal code. The City's goal is to achieve compliance through an extensive inspection program, educational outreach efforts and, if necessary, the initiation of appropriate enforcement action(s). The goal of any enforcement action is to: (1) return the facility to compliance in a timely manner; (2) eliminate economic benefit realized by the noncompliant facility; and (3) punish violators and prevent future noncompliance.

Notice of Violations

Under circumstances where the responsible party has failed to comply with the informal enforcement process or where the violations are significant, the City may choose to issue a Notice of Violation (NOV). The purpose of an NOV is to inform the responsible party of the observed violations, the applicable stormwater municipal codes that the responsible party has failed to comply with and the

[1] The City may comply with the Permit by taking initial steps (such as logging, prioritizing, and tasking) to "initiate" the ingestigation within that one business day. However, the Regional Water Board would expect that the initial investigation, including a site visit, to occur within four business days (per MS4 Order No.R4-2012-0175 Section VI.D.2.b)

[2] The City may choose to issue/write inspection report on site or provide to the responsible party at a later time.

potential consequences of failing to correct the violations. The NOV also gives the responsible party an opportunity to correct the violations described in the NOV within a specified time. Under circumstances where the responsible party fails to adequately respond to the NOV by failing to address or correct the violations noted in the NOV, the severity of the enforcement response will continue to escalate as described below.

Failure to Return to Compliance/ Second Notice of Violation

The City's municipal code stormwater ordinance authorizes assessment of administrative penalties which can be carried out by issuing a Failure to Return to Compliance Notice or second NOV . The second NOV is a stronger enforcement option which may be used in circumstances where the responsible party has failed to comply with the requirements as indicated on the first NOV.

Cease and Desist Order

In the event the City's municipal code stormwater ordinance authorizes a Cease and Desist Order (CDO), the City may issue a CDO, as an alternative to the second NOV, when immediate action by the responsible party is necessary to eliminate a continuing or threatened serious violation of the stormwater ordinance.

Misdemeanors

The City's may escalate enforcement when evidence of noncompliance indicates that the violator of the stormwater ordinance has acted intentionally with intent to cause, allow to continue or conceal a discharge in violation of the ordinance.

Issuance of Citation/Infractions

At the discretion of the City's, and as established through authority in its municipal code, the City may issue citations and/or infractions.

Cost Recovery

In the event that a complaint response or violation requires clean-up and or extensive investigation, the City has the authority, as established in the municipal code, to require the responsible party to reimburse the city or County for all costs incurred by the related violation. Cost recovery fees that may be collected include, but are not limited to, investigation, enforcement, compliance assistance, damage, control, and clean-up.

Abatement

When a responsible party fails to cease or control a nuisance condition that results in or is likely to result in further or continuing violations, the City's may request abatement of conditions on private property if necessary, or in the event of imminent danger to public safely or the environment, the City itself may abate the nuisance condition.

Permit Revocation

Sites violating the stormwater permit may be subject to permit revocation procedures as authorized in the City's municipal code.

City's/District Attorney

Severe or continuing violations should be referred to the City's or District Attorney for consideration of criminal charges.

TIMEFRAMES FOR CORRECTING DEFICIENCIES/VIOLATIONS

Depending upon the nature of the deficiencies/violations observed, City's may specify compliance deadlines for the responsible party in the inspection report or NOV.

- Prohibited discharges: discharges are to be stopped immediately and up to two weeks. The City may require the responsible party to provide a written description of correction, long-term compliance plan.
- Illicit connection: discharge via the illicit connection are to be stopped immediately and up to two weeks. The City may require the responsible party to provide proof that connection was permanently terminated. Re-inspection typically is required.
- Pollutant exposure/prohibited conditions violations: Up to two weeks to correct violations. The City may require the responsible party to provide proof of compliance for the observed violations.

EXTENSIONS OF COMPLIANCE DEADLINES

There are instances when a responsible party is not able to comply with requirements within the time frame specified. The City may grant a reasonable extension to the responsible party if the City determines that an extension is warranted, as follows:

- A request for extension must be received in writing (mail, e-mail, fax, hand delivered, etc.) by the City no later than the last day of the initial specified compliance deadline date.
- The extension request must explain why the extension is needed and warranted, as well as include a summary of actions taken to date by the responsible party to comply with requirements of the NOV.
- No more time is provided than should reasonably be needed for the responsible party to competently correct the noted deficiencies/violations. The City grants shorter extensions during the wet season.

Appropriate reasons to grant an extension may include, but are not limited to:

- Confirmed delays due to contractor or other service provider outside of responsible party's control.
- Extensive corrections involving work that would conceivably take longer than the time frame provided.
- In general, extensions should not be granted to allow the continuation of unauthorized non-storwater discharges.

The City may require an action plan or statement to be submitted by the responsible party within the initial compliance time frame, as a condition of granting an extension. The action plan or statement should specify the corrections that are to be made and specify an anticipated time frame for completion. The action plan or statement should be signed and dated by the responsible party.

REFERRALS TO THE REGIONAL BOARD

The City may refer violations of its municipal storm water ordinance and/or California Water Code section 13260 by industrial and commercial facilities and construction site operators to the Regional Water Board provided that the City has made a good faith effort of applying enforcement procedures to achieve compliance with its own ordinance. At a minimum, the City's good faith effort must be documented with:

- Two follow-up inspections, and
- Two warning letters or notices of violation.

Referral of Violations of the General Industrial/Construction Permits

For those facilities or site operators in violation of municipal stormwater ordinances and subject to the Industrial and/or Construction General Permits (IGP/CGP), the City may escalate referral of such violations to the Regional Water Board (promptly via telephone or electronically) after one inspection and one written notice of violation (copied to the Regional Water Board) to the facility or site operator regarding the violation. In making such referrals, the City shall include, at a minimum, the following documentation:[3]

- Name of the facility or site,
- Operator of the facility or site,
- Owner of the facility or site,
- WDID Number (if applicable),
- Records of communication with the facility/site operator regarding the violation, which shall include at least one inspection report,
- The written notice of violation (copied to the Regional Water Board),
- For industrial sites, the industrial activity being conducted at the facility that is subject to the Industrial General Permit, and
- For construction sites, site acreage and Risk Factor rating.

RECORDS RETENTION

City shall maintain records, per their existing record retention policies, and make them available on request to the Regional Water Board, including inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating a good faith effort to bring facilities into compliance.[4]

[3] Pursuant to Order No. R4-2012-0175 Section VI.D.2.a.v
[4] Pursuant to Order No. R4-2012-0175 Section VI.D.2.a.iii

Sources

Los Angeles County Stormwater Quality Management Program (2001)

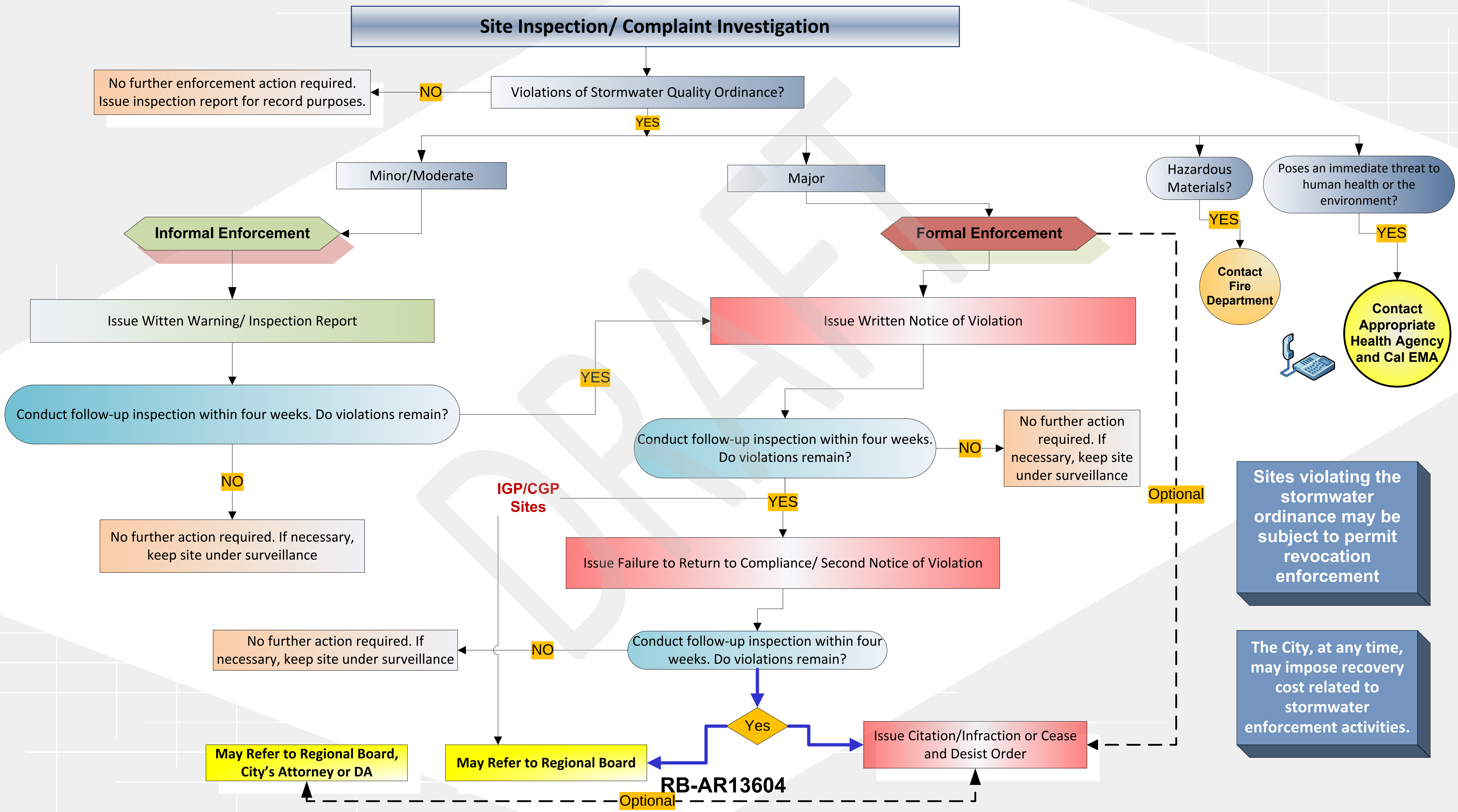
Orange County Municipal Storm Water Drainage Area Management Plan (2003)

Sacramento County Environmental Management Department. Inspection & Enforcement Policy - Commercial/Industrial Stormwater Compliance Program (2012).

Deficiencies/ Violation Degrees

Minor	Moderate	Major
Typically involves conditions that threaten to result in pollutant discharge to the storm system and/or waterways, if not corrected. The immediate threat to human health or the environment is low. **Examples:** **1.** Unattended automotive fluid drips and spills likely to result in moderate discharges to the storm drain system. **2.** Discharge of a moderate amount of car body wet sanding effluent from a single vehicle to outdoor pavement that has not yet impacted the storm drain system. **3.** Unattended spilled restaurant grease on outdoor pavement. Spill appears to be recent, is less than a quart, has not yet impacted the storm drain system and poor housekeeping do not appear to be habitual. **4.** Oily, uncovered engines, or other oily, possibly leaky items stored outside. **5.** Open and missing dumpster and tallow bin lids.	Typically involves less significant pollutant discharges to the storm system and/or receiving waters or conditions that threaten to result in minor to moderate pollutant discharges to the storm system and/or receiving waters. May include small or incidental discharges of hazardous or toxic substances. The violation does not present a major threat to human health and safety, but is likely to result in degradation of receiving water quality. **Examples:** **1.** Discharge of moderate amounts of automotive fluids to storm drain system results from neglected spills and poor housekeeping. **2.** Discharge of moderate amount (less than 20 gallons of diluted effluent) of auto body wet sanding effluent to storm drain system. **3.** More than a quart of spilled restaurant grease on outdoor pavement is neglected, possibly getting tracked out of trash enclosure. Neglect appears to be habitual but so far, impact to storm drain is moderate. **4.** Moderate amount of Oil/fluids leaking from improperly stored engines and parts discharge to storm drain system. **5.** Repeat minor violations may be considered moderate.	Includes significant pollutant discharges to the storm system and/or receiving waters as well as creation of conditions that threaten imminent discharge of significant pollutants to the storm system and/or receiving waters. This also includes, but is not limited to, significant discharges of hazardous or toxic substances. Major violations have the potential to present a major threat to human health or safety and/or the environment. The intent of the violator should be considered: Patterns of willful disregard for safety and the environment, recalcitrance, and repeat violations should contribute to designation of a violation as major, but are not necessary. **Examples:** **1.** Intentional discharge of waste oil to the storm drain. **2.** Discharge of significant volumes of auto body wet sanding effluent to storm drain from work on multiple vehicles, as practice. Especially where repeat violations or evidence of habitual discharge is evident. **3.** Significant amount of spilled restaurant grease is intentionally washed into storm drain, especially if hazardous degreasing agent is used. **4.** Significant amount of Oil/fluids leaking from improperly stored engines and parts discharge to storm drain system, especially if repeat violation. **5.** Repeat moderate violations may be considered major.

PROGRESSIVE ENFORCEMENT FLOW CHART



Watershed Management Program Appendix 3

Attachments to MCM Guidance

Insert City Seal

CITY STORMWATER PROGRAM INDUSTRIAL/COMMERCIAL FACILITY INSPECTION REPORT

Facility:	Address:
Contact:	Title:
Email:	Phone:
Inspector:	Date:
Inspection Type: ☐ Routine ☐ Follow-up ☐ Response to Complaint	BMP materials provided and explained: ☐ Yes ☐ No
SIC/NAICS code and/or business type:	

Industrial Facilities Only		
(1) Covered under IGP (WDID is current) or other NPDES Permit: ☐ Yes ☐ No	(2) NEC filed: ☐ Yes ☐ No	SWPPP on-site: ☐ Yes ☐ No
If (1) and (2) above are "No", notified contact of need for IGP coverage and will refer facility to Regional Board: ☐ Yes ☐ No		

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

	BMP	Yes	No	N/A
Vehicle & Equipment Maintenance	**Fueling** - Effective fueling source control devices & practices	☐	☐	☐
Vehicle & Equipment Maintenance	**Cleaning** – Effective cleaning practices & wash water management practices	☐	☐	☐
Vehicle & Equipment Maintenance	**Repair** – Effective repair practices & source control devices	☐	☐	☐
Equipment Operations	**Outdoor equipment operations** – Effective source control devices & practices	☐	☐	☐
Storage & Handling	**Outdoor liquids** – Effective source controls & practices	☐	☐	☐
Storage & Handling	**Outdoor raw materials** – Effective source control practices & structural devices	☐	☐	☐
Storage & Handling	**Solid waste** – Effective storage & handling practices & appropriate control measures	☐	☐	☐

	BMP	Yes	No	N/A
Facility Maintenance	**Building & grounds maintenance** – Effective maintenance practices	☐	☐	☐
Facility Maintenance	**Parking & storage area maintenance** – Effective designs & housekeeping/maintenance practices	☐	☐	☐
Facility Maintenance	**Stormwater conveyance system maintenance** – Proper operation & maintenance protocols	☐	☐	☐
Facility Maintenance	**Sidewalk washing** – Remove debris & free standing oil/grease. Use high pressure/low volume spray washing with potable water, no cleaning agents & average rate of 0.006 gal/ft^2.	☐	☐	☐
Spills, Leaks & Discharges	**Accidental spills/leaks** – Effective spill/leak prevention & response procedures	☐	☐	☐
Spills, Leaks & Discharges	**Unauthorized nonstormwater discharges** – Effective elimination	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED)

Include description of activities performed and/or principal products produced

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this ordinance if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

________________________	________________________	________________
Site Representative Signature	Printed Name	Date

RB-AR13606

Recording requested by and mail to:

Name: City of [Insert City]
Department of Public Works
ATTN: Director of Public Works

Address: [Insert City Address Line1]
[Insert City Address Line2]

Insert City Seal

*********************************** Space Above This Line For Recorder's Use ***********************************

MASTER COVENANT AND AGREEMENT

REGARDING ON-SITE BMP MAINTENANCE

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City of [Insert City], County of Los Angeles, State of California (please give legal description: assessor's ID, tract no., lot no., etc.):

____

Site Address ____

Owner(s) do hereby covenant and agree to and with the City of [Insert City]to maintain all on-site structural Best Management Practices (BMPs) in accordance with the Site Map and the Operations & Maintenance (O&M) Plan set forth in Attachment 1 hereto and incorporated herein by this reference. The specific structural BMPs are listed as follows:

____

____

Owner(s) shall maintain the listed drainage devices above on the property indicated and as shown on plans permitted by the City of [Insert City]in a good and functional condition to safeguard the property owners and adjoining properties from damage and pollution.

Owner(s) hereby consent to inspection of the Property by an inspector authorized by the City Manager, or his or her designee, for the purpose for verifying compliance with the provisions of this Agreement.

Owner(s) shall provide printed educational materials with any sale of the property which provide information on what stormwater management facilities are present, the type(s) and location(s) of maintenance signs that are required, and how the necessary maintenance can be performed.

Owner(s) shall provide actual notice of this Agreement and its terms to any respective successor(s) in interest to the Property prior to transfer of said interest to such successor(s) in interest. This covenant and agreement shall run with the land and shall be binding upon any future owners, encumbrances, their successors, heirs or assigns and shall continue in effect until the City of [Insert City] approves its termination.

(Print Name of Property Owner)	(Print Name of Property Owner)
(Signature of Property Owner)	(Signature of Property Owner)

Dated this __________ day of __________ 20 _____.

*********************************** Space Below This Line For Notary's Use ***********************************

ALL PURPOSE ACKNOWLEDGEMENT

State of ______________________________ }
}
County of ______________________________ }

On ______________________ before me, _____________________________________ personally appeared
(Insert Name of Notary Public and Title)
____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf on which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _________________________ (Seal)

Recording requested by and mail to:

Name: City of [Insert City]
Public Works Department
ATTN: Director of Public Works

Address: [Insert City Address Line1]
[Insert City Address Line2]

Insert City Seal

*********************************** Space Above This Line For Recorder's Use ***********************************

MASTER TERMINATION OF COVENANT AND AGREEMENT

REGARDING ON-SITE BMP MAINTENANCE

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City of [Insert City], County of Los Angeles, State of California (please give legal description: assessor's ID, tract no, lot not, etc.):

____

Site Address ____

We do hereby, with approval of the City of [Insert City], Engineering Division, terminate the covenant and agreement entered into with the City of [Insert City]as recorded on the ___________ day of __________________________20_______, as Document No.

____

____

This covenant and agreement is terminated for the reason that:

____

____

______________________________	______________________________
(Print Name of Property Owner)	(Print Name of Property Owner)
______________________________	______________________________
(Signature of Property Owner)	(Signature of Property Owner)

Dated this __________ day of __________ 20 _____.

Termination approved by: ____ Date: __________________________
(Authorized City Representative)

*********************************** Space Below This Line For Notary's Use ***********************************

ALL PURPOSE ACKNOWLEDGEMENT

State of ______________________________ }
}
County of ______________________________ }

On _______________________ before me, _____________________________________ personally appeared
(Insert Name of Notary Public and Title)

____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf on which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _________________________ (Seal)

Insert City Seal

City of [Insert City]NPDES Program
POST-CONSTRUCTION BMP VERIFICATION & INSPECTION FORM

PROJECT INFORMATION	
Facility/Project Name:	Inspection Date:
Address:	Inspector:
Contact Name:	Contact Phone:

Project Category

☐ Priority Project ☐ Small Site LID Project ☐ Single Family Residence ☐ Green Street
☐ Public Project ☐ Private Project

Project Type:

☐ Commercial ☐ Industrial ☐ Residential ☐ Multi-Use
☐ Road/Street ☐ Parking Lot ☐ Automotive repair ☐ Restaurant ☐ Other:

Operation/Maintenance:

☐ Reviewed ☐ Not Reviewed ☐ Not Available
Preparer's Name: Preparer's Title:
Address: City: Zip: Phone:

Inspection Type

☐ Prior to Certificate of Occupancy ☐ Special Investigation ☐ Response to Complaint
☐ Routine Inspection (Annual) ☐ Follow-up Inspection

CHECKLIST FOR ROUTINE SOURCE CONTROL BMPs

Requirement	No. of BMPs (if Applicable)	BMP in place per approved LID Plan/SUSMP?	Corrective Action Required
Storm Drain System Stenciling/Signage		☐ Yes ☐ No	☐ Yes ☐ No
Outdoor Material Storage Areas		☐ Yes ☐ No	☐ Yes ☐ No
Trash Storage Areas		☐ Yes ☐ No	☐ Yes ☐ No
Efficient Irrigation Systems & Landscape Design		☐ Yes ☐ No	☐ Yes ☐ No
Protect Slopes & Channels		☐ Yes ☐ No	☐ Yes ☐ No
Loading Dock Areas		☐ Yes ☐ No	☐ Yes ☐ No
Maintenance Bays		☐ Yes ☐ No	☐ Yes ☐ No
Vehicle Wash Areas		☐ Yes ☐ No	☐ Yes ☐ No
Outdoor Process Areas		☐ Yes ☐ No	☐ Yes ☐ No
Equipment Wash Areas		☐ Yes ☐ No	☐ Yes ☐ No
Fueling Areas		☐ Yes ☐ No	☐ Yes ☐ No
Hillside Landscaping		☐ Yes ☐ No	☐ Yes ☐ No
Wash-water Controls for Food Prep Areas		☐ Yes ☐ No	☐ Yes ☐ No
Community Car Wash Racks		☐ Yes ☐ No	☐ Yes ☐ No

CHECKLIST FOR STRUCTURAL BMPs

Requirement	No. of BMPs (if Applicable)	BMP in place per approved LID Plan/SUSMP?	Corrective Action Required
Infiltration Trench/Basin		☐ Yes ☐ No	☐ Yes ☐ No
Infiltration Well/Dry Well		☐ Yes ☐ No	☐ Yes ☐ No
Detention Basin		☐ Yes ☐ No	☐ Yes ☐ No
Porous Pavement		☐ Yes ☐ No	☐ Yes ☐ No
Bio-infiltration		☐ Yes ☐ No	☐ Yes ☐ No
Vegetated Swale		☐ Yes ☐ No	☐ Yes ☐ No
Bio-filtration		☐ Yes ☐ No	☐ Yes ☐ No
Proprietary Control Measure (describe):		☐ Yes ☐ No	☐ Yes ☐ No
Media Filtration		☐ Yes ☐ No	☐ Yes ☐ No
Filter Insert		☐ Yes ☐ No	☐ Yes ☐ No
Regional or Watershed BMPs		☐ Yes ☐ No	☐ Yes ☐ No
Other (describe):		☐ Yes ☐ No	☐ Yes ☐ No

INSPECTION RESULTS:
☐ Visible / No Apparent Problems ☐ BMP Failure ☐ Significant Engineering / Design Flaws ☐ Unauthorized Modifications ☐ BMP Missing / Removed / Not Located ☐ Trash / Debris Exceeding Cap. (bypass) ☐ Evidence of Pollution / Dumping ☐ Vector Control Issues (Mosquitoes) ☐ Inadequate Maintenance
DESCRIPTION OF CORRECTIVE ACTION(S) REQUIRED:

CORRECTIVE ACTION NOTICE (IF REQUIRED)

<u>If any corrective actions have been noted above</u>, then based on this verification inspection, you are in noncompliance with Municipal Code Chapter [-]. You must implement the required corrective action(s) by:

____
Corrective Action Due Date

After this date, your facility will be re-inspected to verify that all necessary corrective measures have been taken. FAILURE TO IMPLEMENT THE CORRECTIVE ACTION(S) WILL SUBJECT YOU TO ELEVATED ENCORCEMENT, WHICH CAN INCLUDE INFRACTION OR MISDEMEANOR PENALTIES.

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

______________________	______________________	______________
Contact Signature	Printed Name	Date

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STORMWATER PLANNING PROGRAM PRIORITY PROJECT CHECKLIST

FORM PC

Project Name	Owner Name	Developer Name
Project Address	Owner Address	Developer Address
Plan Check #	Owner Phone	Developer Phone

Type of Project

Does the proposed project fall into one of the following categories? Please check Yes/No	YES	NO
PRIORITY PROJECTS		
1. A new project equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious* surface area		
2. A new industrial park with 10,000 square feet or more of surface area		
3. A new commercial mall with 10,000 square feet or more surface area		
4. A new retail gasoline outlet with 5,000 square feet or more of surface area		
5. A new restaurant (SIC 5812) with 5,000 square feet or more of surface area		
6. A new parking lot with either 5,000 ft^2 or more of impervious* surface or with 25 or more parking spaces		
7. A new automotive service facility (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area		
8. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA)*, where the development will: a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and b. Create 2,500 square feet or more of impervious surface area		
9. Redevelopment*		
SPECIAL PROVISION PROJECTS		
10. Green street* project		
11. Single family hillside* home		

If checked YES, numerical criteria will apply to items 1,2,6-9 and items 3-5 (for project areas of 5,000 ft^2 or more of surface area.) If any of the boxes are checked YES, this project will require the preparation of a Low Impact Development (LID) Plan and a Maintenance Agreement Transfer*

* Defined on back.

Applicant Name

Applicant Signature

Applicant Title

Date

DEFINITIONS:

Impervious are those surfaces that do not allow stormwater runoff to percolate into the ground. Typical impervious surfaces include: concrete, asphalt, roofing materials, etc. However, some specially designed concrete/asphalt do allow water to percolate (pervious).

Hillside means property where the slope is 25% or greater and where grading contemplates cut or fill slopes. Single family hillside homes will require a less extensive plan. During the construction of a single-family hillside home, the following measures are implemented:

a. Conserve natural areas

b. Protect slopes and channels

c. Provide storm drain system stenciling and signage

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability

e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

Green Streets means any street and road construction of 10,000 square feet or more of impervious surface area

a. These projects will follow an approved green streets manual to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects. Stormwater mitigation measures must be in compliance with the approved green streets manual requirements.

Redevelopment means land-disturbing activities that result in the creation, addition, or replacement of 5,000 ft^2 or more of impervious surface area on an already developed site.

Redevelopment does not include routine maintenance activities that are conducted to maintain the original line and grade, hydraulic capacity, or original purpose of facility, nor does it include modifications to existing single family structures, or emergency construction activities required to immediately protect public health and safety.

Significant Ecological Area means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and would be disturbed or degraded by human activities and developments. Also, an area designated by the City as approved by the Regional Water Quality Control Board.

Maintenance Agreement and Transfer: All developments subject to LID and site specific plan requirements provide verification of maintenance provisions for Structural and Treatment Control BMPs, including but not limited to legal agreements, covenants, CEQA mitigation requirements, and/or conditional use permits. Verification at a minimum shall include:

- The developer’s and/or owner's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and
- A signed statement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance and conduct a maintenance inspection at least once a year; or
- Written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or
- Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the Structural and Treatment Control BMPs; or
- Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction Structural or Treatment Control BMPs.

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STORMWATER PLANNING PROGRAM

PRIORITY DEVELOPMENT & REDEVELOPMENT PROJECTS

PLAN CHECK # ______________________

FORM P1

Project Name	______________________
Project Location	______________________
Company Name	______________________
Address	______________________
Contact Name / Title	______________________
Phone / FAX / Email	______________________

GENERAL PROJECT CERTIFICATION

A completed original of this form must accompany all LID Plan submittals.

Best Management Practices (BMPs) have been incorporated into the design/maintenance/construction of this project to accomplish the following:

1. Minimize impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100), CWC § 13369, CWA § 319, CWA § 402(p), CWA § 404, CZARA § 6217(g), ESA § 7, and local government ordinances.

2. Maximize the percentage of pervious surfaces to allow more percolation of stormwater into the ground.

3. Minimize the amount of stormwater directed to impermeable surfaces and to the MS4.

4. Minimize pollution emanating from parking lots through the use of appropriate Treatment Control BMPs and good housekeeping practices.

5. Minimize breeding of Vectors

6. Reduce pollutant loads in stormwater from the development site.

I certify that this Low Impact Development Plan and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered/evaluated the information submitted.

Post Construction / Maintenance Certification

As the responsible party, I certify that the proposed BMPs will be implemented, monitored and maintained to ensure their continued effectiveness. In the event of a property transfer, the new owner/lessee will be notified of the BMPs in use at this site and I will include written conditions in the sales or lease agreement, which requires the new owner (or lessee) to assume responsibility for maintenance and conduct a maintenance inspection at least once a year. The information contained herein is, to the best of my knowledge and belief, true, accurate, and complete.

In consideration of the execution of City of [Insert City] approval of the proposed Low Impact Development (LID) Plan including any proposed treatment system, the applicant hereby agrees to indemnify, save and keep the City of [Insert City], its officers, agents and employees free and harmless from and against any and all claims for injury, damage, loss, liability, cost and expense of any nature whatsoever, which the City of [Insert City], its officers, agents, or employees may suffer, sustain, incur, pay out as a result of any and all actions, suits, proceedings, claims and demands which may be brought, made, or filed against the City of [Insert City], its officers, agents or employees by reason of or arising out of, or in any manner connected with any and all operations permitted by this approval. This indemnification extends to further agree that the City of [Insert City]is not responsible for any additional requirements or restrictions due to changes in regulations, policies or enforcement practices of the California Regional Water Quality Control Board, or any other applicable regulatory agencies.

______________________ Property Owner Name

______________________ Property Owner Signature

______________________ Applicant Title

______________________ Date

PLANNING BEST MANAGEMENT PRACTICES

BMP Name	BMP Identification Number and Name	✓ if to be used
Car Wash Facility	SC-21: Vehicle and Equipment Cleaning	
Constructed Wetlands	MP-20: Wetlands	
Control of Impervious Runoff	-N/A-	
Efficient Irrigation	-N/A-	
Energy Dissipaters	EC-10: Velocity Dissipation Devices	
Extended Detention Basins	TC-22: Extended Detention Basin	
Infiltration Basins	TC-11: Infiltration Basins	
Infiltration Trenches	TC-10: Infiltration Trenches	
Inlet Trash Racks	-N/A-	
Landscape Design	EC-2: Preservation of Existing Vegetation EC-4: Hydro seeding EC-6 & EC-8: Straw & Wood Mulching	
Linings for Urban Runoff Conveyance Channels	-N/A-	
Materials Management	SC-30: Outdoor Loading/Unloading	
Media Filtration	TC-40: Media Filter	
Motor Fuel Concrete Dispensing Areas	SC-20: Vehicle and Equipment Fueling	
Motor Fuel Dispensing Area Canopy	SC-20: Vehicle and Equipment Fueling	
Water Quality Inlets	TC-50: Water Quality Inlet	
Outdoor Storage	SC-31: Outdoor Liquid Container Storage SC-33: Outdoor Storage of Raw Materials	
Porous Pavement and/or Alternative Surfaces	-N/A-	
Protect Slopes and Channels	EC-11: Slope Drains EC-12: Streambank Stabilization	
Self-Contained Areas for Vehicle or Equipment Washing, Steam Cleaning, Maintenance, Repair, or Material Processing	SC-21: Vehicle and Equipment Cleaning SC-22: Vehicle and Equipment Repair SC-32: Outdoor Equipment Operations	
Storm Drain System Stenciling and Signage	SC-34: Waste Handling and Disposal (Signage Section)	
Trash Container Areas	SC-34: Waste Handling and Disposal	
Vegetated Swales and Strips	TC-32: Bioretention	
Wet Ponds	TC-20: Wet Ponds	
Other:	• • • • •	

Please refer to the California Storm Water Best Management Practice Handbooks for more information.

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STORMWATER TREATMENT CERTIFICATION

FORM **P2**

SITE NAME and ADDRESS

____

____

____

____

____

Plan Check #______________________________

Planning #________________________________

APPROXIMATE PROJECT CHARACTERISTICS

Roofed Area	__________	ft^2
Roadway/Parking Area (exposed)	__________	ft^2
Landscaped/Vegetation	__________	ft^2
Other Ground Level Impervious Areas (Ex: Outdoor work or storage areas)	__________	ft^2
Other: ____________________	__________	ft^2
TOTAL	__________	ft^2

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary) or see back

Area Designation (must correspond with plans)	**Tributary Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rate or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include size, make, and model, if any)	**BMP Location** (briefly describe)	**Design Treatment Flow Rate or Volume Capacity**

By stamping this form, I acknowledge that each treatment BMP is provided with adequate bypass or overflow so as not to contribute to localized flooding or soil instability.

*Flow rates and volumes based on the 0.75 inch, 24-hour rain event or the 85th percentile, 24-hour rain event, whichever is greater.

I certify that I am a Professional Civil Engineer registered in the State of California, and that the treatment methods and capacities herein comply with the requirements established by the California Regional Water Quality Control Board, Los Angeles Region, and the State Water Resources Control Board for Low Impact Development (LID) Plans.

Affix Registered Engineer Wet Ink Stamp Here:

________________ ________________ __________

Print Name **Signature** **Date**

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary)

Area Designation (must correspond with plans)	**Tributary Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rate or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include size, make, and model, if any)	**BMP Location** (briefly describe)	**Design Treatment Flow Rate or Volume Capacity**

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OWNER'S CERTIFICATION
MINIMUM BMPS FOR ALL CONSTRUCTION SITES

FORM OC1

PLAN CHECK #______________________

Project Name ____________ Project Location ____________	BUILDING/GRADING PERMIT NUMBER
Owner Name ____________ Address ____________ Phone ____________ FAX/Email ____________	Contractor Name ____________ Address ____________ Phone ____________ FAX/Email ____________

The National Pollutant Discharge Elimination System (NPDES) is the portion of the Clean Water Act that applies to the protection of receiving waters. Under permits from the Los Angeles Regional Water Quality Control Board (RWQCB), certain activities are subject to RWQCB enforcement. To meet the requirements of the Los Angeles County Municipal Stormwater Permit (CAS004001), minimum requirements for sediment control, erosion control and construction activities must be implemented on each project site. Minimum requirements include:

- **EROSION CONTROL:** Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs, such as the limiting of grading activities during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.
- **SEDIMENT CONTROL:** Eroded sediments from areas disturbed by construction and from stockpiles of soil shall be retained on site to minimize sediment transport from the site to streets, drainage facilities and/or adjacent properties via runoff, vehicle tracking or wind.
- **NON-STORMWATER MANAGEMENT:** Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site.
- **WASTE MANAGEMENT:** Construction related materials, wastes, spills or residues shall be retained on site to minimize transport from the site to streets, drainage facilities or adjoining properties by wind or runoff. Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to remove sediment and pollutants.

Examples of Minimum BMPs include: (1) Soil piles must be covered with tarps or plastic, (2) leaking equipment must be repaired immediately, (3) refueling must be conducted away from catch basins, (4) catch basins must be protected when working nearby, (5) vacuum all concrete saw cutting, (6) never wash concrete waste into the street, (7) keep the site clean, sweep the gutters at the end of each working day and keep a trash receptacle on site.

As the architect/engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project's construction activities on stormwater quality. The project owner and contractor are aware that the selected BMPs shall be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity.

____________ Architect/Engineer of Record Name	____________ Architect/Engineer of Record Signature
____________ Title	____________ Date

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law.

____________ Landowner or Landowner's Agent Name	____________ Landowner or Landowner's Agent Signature
____________ Title	____________ Date

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EROSION AND SEDIMENT CONTROL PLAN (ESCP) REVIEW CHECKLIST

These requirements apply to all activities involving soil disturbance with the exception of agricultural activities. Applicable activities include but are not limited to grading, vegetation clearing, soil compaction, paving, re-paving and linear underground/overhead projects (LUPs).

Prior to issuing a grading or building permit, each operator of a construction activity within its jurisdiction must prepare and submit an ESCP prior to the disturbance of land.

Contact Name:	Tracking #:
Contact Title:	Site Name:
Company Name:	Site Address:
Mailing Address:	Type of Facility:
City, State, Zip:	Submittal Date:
Phone Number:	Plan Return Date:
Fax Number:	Disturbed Area:

<u>First Review</u>
ESCP Received on:

Review Completed on:

<u>Second Review</u>
ESCP Received on:

Review Completed on:

<u>Third Review</u>
ESCP Received on:

Review Completed on:

<u>Fourth Review</u>
ESCP Received on:

Review Completed on:

<u>Fifth Review</u>
ESCP Received on:

Review Completed on:

<u>Sixth Review</u>
ESCP Received on:

Review Completed on:

ESCP REQUIREMENT	SATISFACTION			COMMENTS
	YES	NO	N/A	
General Information				
Contact information (e.g., name, address, phone, email, etc.) provided for the owner and contractor.	☐	☐	☐	
Basic site information including location, status, size of the project and area of disturbance is provided.	☐	☐	☐	
Proof of existing coverage under applicable permits, including, but not limited to the State Water Board's Construction General Permit, and State Water Board 401 Water Quality Certification.	☐	☐	☐	
Meets the minimum requirements of the jurisdictional erosion and sediment control ordinance.	☐	☐	☐	
Includes the elements of a Storm Water Pollution Prevention Plan (SWPPP) prepared in accordance with the requirements of the Construction General Permit.	☐	☐	☐	
Developed and certified by a Qualified SWPPP Developer (QSD).	☐	☐	☐	
Identifies the proximity all water bodies, water bodies listed as impaired by sediment-related pollutants, and water bodies for which a sediment-related TMDL has been adopted and approved by the USEPA.	☐	☐	☐	
Identifies any significant threat to water quality status, based on consideration of factors listed in Appendix 1 to the Construction General Permit.	☐	☐	☐	
The project start date and anticipated completion date is provided.	☐	☐	☐	
Includes Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.	☐	☐	☐	
Contains a language signed by the landowner or the landowner's agent stating as follows: *"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law."*	☐	☐	☐	

ESCP REQUIREMENT	SATISFACTION			COMMENTS
	YES	NO	N/A	
Best Management Practices				
All structural BMPs are designed by a licensed California Engineer.	☐	☐	☐	
Includes Sediment/Erosion Control.	☐	☐	☐	
Includes controls to prevent tracking on and off the site.	☐	☐	☐	
Includes non-stormwater controls (e.g., vehicle washing, dewatering, etc.).	☐	☐	☐	
Includes Materials Management (delivery and storage).	☐	☐	☐	
Includes Spill Prevention and Control.	☐	☐	☐	
Includes Waste Management (e.g., concrete washout/waste management; sanitary waste management).	☐	☐	☐	
Includes methods to minimize the footprint of the disturbed area and to prevent soil compaction outside of the disturbed area.	☐	☐	☐	
Includes methods used to protect native vegetation and trees.	☐	☐	☐	
Includes the rationale for the selection and design of the proposed BMPs, including quantifying the expected soil loss from different BMPs.	☐	☐	☐	
Post-Construction Structural BMPs subject to Operation and Maintenance Requirements are identified.	☐	☐	☐	
Site Plan				
Full sized plans showing the site with all proposed BMPs and water quality notes have been signed and stamped with wet ink application by the appropriate individual.	☐	☐	☐	
Plan includes a title block containing at least the project name, address, and owner.	☐	☐	☐	
All figures, maps, plot plans, etc. have a legend, including a North arrow and scale.	☐	☐	☐	
All facilities are labeled for the intended function.	☐	☐	☐	
All areas of outdoor activity are labeled.	☐	☐	☐	
All structural BMPs are indicated.	☐	☐	☐	
Drainage flow information depicted.	☐	☐	☐	
Project location shown.	☐	☐	☐	
Site boundary indicated.	☐	☐	☐	

Agency Standard Operating Procedures

Each agency will use the suggested language below to develop, implement, and revise as necessary agency-specific Standard Operating Procedures (SOPs) that identify the procedures each agency will follow.

CGP Coverage Verification

- Verification of active coverage under the Construction General Permit for sites disturbing 1 acre or more, or that are part of a planned development that will disturb 1 acre or more and a process for referring non-filers to the Regional Water Board.

Prior to releasing any permits relating to and/or allowing for construction activities on a site resulting in one (1) acre or more of soil disturbance, a Notice of Intent (NOI), a Storm Water Pollution Prevention Plan (SWPPP), and all other Permit Registration Documents (PRDs) must be filed with the Regional Water Resources Control Board (Regional Board) through the State Water Board's Storm water Multi-Application and Report Tracking System (SMARTS) website and a Waste Discharge ID (WDID) number must be obtained from the Regional Board. This requirement will be included as a condition of approval. In cases where construction activities have commenced on a qualifying site and the project has not yet filed all PRDs (along with an explanation for filing late) with the Regional Board, a Notice of Violation (NOV) will be sent to the responsible person. Any work orders released will be stopped and fines may be enforced. The Regional Board will be notified of the discharger's non-compliance. Work will not be allowed to commence until the NOI has been accepted by the Regional Board and WDID number issued.

ESCP Review

- Review of the applicable ESCP and inspection of the construction site to determine whether all BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions.

Prior to issuing a grading or building permit, each operator of a construction activity within its jurisdiction must prepare and submit an Erosion and Sediment Control Plan (ESCP) prior to the disturbance of land. The ESCP Requirement Checklist will be used to ensure required information is submitted by the responsible person. These requirements apply to all activities involving soil disturbance with the exception of agricultural activities. Applicable activities include but are not limited to grading, vegetation clearing, soil compaction, paving, re-paving and linear underground/overhead projects (LUPs).

BMP Assessment

- Assessment of the appropriateness of the planned and installed BMPs and their effectiveness.

Prior to releasing any permits relating to and/or allowing for construction activities on a site resulting in one (1) acre or more of soil disturbance a Qualified SWPPP Practitioner (QSP) must be identified by the developer. Prior to beginning any construction activities, the QSP must review the ESCP and determine if the following requirements are being met:

1. Erosion and sediment controls are incorporated to provide effective reduction or elimination of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges from the site.

2. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.
3. Non-stormwater control BMPs are selected to control sediment on the construction site.
4. Materials and waste management pollution control BMPs are incorporated to minimize stormwater contact with construction materials, wastes and service areas; and to prevent materials and wastes from being discharged off-site.

If the QSP identifies potential problematic areas of the ESCP, a revision to the ESCP must be submitted for review and approval.

Once the BMPs are installed, inspections must be conducted at the frequency identified in the Watershed Management Program (WMP). All BMPs not functioning as intended must be repaired, replaced, or changed to a more effective BMP. Inspection and maintenance procedures must be in accordance with the CASQA handbook.

Discharge Reporting

- Visual observation and record keeping of non-stormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff.

Any non-stormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff will be tracked and kept on record.

Public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s within this jurisdiction will be conducted. Multiple modes of communication are in place to allow for complaints and spill reporting. When a complaint is received it will be documented and tracked to ensure that all complaints are adequately addressed.

A Spill Response Plan will be implemented for all sewage and other spills that may discharge into the MS4 within this jurisdiction. Coordination with spill response teams will be observed throughout all appropriate departments, programs, and agencies so that maximum water quality protection is provided. All spill complaints will be investigated within one business day of receiving the complaint and a response to spills for containment will be conducted within 4 hours of becoming aware of the spill, except where such spills occur on private property, in which case the response should be within 2 hours of gaining legal access to the property. Spills that may endanger health or the environment will be reported to appropriate public health agencies and the Office of Emergency Services (OES).

A training program regarding the identification of illicit connections/illicit discharges (IC/IDs) for all municipal field staff, who, as part of their normal job responsibilities (e.g., street sweeping, storm drain maintenance, collection system maintenance, road maintenance), may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4 will be provided.

Construction Inspection Reporting and Tracking

- Development of a written or electronic inspection report generated from an inspection checklist used in the field.
- Tracking of the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required.

Inspections will be conducted at a frequency listed in the Watershed Management Program (WMP). Inspection checklists and/or reports will be utilized to determine and keep record of whether or not all

BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions. These checklists/reports will be retained for at least three (3) years following NOT approval.

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(CITY NAME) STORMWATER INSPECTION REPORT FOR CONSTRUCTION SITES

SITES ONE ACRE OR GREATER

Project Name:	Address:	
Area disturbed:	WDID:	SWPPP on-site: ☐ Yes ☐ No
Risk level: ☐ Low (Risk 1) ☐ Medium (Risk 2) ☐ High (Risk 3)	Erosion & Sediment Control Plan (ESCP) on-site: ☐ Yes ☐ No	
Phase: ☐ Prior to Land Disturbance ☐ Active construction ☐ Site stabilization		
Developer/Contractor:	Phone number:	
Contact:	Title:	
Inspector:	Date:	
Inspection: ☐ Routine (monthly and for each phase of construction) ☐ Follow-up ☐ Response to complaint	*For sites discharging to a waterbody impaired for sediment/turbidity[i]* ☐ *Routine biweekly* ☐ *Predicted rainfall* ☐ *Recent rainfall*	

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

PHASE 1 AND 2: PRIOR TO LAND DISTURBANCE AND DURING ACTIVE CONSTRUCTION

	Comment	Yes	No	N/A		Comment	Yes	No	N/A
Erosion Control	1. Erosion controls are implemented in accordance with the ESCP	☐	☐	☐	Waste Management	9. Effective material delivery and storage practices are implemented	☐	☐	☐
Erosion Control	2. Erosion observed	☐	☐	☐	Waste Management	10. Spill prevention and control practices are implemented	☐	☐	☐
Sediment Control	3. Sediment controls are implemented in accordance with the ESCP	☐	☐	☐	Waste Management	11. Stockpile controls are implemented in accordance with the ESCP	☐	☐	☐
Sediment Control	4. Sediment discharge observed	☐	☐	☐	Waste Management	12. Solid waste controls are implemented in accordance with the ESCP	☐	☐	☐
Additional Controls	5. Tracking controls (tire washout, stabilized entrances, exits and roadways) are implemented in accordance with the ESCP	☐	☐	☐	Nonstormwater Management	13. Vehicle and equipment washing, fueling and maintenance controls are implemented in accordance with the ESCP	☐	☐	☐
Additional Controls	6. Sediment in roads observed	☐	☐	☐	Nonstormwater Management	14. Nonstormwater discharges observed	☐	☐	☐
Additional Controls	7. Wind erosion controls are implemented in accordance with the ESCP	☐	☐	☐	Nonstormwater Management	15. Dewatering operations covered under NPDES Permit CAG994004	☐	☐	☐
Additional Controls	8. Wind erosion observed	☐	☐	☐	Nonstormwater Management	16. Water conservation practices are implemented	☐	☐	☐

PHASE 3: FINAL LANDSCAPING/SITE STABILIZATION

Comment	Yes	No	N/A	Comment	Yes	No	N/A
1. Graded areas have reached final stabilization	☐	☐	☐	3. Temporary erosion and sediment BMPs are removed	☐	☐	☐
2. Trash, debris and construction materials are removed	☐	☐	☐	4. Post-construction BMPs are installed	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED):

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this program if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

Site Representative Signature	Printed Name	Date
____________________	____________________	____________

[i] For sites discharging to a tributary listed by the state as an impaired waterbody for sediment or turbidity under CWA § 303(d), or determined to be a threat to water quality, inspections must be conducted (1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA and (2) within 48 hours of a ½-inch rain event and (3) at least once every two weeks.

Insert City Seal

CITY STORMWATER QUALITY PROGRAM
CONSTRUCTION SITE INSPECTION REPORT

FOR SITES LESS THAN ONE ACRE

Project:	Address:
Contact:	Title:
Contractor:	Phone:
Inspector:	Date:

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

	Question	Yes	No	N/A		Question	Yes	No	N/A
Erosion Control	1. Effective erosion controls implemented.	☐	☐	☐	Non-Stormwater Management	5. Water conservation practices are implemented.	☐	☐	☐
	2. Erosion observed.	☐	☐	☐		6. Dewatering operations covered under NPDES Permit CAG994004	☐	☐	☐
Sediment Control	3. Effective sediment controls implemented.	☐	☐	☐	Waste Management	7. Effective material delivery/storage practices and spill prevention/control practices are implemented.	☐	☐	☐
	4. Sediment discharge observed.	☐	☐	☐		8. Effective waste management controls are implemented.	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED):

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this program if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

Site Representative Signature	Printed Name	Date

Example Lease Language for Fixed Facilities

The following is example language that can be inserted into municipal leases:

The Los Angeles Regional Water Quality Control Board (RWQCB) has issued permits which govern stormwater and non-stormwater discharges resulting from municipal activities performed by or for the Coastal Watersheds of Los Angeles County, including the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County with the exception of Long Beach (collectively referred to as Permittees). The RWQCB Permit is a National Pollutant Discharge Elimination System (NPDES) Permit No. R4-2023-0175. A Copy of the RWQCB Permit is available for review.

In order to comply with the Permit requirements, the Permittees have developed a Watershed Management Program (WMP) which contains Public Agency Facilities and Activities Maintenance Procedures (Maintenance Procedures) with Best Management Practices (BMPs) adopted from the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (Caltrans Handbook) that parties leasing municipally owned properties must adhere to. These Maintenance Procedures contain pollution prevention and source control techniques to minimize the impact of those activities upon dry-weather urban runoff, stormwater runoff, and receiving water quality.

Activities performed at the facility leased under this agreement shall conform to the RWQCB NPDES Permit, the WMP, and the CalTrans Handbook, and must be performed as described within all applicable Maintenance Procedures. The holder of this agreement shall fully understand the Maintenance Procedures applicable to activities conducted at the facility leased under this agreement prior to conducting them and maintain copies of the Maintenance Procedures at the leased facility throughout the agreement duration. The applicable Maintenance Procedures are included as Exhibit ___ of this agreement.

Evaluation of activities subject to WMP requirements performed at the facility leased under this agreement will be conducted by the city to verify compliance with Maintenance Procedures, and may be required through lessor self-evaluation as determined by the city.

Example Contract Language for Field Programs

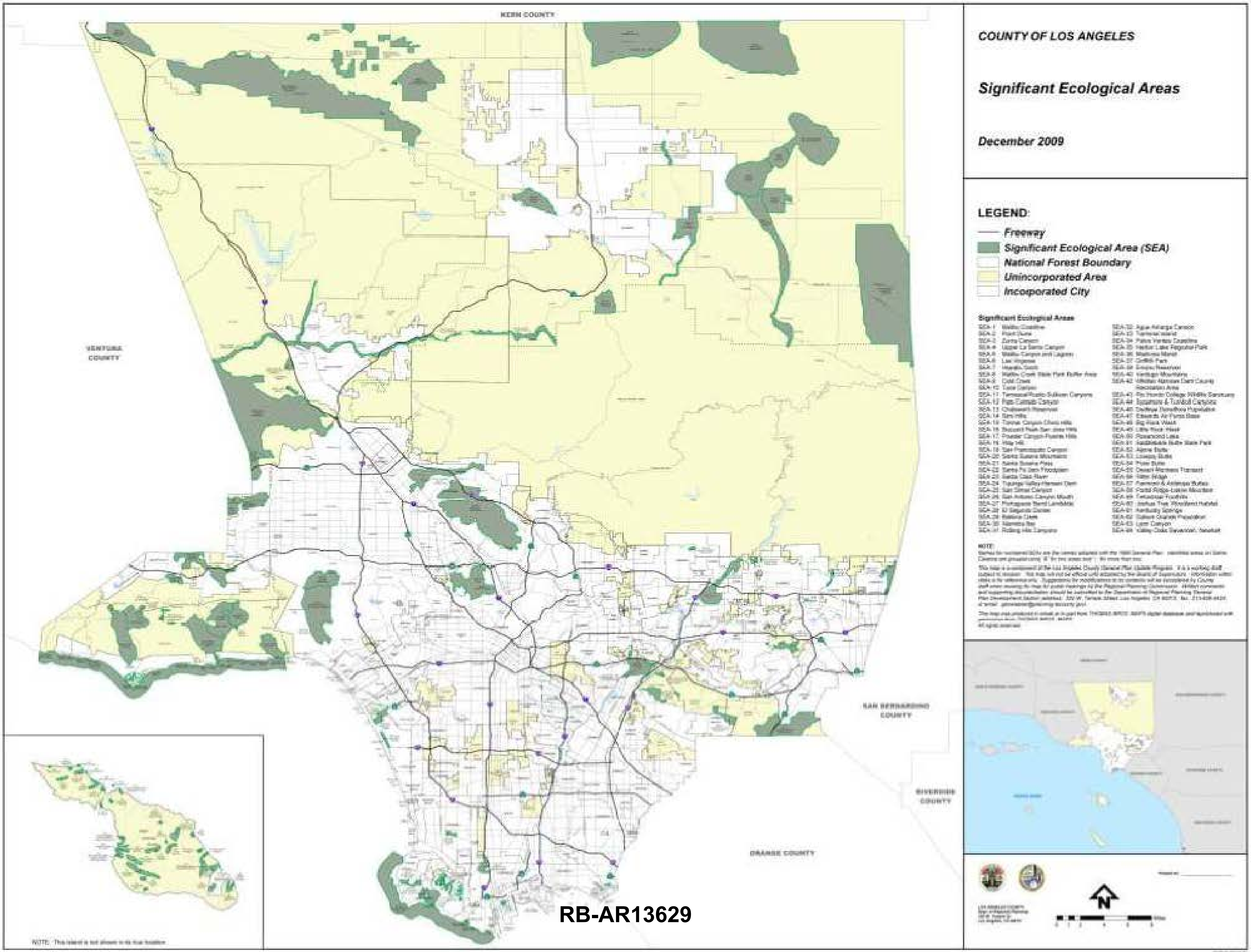
The following is example language that can be inserted into municipal field program contracts:

The Los Angeles Regional Water Quality Control Board (RWQCB) has issued permits which govern stormwater and non-stormwater discharges resulting from municipal activities performed by or for the Coastal Watersheds of Los Angeles County, including the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County with the exception of Long Beach (collectively referred to as Permittees). The RWQCB Permit is a National Pollutant Discharge Elimination System (NPDES) Permit No. R4-2023-0175. A Copy of the RWQCB Permit is available for review.

In order to comply with the Permit requirements, the Permittees have developed a Watershed Management Program (WMP) which contains Public Agency Facilities and Activities Maintenance Procedures (Maintenance Procedures) with Best Management Practices (BMPs) adopted from the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (Caltrans Handbook) that parties leasing municipally owned properties must adhere to. These Maintenance Procedures contain pollution prevention and source control techniques to minimize the impact of those activities upon dry-weather urban runoff, stormwater runoff, and receiving water quality.

Work performed under this CONTRACT shall conform to the RWQCB NPDES Permit, the WMP, and the CalTrans Handbook, and must be performed as described within all applicable Maintenance Procedures. The CONTRACTOR shall fully understand the Maintenance Procedures applicable to activities that are being conducted under this CONTRACT prior to conducting them and maintain copies of the Maintenance Procedures throughout the CONTRACT duration. The applicable Model Maintenance Procedures are included as Exhibit ___ of this CONTRACT.

Evaluation of activities subject to WMP requirements performed under this CONTRACT will be conducted to verify compliance with the Maintenance Procedures, and may be required through CONTRACTOR self-evaluation as determined by the city.



KERN COUNTY
VENTURA COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
ORANGE COUNTY
COUNTY OF LOS ANGELES
Significant Ecological Areas
December 2009
LEGEND:
Freeway
Significant Ecological Area (SEA)
National Forest Boundary
Unincorporated Area
Incorporated City
Significant Ecological Areas
NOTE:

RB-AR13629

2014

Integrated Pest Management Program

Developed for the City of

____

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INTEGRATED PEST MANAGEMENT (IPM) PROGRAM IMPLEMENTATION GUIDELINES[1] FOR THE CITY OF _______________

General IPM Policy

For the past few decades, the trend in pest management has been to increasingly rely on synthetic chemical pesticides. This management strategy results in the increased use of dangerous chemicals, an increase in the number of pests that can become resistant to the pesticides, as well as lead to new organisms becoming pests. Additionally, some pesticides used for terrestrial pest management have been found in waterways causing problems in the aquatic environment.

Pest control managers are now moving away from their reliance on pesticides and toward an integrated approach that combines limited pesticide use with more environmentally friendly pest control techniques. This system is known as integrated pest management (IPM), a strategy that focuses on the long-term prevention of pests through a combination of techniques, including preventative, cultural, mechanical, environmental, biological, and chemical control tactics (**Figure 1**). Multiple IPM techniques can be utilized simultaneously to control pest populations in the most effective manner possible.

A comprehensive IPM Program and Approach allows for primary focus on pollution prevention by monitoring and preventing pests as well as minimizing heavy pest infestations, which reduces the need for chemicals and/or multiple applications. The goal of the IPM Program is not to eliminate all pests, but to keep their populations at tolerable levels. In an IPM program, pesticides should be applied only when it is determined that pests are approaching damaging levels. Because this requires early detection of the pests, IPM programs utilize monitoring techniques and economic thresholds to determine when to implement control strategies. If possible, a person should be trained and assigned to scout the sites on a regular basis. Pesticides may be part of an IPM program, but they should preferably be used only after pests exceed established thresholds and applied only to the affected area (in the case of disease prevention, some modifications may be allowed). In general, all pest control strategies should be those that are least disruptive to biological control organisms (natural enemies), least hazardous to humans and the environment (including non-target organisms), and have the best likelihood of long-term effectiveness.

[1]Adapted from the Orange County Drainage Area Management Plan Integrated Pest Management Policy Developed by the University of California, Division of Agriculture and Natural Resources

IPM practices are encouraged over the sole use of pesticides as the primary means of pest management (**Table 1**). As a part of their Municipal Activities Program, public agencies and their contractors evaluate the ability to use non-chemical IPM techniques before intensive use of pesticides. This IPM Program template outlines baseline IPM procedures that are required by the Los Angeles County Municipal Separate Storm System Permit (MS4 Permit)[2] along with additional optional IPM techniques that can be employed to implement an effective IPM program.

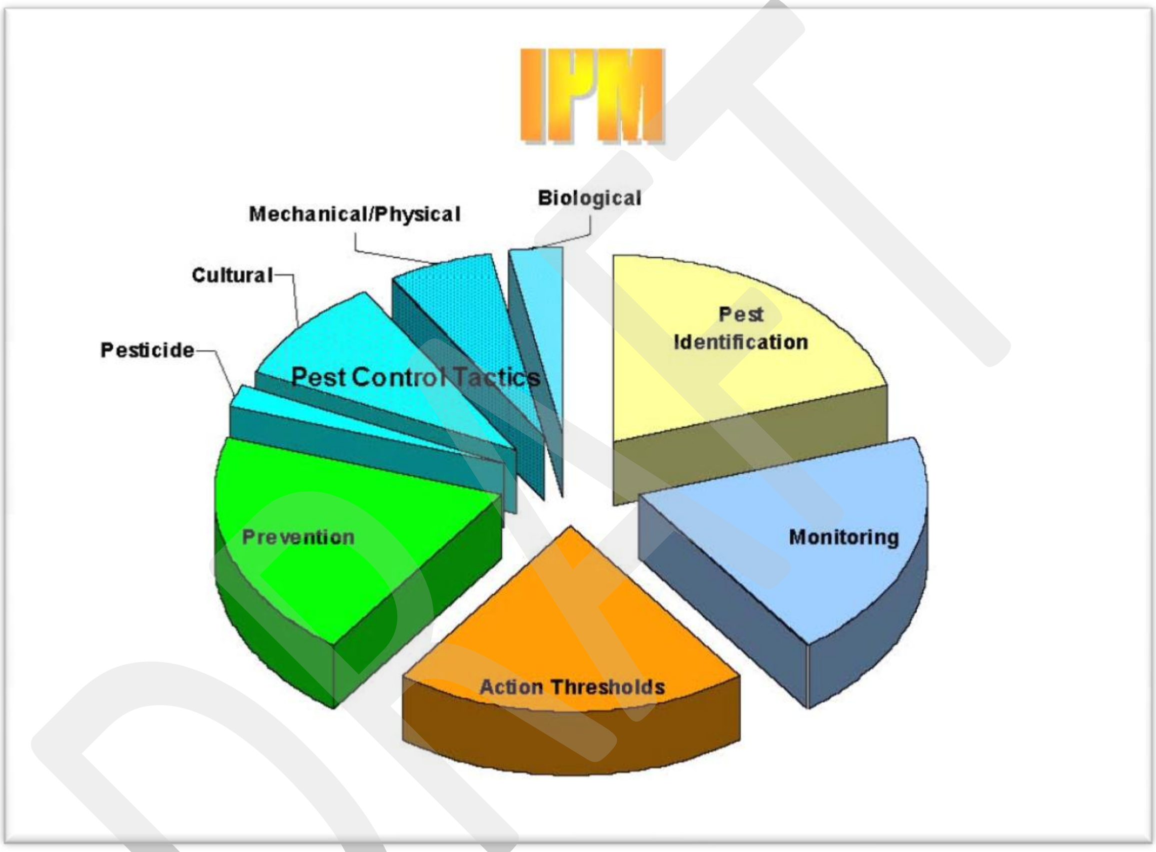

Figure 1 Components of an Integrated Pest Management Program

[2]California Regional Water Quality Control Board Los Angeles Region. 2012. Order No. R4-2012-0175 NPDES Permit No. CAS004001 Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4.

Table 1 Advantages and Disadvantages of a Pesticide-Based Program Versus An IPM-Based Pest Control Program

Pesticide Based Pest Control		IPM Based Pest Control	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
Quick suppression of pests	Not long-term	Long-term control	It may take longer to see results
	Pest control is reactive	Can be proactive in pest control actions.	Must establish thresholds
	Loss of natural controls. Often get outbreaks of other pests	Reduces disruption of natural enemies	
		Pesticides can be used (only used as a last resort)	Must have knowledge of pesticides and their effects on other organisms.
Labor is only for spraying	Extra work in cleanup	Staff becomes more knowledgeable of pests and injury symptoms	Labor is required for monitoring and regular scouting Training is required to identify pests and natural enemies
Not much preparation or follow-up needed	Need a PCA recommendation	Pest management is more organized	Must maintain a record-keeping system.
	Pesticide safety issues for applicators, public, animals More pesticides in environment Contamination of water bodies from runoff	Less exposure to pesticides Safer to the environment Reduces contamination from runoff	

Implementation Guidelines

Enter Designated IPM Coordinator or IPM Contact Information in Box Below:

IPM Coordinator: Contact Info:

Personnel responsible for the care and maintenance of facilities under the City of ______ agree to implement a suite of basic integrated pest management procedures to meet MS4 Permit requirements[3]. The fundamental basis for the IPM program must include the following as outlined in Permit Part VI.D.9.g:

1. **Pesticides are to be used if monitoring indicates they are needed, and pesticides are applied according to applicable permits and established guidelines.**
2. **Treatments are made with the goal of removing only the target organism.**
3. **Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial non-target organisms, and the environment.**
4. **The use of pesticides, including Organophosphates and Pyrethroids, does not threaten water quality.**
5. **Partnerships with other agencies and organizations are established to encourage the use of IPM.**
6. **A standardized protocol is to be used for the routine and non-routine application of pesticides (including pre-emergents), and fertilizers.**
7. **There is to be no application of pesticides or fertilizers (1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA34, (2) within 48 hours of a ½-inch rain event, or (3) when water is flowing off the area where the application is to occur. This requirement does not apply to the application of aquatic pesticides or pesticides which require water for activation.**
8. **No banned or unregistered pesticides are stored or applied.**
9. **All staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation, or are under the direct supervision of a pesticide applicator certified in the appropriate category.**
10. **Procedures to encourage the retention and planting of native vegetation to**

[3] In addition to MS4 Permit compliance, there are extensive federal and state laws and regulations that all public agencies must be in compliance with at all times, including the California Food and Agricultural Code (FAC) and the California Code of Regulations, Title 3 (3CCR).

reduce water, pesticide and fertilizer needs are implemented; and

11. **Pesticides and fertilizers are stored indoors or under cover on paved surfaces, or use secondary containment.**
    a. **The use, storage, and handling of hazardous materials are reduced to decrease the potential for spills.**
    b. **Storage areas are regularly inspected.**

In order to implement the above required minimum practices, the following section describes components of an effective IPM Program that can be employed:

- Pest and Symptom Identification
- Prevention
- Monitoring
- Injury Levels and Action Thresholds
- Pest Control Tactics

A number of useful IPM techniques are outlined under each component and further described in Appendix A. These techniques are known to be effective and methods can be selected from each component as necessary to achieve the IPM goals and meet MS4 Permit requirements.

Additional information on the latest IPM techniques including management of new pests in the landscape can be obtained from local UC Cooperative Extension Advisors, UC IPM Regional Advisor, or the Statewide UC IPM Web Site at www.ipm.ucdavis.edu.

Components of an Effective IPM Program

An IPM program is a long-term, multi-faceted system to manage pests (**Figure 1**). Use of pesticides is a short-term solution to pest problems, and should be used only when the other components fail to maintain the pests or their damage below an acceptable level. Successful IPM practitioners are knowledgeable about the biology of the plants and pests, and successful IPM programs primarily use combinations of cultural practices as well as a combination of physical, mechanical and biological controls.

Pest Identification

It is important to learn to identify all stages of common pests at each site. For example, if you can identify weed seedlings, you can control them before they become larger and more difficult to control and before they flower, disseminating seeds throughout the site. It is also important to be sure that a pest is actually causing the problem. Often damage such as wilting is attributed to root disease but may actually be caused by under watering or wind damage. Appendix A lists specific techniques that can be employed to identify pests.

Prevention

Good pest prevention practices are critical to any IPM program, and can be very effective in reducing pest incidence. Numerous practices can be used to prevent pest incidence and reduce pest population buildup such as the use of resistant varieties, good sanitary practices and proper plant culture. Examples of prevention include choosing an appropriate location for planting, making sure the root system is able to grow adequately and selecting plants that are compatible with the site's environment. Appendix A lists specific techniques that can be employed to achieve pest prevention.

Monitoring

The basis of an effective IPM Program is the development and use of a regular monitoring or scouting program. Monitoring involves examining plants and surrounding areas for pests, examining tools such as sticky traps for insect pests and quantitatively or qualitatively measuring the pest population size or injury. This information can be used to determine if pest populations are increasing, decreasing, or staying the same and to determine when to use a control tactic. Weather and other environmental conditions may also play a factor in whether a pest outbreak may occur so it is important to monitor temperature and soil moisture as well.

It is important to use a systematic approach when monitoring, for example you should examine leaves of a similar age each time you check for pests, rather than looking at the older leaves on some plants and younger ones on others. Randomly looking at a plant and its leaves does not allow you to track changes in pest population or damage over time.

It is important to establish and maintain a record-keeping system to evaluate and improve your IPM program. Records should include information such as date of examination, pests found, size and extent of the infestation, location of the infestation, control options utilized, effectiveness of the control options, labor and material costs. Appendix A lists specific techniques that can be employed to in the monitoring of pests.

Injury Levels and Action Thresholds

In order to have a way to determine when a control measure should be taken, injury levels and action thresholds must be set for each pest. An injury level is the level of unacceptable damage. For example, the injury level for a leaf-feeding beetle may be set at 30% of the leaves being damaged. Action thresholds are the set of conditions required to trigger a control action. An example of this would be finding an average of 5 or more beetles on 10 shrubs in a location. Action thresholds are set from previous experience or published recommendations and based on expected injury levels. Injury levels are often set by the public's comments. Appendix A lists specific techniques that can be employed to determine injury levels and action thresholds.

Pest Control Tactics

Integrated pest management programs use a variety of pest control tactics in a compatible manner that minimizes adverse effects to the environment. A combination of several control tactics is usually more effective in minimizing pest damage than any single control method. The type of control that an agency selects will likely vary on a case-by-case basis due to the varying site conditions.

The primary pest control tactics to choose from include:

- Cultural
- Mechanical/Physical
- Biological
- Pesticide

Appendix A lists specific pest control techniques that can be employed.

Cultural Controls

Cultural controls are modifications of normal plant care activities that reduce or prevent pests. In addition to those methods used in the pest preventions, other cultural control methods include adjusting the frequency and amount of irrigation, fertilization, and mowing height. For example, spider mite infestations are worse on water-stressed plants, over-fertilization may cause succulent growth which then encourages aphids, too low of a mowing height may thin turf and allow weeds to become established.

Mechanical/Physical Controls

Mechanical control tactics involve the use of manual labor and machinery to reduce or

eliminate pest problems using methods such as handpicking, physical barriers, or machinery to reduce pest abundance indirectly. Examples include hand-pulling or hoeing and applying mulch to control weeds, using trap boards for snails and slugs, and use of traps for gophers.

The use of physical manipulations that indirectly control or prevent pests by altering temperature, light, and humidity can be effective in controlling pests. Although in outdoor situations these tactics are difficult to use for most pests, they can be effective in controlling birds and mammals if their habitat can be modified such that they do not choose to live or roost in the area. Examples include removing garbage in a timely manner and using netting or wire to prevent bird from roosting.

Biological Controls

Biological control practices use living organisms to reduce pest populations. These organisms are often also referred to as beneficials, natural enemies or biocontrols. They act to keep pest populations low enough to prevent significant economic damage. Biocontrols include pathogens, parasites, predators, competitive species, and antagonistic organisms. Beneficial organisms can occur naturally or can be purchased and released.

The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.

- Predators are organisms that eat their prey (e.g. Ladybugs).
- Parasites spend part or all of their life cycle associated with their host. Common parasites lay their eggs in or on their host and then the eggs hatch, the larvae feed on the host, killing it (e.g. Tiny stingless wasps for aphids and whiteflies).
- Pathogens are microscopic organisms, such as bacteria, viruses, and fungi that cause diseases in pest insects, mites, nematodes, or weeds (e.g. Bacillus thuringiensis or BT).
- Herbivores are insects or animals that feed on plants. These are effective for weed control. Biocontrols for weeds eat seeds, leaves, or tunnel into plant stems (e.g. goats and some seed and stem borers).

In order to conserve naturally occurring beneficials, broad-spectrum pesticides should be avoided since the use of these types of pesticides may result in secondary pest outbreak due to the mortality of natural enemies that may be keeping other pests under control (Figure 2).

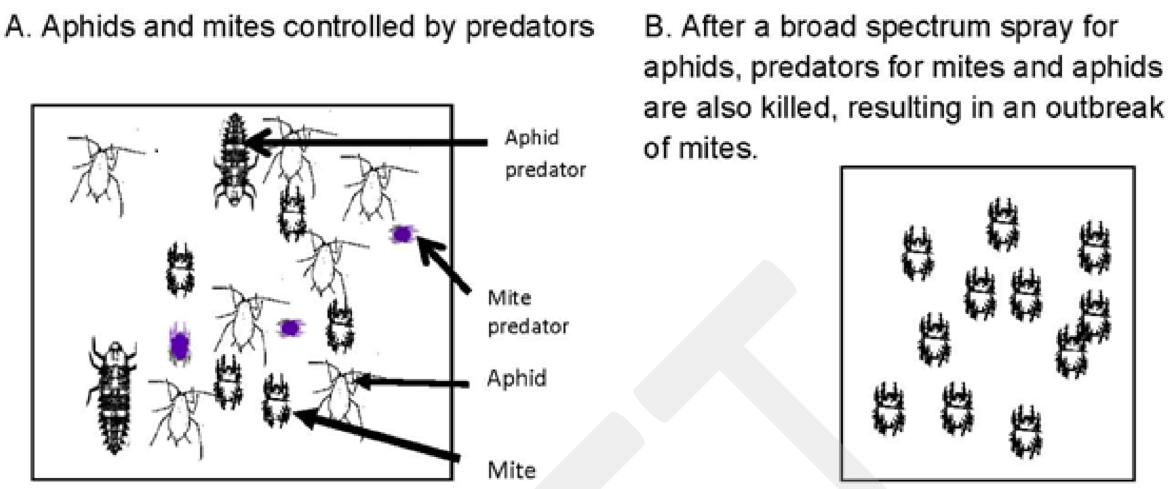

Figure 2 Example of Secondary Pest Outbreak Caused By Use of a Broad Spectrum Insecticide

Pesticide Controls

Any substance used for defoliating plants, regulating plant growth or preventing, destroying, repelling or mitigating any pest, is a pesticide. Insecticides, miticides, herbicides, fungicides, rodenticides and molluscides are all pesticides. Anything with an EPA or DPR registration number on the label is a non-exempt pesticide.

Pesticides should only be used when other methods fail to provide adequate control of pests and just before pest populations cause unacceptable damage. The overuse of pesticides can cause beneficial organisms to be killed and pest resistance to develop. When pesticides must be used, considerations should be made for how to use them most successfully. Avoid pesticides that are broad-spectrum and relatively persistent since these are the ones that can cause the most environmental damage and increase the likelihood of pesticide resistance. Always choose the most specific but least toxic to non-target organisms method.

In addition, considerations should be given to the proximity to water bodies, irrigation schedules, weather (rain or wind), etc. that are secondary factors that may result in the pesticide being moved off-site into the environment. Consideration should be made of the temporary loss of use of an area (application in a park may result in the area being sectioned off).

Appendix A: Optional IPM Techniques to Integrate into IPM Program

The following practices are generally accepted to be effective IPM techniques. These procedures increase the long-term prevention and suppression of pest problems (insects, weeds, diseases, and vertebrates) with the minimum impact on human health, the environment, and non-target organisms. Emphasis is placed on improving cultural practices to prevent problems and utilize alternative control measures instead of broad spectrum pesticides. The following IPM techniques are divided into the following categories:

- General Pesticide Management Practices
- Pest and Symptom Identification
- Prevention
- Monitoring
- Injury Levels and Action Thresholds
- Pest Control Tactics

GENERAL PESTICIDE MANAGEMENT PRACTICES

- Maintain a complete inventory of all pesticides used and the use sites. This inventory should be updated annually.
- If pesticides are necessary, CAUTION-labeled pesticides should be considered before more toxic alternatives.
- Ensure that no banned or unregulated pesticides are stored or applied.
- Restricted use pesticides should only be used when no other alternatives are practical.
- Only small quantities of pesticides should be purchased eliminating the need for stockpiling.
- MSDSs should be regularly updated to reflect new pesticides or label changes to pesticides in storage.
- Pesticides should be used only according to label instructions.
- Weather conditions that could affect application should be considered. For example, wind conditions affect spray drift; rain may wash pesticide off of leaves.
- Pesticides should not be applied where there is a high chance of movement into water bodies; for example, they should not be applied near wetlands, streams, lakes, ponds or storm drains unless it is for an approved maintenance activity.
- In most cases, empty pesticide containers should be triple-rinsed before disposal. Particular information on the proper disposal of the pesticide and its container can be found on the label.

- Pesticide equipment and containers should not be cleaned or rinsed in the vicinity of storm drains or other open water areas.
- Pesticides should be stored in covered areas with cement floors and in areas insulated from temperature extremes.
- Chemicals and equipment should be secured during transportation to prevent tipping or excess jarring.
- Pesticides should be transported completely isolated from people, food and clothing, for example, in the bed of the truck rather than in the passenger compartment.
- Pesticide equipment, storage containers and transportation vehicles should be inspected frequently.
- A plan for dealing with pesticide spills and accidents should be developed.
- Unless their safety is compromised, workers should immediately clean up any chemical spills according to label instructions and notify the appropriate supervisors and agencies.
- Pesticide applications on public property, which take place on school grounds, parks, or other public rights-of-way where public exposure is possible, should be posted with warning signs. The specific criteria for the signage can be found in FAC, section 12978. Pesticide applications by the Department of Transportation on public highway rights-of-way are exempt.

PEST AND SYMPTOM IDENTIFICATION

Insects, Mites, and Snails and Slugs

- Field personnel should be trained to recognize basic pests found in the landscape in the following groups: insects, mites, and mollusks.
- A licensed Pest Control Adviser can be on staff or hired to properly identify a pest and the symptoms caused by the pest.
- Field personnel can be trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.
- Field personnel can be trained to distinguish between beneficial insects and actual pests found in the landscape (e.g. parasitizing wasps).
- Unknown samples can be submitted to the Orange County Agricultural Commissioner for identification by the county entomologist or plant pathologist.
- Abiotic or nonliving factors (wind, sunburn, air pollution, etc…) should be considered as possible causes of observed symptoms as well as biotic (living) factors.

Weeds

- Field personnel can be trained to identify common weeds in the landscape.
- Field personnel can be trained to utilize weed life cycles to properly control

weeds such as controlling crabgrass utilizing a pre-emergent herbicide applied in mid-January.
- A licensed Pest Control Adviser can be on staff or contracted to properly identify the pest.

Diseases

- Field personnel can be trained to recognize common diseases or their signs/symptoms in the landscape.
- Field personnel can be trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.
- Field personnel can be trained to recognize the difference between biotic and abiotic problems.
- Field personnel can be trained to understand how common diseases are spread throughout the landscape.
- Disease signs and symptoms can be sampled and submitted to the Orange County Agricultural Commissioner for identification by the county plant pathologist.
- A licensed Pest Control Adviser can be on staff or contracted to properly identify the pest.
- Photographs of disease signs and symptoms can be taken and compared to reference guides such as UC IPM's *Pests of Landscape Trees and Shrubs*.

Vertebrates

- Field personnel can be trained to recognize vertebrate pests and the damage they cause in the landscape.
- Field personnel can be trained to utilize vertebrate behavior to properly control the pest most effectively.
- Field personnel can be trained in vertebrate baiting and trapping.
- A licensed Pest Control Adviser can be on staff or contracted to properly identify vertebrate pest.

PREVENTION

Landscape Design Procedures

- Drainage, soil characteristics, water quality and availability should be considered during plant selection.
- Sun exposure, heat, and high temperature conditions should be considered during plant selection.
- Plant material should be selected based on adaptability to local climate conditions, such as those conditions common to a Mediterranean climate.
- Adequate space should be allowed for root growth, especially trees.

- Nursery stock should be inspected and rejected if not healthy (injuries, diseased, circling roots/potbound, poor staking and/or pruning).
- Pest resistant species and cultivars should be selected.
- Plants with similar growth characteristics and irrigation requirements should be grouped together.
- Landscape design should match available irrigation technology to avoid excess water use and to minimize surface runoff.

Site Preparation and Planting Procedures

- Soil drainage properties can be assessed and compacted soils improved prior to planting.
- A soil analysis can be conducted to determine the chemical and physical properties of the existing soil and then appropriate amendments such as organic matter can be added.
- Irrigation should be installed as designed in order to avoid poor uniformity once plants are in place.
- Proper planting procedures should be followed for particular plant species to avoid planting too deeply or too shallow.
- Nursery tree stakes can be removed at planting and replaced with staking that allows trunk to flex; removing these stakes after 1 to 1.5 years.
- A soil probe or other soil moisture measurement device can be utilized to monitor soil moisture levels in existing root ball and surrounding soil during establishment period.

Water Management

- Plants should be examined weekly for symptoms of water stress and to assist in determining irrigation scheduling.
- Soil moisture can be monitored with a soil probe or soil moisture sensors to assist in scheduling irrigation.
- Evapotranspiration (ET) data or 'smart' clock technology can be utilized to schedule irrigation.
- Cyclic irrigation (short-multiple run times) can be employed to minimize surface runoff.
- Low precipitation sprinklers or low-volume systems can be utilized to reduce surface runoff.
- Systems should be inspected monthly to check for leaks, broken pipes, and clogged or broken sprinkler heads.
- Adjust sprinklers to avoid application of water directly to the trunk of trees (can promote disease) or on to concrete surfaces where it can enter storm drains.
- A hotline, email, or other dedicated method can be established for citizens to

report leaks and broken sprinkler heads

Fertilizing Procedures

- To avoid nutrient losses below the root zone, fertilize only when plants are actively growing.
- Fertilizer should not be applied within 48 hours of a rain event to avoid losses below the root zone and in surface runoff.
- Soil analyses can be conducted in order to determine existing nutrient levels in the soil prior to fertilizing.
- Turf grass fertilizer maintenance schedules can be based on UC recommendations found online at UC Guide for Healthy Lawns: http://www.ipm.ucdavis.edu/TOOLS/TURF/MAINTAIN/fertilize.html
- Sports turf grass fertilizer maintenance guidelines can be based on UC recommendations found in *Establishing and Maintaining the Natural Turf Athletic Field (UCR ANR Publication Number: 21617)*.
- Overfertilization, especially of trees and shrubs, should be avoided to ensure plant growth is not excessively succulent making it more susceptible to pest infestations.
- Off-target fertilizer applications or spills should be cleaned up immediately by sweeping up and applying to landscape or turf or replacing in spreader or bag to ensure material does not enter storm drains.

Pruning Procedures

- Damaged or diseased wood should be regularly pruned from landscape plants.
- Trees should be pruned according to standards set forth by a professional tree care organization such as the International Society of Arboriculture.
- Plants too large for a space should be replaced instead of pruning them severely.
- Unnecessary pruning should be avoided as wounds are entry sites for decay and disease organisms.
- The age and species of the plant should be taken into account when determining the time of year to prune. For example, eucalyptus should be pruned in December and January when long-horned beetles are not active.
- Tree height reduction should be discouraged. When deemed necessary by a licensed arborist, the crown reduction method approved by a professional tree care organization should be utilized. Topping should not be done to reduce tree size.

MONITORING FOR PESTS AND PROBLEMS

Insect/Mollusk Monitoring Procedures

- Monthly visual inspections of plants for insects, mites, snail and slug damage,

and recording results is an effective method for tracking changes and easy recall of data.

- Yellow sticky traps can be utilized to assess populations of insects.
- Insects can be dislodged from plants by shaking over a collection surface usually consisting of a clipboard with a white sheet of paper.
- If available for a particular insect, pheromone-baited traps can be utilized.
- Soil-dwelling turf insects can be brought to the surface for monitoring by flushing a specific area of soil (i.e. 2′ x 2′ grid) with plain water or a soapy water mixture.
- The amount of honeydew (aphids) and frass (caterpillars) present can be utilized as an indicator of population levels.

Weed Monitoring Procedures

- Landscapes can be inspected at least 4 times a year (early winter, early spring, summer and early fall) for weeds in order to determine if and when a weed problem exists.
- Site surveys can be utilized to record the location, date, and severity of weed problem for an effective method of tracking changes and easy recall of data.
    - The number of weeds encountered at periodic intervals (e.g. every 1 to 2 feet) can be counted and recorded along a straight line transecting a landscaped, area or within a selected area, for example 4 sq. ft. samples done in random places in a bed or turf area.

Disease Monitoring Procedures

- Landscapes should be regularly checked for conditions, such as overwatering and injuries, which promote disease.
- Landscapes should checked monthly for disease symptoms and signs. Disease prone plants should be checked more frequently.
- Landscape inspections should note date when disease signs and symptoms were first noticed and the current environmental conditions and soil moisture levels as an effective method of tracking changes and easy recall of data.

Vertebrate Monitoring Procedures

- Landscapes can be regularly inspected for vertebrate presence either by damage caused by animal, actual animal sightings, and/or droppings.
- Records can be kept of the absence or presence of actual vertebrates, the damage caused, and/or the presence or absence of droppings.
- Maps can be created and updated at least twice a year, recording areas of high vertebrate damage or signs (such as gopher mounds).

INJURY LEVELS AND ACTION THRESHOLDS

Insect/Mollusk Thresholds and Guidelines

- Insect tolerance levels can be established based on the public's acceptance of damage to the landscape or a certain level of nuisance pests (i.e. ants), the actual plant species in the landscape, and long-term monitoring and knowledge of pests causing the damage.
- Thresholds can be based on levels where reasonable control of the pest can be achieved with minimum impact on the environment.
- Insect monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of aphids on a rose garden at City Hall is low, while in a native shrub border it might be considerably higher.

Weed Thresholds and Guidelines

- Weed tolerance levels can be established based on public safety or the public's acceptance and the resources available to manage the landscape at that level.
- Weed monitoring records can be utilized to rank the percentage of the landscape area infested (none, light, moderate, heavy, or very heavy) with weeds.
- Public areas can be ranked according to high, medium, or low level of weed control and management conducted according to levels set for each rank (see Appendix B)

Disease Thresholds and Guidelines

- Disease tolerance levels can be established based on the public's acceptance and the resources available to manage the landscape at the level required.
- Disease monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of powdery mildew on roses at City Hall is much lower than the threshold for its presence on Euonymus in a parking lot at a city sports park.

Vertebrate Thresholds and Guidelines

- Vertebrate tolerance levels can be established based on public safety, the public's acceptance and the resources available to manage the landscape at the level required.
- Vertebrate monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of gopher mounds in a sport field is zero, while in a native shrub border it might be two before a trapping strategy is implemented.

PEST CONTROL TACTICS

Insect/Mollusk Management Methods

Cultural/Mechanical/Physical Control Methods

- Sticky barriers can be applied to trunks of trees and large shrubs to prevent ants and other wingless invertebrates from plant canopies.
- Small insect infestations can be removed by pruning infested plant parts.
- Copper bands can be installed around base of trees or planting areas where snail and slug infestations are prevalent.
- Plant canopies can be thinned to increase light penetration to expose certain soft-bodied insects (soft-scale) as well as snails and slugs to heat.
- Strong streams of water can be used to dislodge insects such as aphids and whiteflies, from leaves.
- The use of plants that snails and slugs use for shelter should be avoided.
- Avoid irrigating between 5pm and 5am when moisture remains on plant material for several hours.

Biological Control Methods

- Persistent broad-spectrum pesticides should be avoided, especially if biological control of an insect has been established by UC researchers. Examples include parasitoid wasps controlling Eugenia Psyllids, Giant Whitefly, and Ash Whitefly.
- Natural predators (beneficial insects) can be augmented with purchases of additional predators from commercially available resources.

Pesticide Control Methods

- The most selective, rather than broad-spectrum, pesticide should be used.
- If available for controlling a particular insect, biological and botanical pesticides should be selected.
- Insecticidal soaps can be utilized to control infestations of soft-bodied insects such as aphids, thrips, and immature scales.
- Horticultural oils (neem oil and narrow-range refined oils) can be utilized to control infestations of soft-bodied immature and adult insects such as aphids, scales, and whiteflies.
- Pesticides should only utilized when the potential for impacts to the environment, especially water quality, are minimized.
- Equipment should be calibrated prior to the application of the insecticide to avoid excess material being applied to the landscape environment.
- Applicators should be trained to not apply pesticides to hard surfaces and to not allow any pesticide to enter the storm drain system.
- Spot treatments should be utilized rather than broadcast methods.
- Insecticide/fertilizer combinations should only used if it is appropriate timing for BOTH the insecticide application and the fertilizer application.

Weed Management Methods

Cultural, Mechanical, and Physical Control Methods

- Timers can be set to avoid overwatering as weeds establish in areas where soil moisture is excessive.
- Drainage can be managed to avoid wet areas.
- Weeds can be removed from a site prior to planting.
- Mower height can be adjusted to turf species and time of year.
- Mower should be washed after mowing a weedy site.
- Hand-pulling, mowing, trimmers/brushcutters, flaming, hoeing, and rototilling around landscape plants should be the main methods utilized to control annual weeds and young perennial weeds.
- Soil solarization can be utilized to control some annual and perennial weed species.
- Bare soil areas can be covered with a thick layer of mulch to suppress weeds and conserve soil moisture.
- Soil, mulch, and plant material should be weed-free before it is introduced into the landscape.

Pesticide Control Methods

- Spot treatments can be utilized rather than broadcast methods.
- Herbicide/fertilizer combinations should only used if it is appropriate timing for BOTH the herbicide application and the fertilizer application.
- Herbicides should be utilized according to established thresholds (see Appendix B).
- Organically acceptable herbicides (shown to be effective through science-based research) should be used where appropriate.
- Herbicides can be applied to the stage of weed growth most susceptible to the chemical.
- Equipment should be calibrated prior to the application of the herbicide to avoid excess material being applied to the landscape environment.

Disease Management Methods

Cultural, Mechanical, and Physical Control Methods

- Localized areas of diseased plants should be pruned out and disposed of.
- Pathogen-infested plant parts can be removed from the soil surface area to reduce certain pathogens (e.g. Camellia Petal Blight).
- Pruning tools can be sterilized (e.g. a diluted bleach solution) between plants to prevent the spread of pathogen to other plants.
- Proper irrigation and fertilization can be maintained to prevent plant stress, waterlogging, and subsequent susceptibility to disease.
- Soil solarization can be utilized to control soil pathogens in annual beds where it

is most effective.

- Mulch can be kept at least 6” from base of plants to avoid excessive moisture around crown possibly resulting in crown rots and is no deeper than 4”
- Disease-prone plants can be replaced with non-susceptible species.

Pesticide Control Methods

- Preventative fungicides and bactericides should only used where diseases can be predicted from environmental conditions and applied prior to infection or the appearance of symptoms.
- Synthetic fungicides should be used sparingly in the landscape and only in high visibility areas in order to minimize development of resistance.
- Organic fungicides and bactericides should be utilized in combination with cultural, mechanical, and physical control methods in order to improve their effectiveness.
- Copper-based fungicides should only be utilized in situations where its entry into surface runoff and storm drains is virtually impossible and after consultation with PCA and IPM coordinator.
- Mycopesticides, commercially available beneficial microorganisms, should be used where appropriate.
- Fungicides classes can be rotated to avoid resistance.

Vertebrate Management Methods

Cultural and Physical Control Methods

- Groundcovers can be maintained such that they do not harbor rats.
    - Shrubs pruned at least 1 foot from the ground (rats).
    - Sources of drinking water removed (leaky faucets, puddles).
    - Trash cans have lids and are emptied daily (rats).
    - Screens or other barriers installed under structures that have a space between soil and floor (rabbits).
- Habitat modification, based on pest biology can be used to reduce shelter. Trapping can be used for gophers when safe and practical.
- Kill traps used for ground squirrels and rabbits, should be checked daily, and put in places not accessible by children or non-target animals.
- Gas cartridges can be used for ground squirrels according to UC recommendations.

Pesticide Control Methods

- Anti-coagulant baits can be used and applied according to label and UC recommendations.
- Bait should be applied in a manner that non-target animals do not have access to

it.

- Restricted use pesticides should only be applied by or under the direct supervision of an individual with a qualified applicators certificate (QAC). To receive a QAC, a person must take a test administered by Department of Pesticide Regulation (DPR). To obtain test materials, test schedules, and an application, see http://www.cdpr.ca.gov/docs/license/liccert.htm.

Appendix B

Ranking public areas for weeds (or other pest) management:

Areas ranked as **HIGH** may include areas that the public sees and expects to be well-maintained. Examples are entrances to public buildings such as city hall and libraries.

These areas are allowed to use pesticides based on established thresholds.

Areas ranked as **MEDIUM** may include areas the public sees but does not expect a high level of maintenance. Examples are landscaped areas away from the entrance, recreational and picnic areas. These areas can tolerate a higher lever of weeds.

These areas are allowed to use pesticides but the threshold is much higher and pesticides are used infrequently and only after consultation with IPM coordinator.

Areas ranked as **LOW** may include areas the public rarely sees or does not expect a high level of maintenance. Examples are medians, landscaped areas in parking lots, wildlands. These areas can tolerate a higher lever of weeds.

These areas are not allowed to use pesticides except in extreme cases and only after consultation with IPM coordinator.

Insert City Seal

Example Catch Basin Cleaning Log

Catch Basin Cleaning Log			
Date	Location	Number of Catch Basins Cleaned	Total Amount Removed
Notes:			

Example of Completed Catch Basin Cleaning Log

Catch Basin Cleaning Log			
Date	Location	Number of Catch Basins Cleaned	Total Amount Removed
7/1/13	Street #1	20	55 cu. ft.
	Intersection #1	10	
	Street #2	5	
Notes:			

Drainage Inlet/Catch Basin Information		
Location		
Street:	Cross Street:	Side (N,S,E,W)
Distance:	Direction (N,S,E,W):	Inlet #:
Map #:	Grid:	
Condition		
Length of Opening:	Height of Opening:	Stencil Legible (Y/N):
Bicycle Bars (Y/N):	Grate Size:	Inlet Protection Bar (Y/N):
Treatment Control BMP (Y/N):	Type of BMP:	
Repairs Required:		

Illicit Connection Investigations Guidance

Field Screening Techniques

If evidence of an illicit discharge is detected, as described in Section 2, and the source does not appear to be evident or above ground, investigations will be conducted to determine if the discharge is being conveyed through an illicit connection. A good source of information includes *Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems* (EPA/600/R-92/238.1993, Pitt et al). General guidance follows below. These techniques can also be used if a Permittee elects to survey sections of their system for illicit connections.

Document Research

Maps of drainage facilities can be reviewed to locate upstream connections and drainage basins as an initial step to locate potential illicit connections. Other records, such as connection permits and discharge permits, can also be reviewed to determine if legal connections may be the source.

Physical Inspections

Catch basins, manholes and other facilities that can be safely investigated from the surface should be physically checked for evidence of connections. This may be a hard pipe connection, or could be a hose or other conveyance that directs a discharge into the storm drain facility. Identification of connections that exhibit evidence of suspected illicit discharges during routine site inspection (e.g., industrial, commercial or construction). Investigation is conducted to determine if the discharge is being conveyed through an illicit connection when evidence of illicit discharge is detected, and the source does not appear to be evident or above ground.

Facilities that are large enough for personnel to enter can also be physically inspected, however, entry into facilities requires strict adherence to health and safety procedures, including confined space entry procedures. In general, a space is “confined” if it is not intended for human occupancy, has limited openings for entry or exit, and has insufficient natural or mechanical ventilation. Information on safety procedures can be found in many documents, including the *Occupational Safety and Health Guidance Manual*, National Institute for Occupational Safety and Health; *OSHA Safety and Health Standards 29 CFR 1910 (General Industry)*, US Department of Labor, and *Title 8 of the California Code of Regulations, General Industry Safety Order*.

Dye Tests

Dye tests can reveal illicit connections in areas where storm drain flows are unexplained and the Permittee has access to suspect facilities. Typical dye tests consist of the addition of fluorescent dye to a floor drain or waste line from a domestic, commercial or industrial process, followed by monitoring for the dye in downstream storm drains. Permittees should conduct dye testing facility by facility (in each area where unexplained flow exists) until all facilities in the area are tested.

Smoke Tests

Smoke tests can reveal if illicit connections exist, and can reveal their source. Storm drains are sealed via sandbags or other sealing devices (plugs, etc.) and smoking incendiary devices are ignited upstream of the seal. Simultaneous inspections inside area facilities should reveal illicit connections even in the

absence of flow. As illicit discharges are intermittent, smoke tests offer real advantages over other types of illicit discharge source identification methods. However, as many legitimate connections to a storm drain may exist (roof drains, street drains, etc.) smoke may be observed extensively. This may cause some illicit connections to be missed, and create a problem with area businesses and residents as excessive smoke begins to enter private property.

T.V. Inspections

T.V. inspections can reveal if illicit connections exist, but cannot be used to view up the connection to determine the source. Robotized or otherwise mobile television cameras allow visual inspection of storm drains (pipes) too small or dangerous for personnel to enter. Although an excellent method of identifying and documenting illicit connections, T.V. inspections have high costs unless the equipment is already owned or can be borrowed from neighboring agencies.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Illicit Discharge Investigation and Elimination Guidance

Introduction

Once illicit discharges/disposal are detected and identified, they must be eliminated. Sometimes the source of the spill or discharge/disposal is apparent. The incident can be removed through voluntary cleanup/termination or enforcement procedures, and steps can be taken to prevent its recurrence. These prevention methods can include education and outreach materials for residents and businesses, preventive maintenance practices for infrastructure, vehicles and equipment or additional enforcement.

When the source of the discharge is not apparent, further investigation will be necessary to eliminate it and prevent it from recurring. The following discusses methods that can be used to document the incident, determine the nature of the material, and investigate the source.

Advance Planning

An effective investigation program requires good advance planning. Sufficient staff should be trained to conduct investigations so that qualified staff are available whenever investigations are necessary. Staff should become familiar with illicit discharge investigation and sampling procedures. General guidance follows below to assist with overall planning, but should not be considered complete for proper sampling quality assurance purposes.

Equipment

Appropriate equipment for field investigations may include:

Table 1: Typical Equipment for Investigations

Equipment Type	Equipment
General	Inspection checklist
	Field data log book
	Camera
	Tape measure
	Storm drain system map
	Flashlight
Flow measurement	Ping pong ball or other light floatable
	Stopwatch
Laboratory	Graduated container
	Temperature/pH/conductivity (EC) probe
	Field test kits (e.g., Lamotte test kit)
	12 1-liter amber glass sample bottles
	12 1-liter HDPE sample bottles
	Cooler with ice for sample preservation
	Gloves
	Splash goggles/safety glasses
	Deionized water in wash bottle
First Aid	First aid kit

Data Collection

Before entering the field, the inspection crew should locate information such as the following on a storm drain/street map for areas that will be investigated:

- All known or suspected pollutant generating activities
- Locations of NPDES dischargers
- All locations where storm drains enter open channels
- Catch basins and storm drain manholes

Visual Observation

Visual observation of the storm drain system and/or of activities on the surface can provide information on the source of illicit discharges. It is the simplest method to begin with and the least costly. Evidence of illicit discharges may only consist of visual observations because most illicit discharges are intermittent and will probably not be flowing when inspected. A field inspection crew should investigate the surface drainage system in the vicinity of suspected illicit discharges. This may include accessible areas in the public right-of-way adjacent to residences and businesses, catch basins, open channels near known points of discharge, and upstream manholes.

Photos of visual observations should be taken to aid subsequent data analysis and follow up planning. The following types of visual observations should be recorded on an investigation checklist, such as the one attached:

- Location
- General site description
- Amount, appearance of discharge/disposal
- Stains
- Structural cracking and corrosion
- Vegetative growth
- Nearby facilities with poor outside housekeeping practices
- Pipes/hoses connected to/directed toward drainage system

If the source of the discharge is determined, appropriate methods should be used to eliminate it through voluntary cleanup/termination or enforcement procedures, and steps should be taken to prevent its recurrence.

Sampling and Testing

If flow is observed, and the source of the discharge is not apparent, the crew should collect a sample and measure flow. Several tests should be conducted to determine the nature of the material. This can be compared to records of local facilities and possible pollutant generating activities as an aid in determining the possible sources of the flow.

The sample should be measured for pH, temperature and conductivity (EC). If any of these parameters are abnormal, or strong odors or flow discoloration are detected, the sample should be analyzed. This can be done with a field test kit, which will detect the presence of copper, phenols, detergents, and chlorine. Findings should be recorded on the inspection checklist.

If visual observations are abnormal and/or the field tests detect high concentrations of any constituent, the crew should consider collecting samples for laboratory analysis. The laboratory can usually supply properly cleaned sample bottles and specify either amber glass or plastic (HDPE) bottles depending on the analyses required. If there is enough flow, the field crew should fill several of each type of bottle to obtain enough sample volume for a range of analyses. If there is a limited quantity or sampling is difficult, the field crew should collect as much sample as possible so that the laboratory can run a limited set of analyses. The samples should be placed in a cooler filled with ice and transported to the lab(s) on the same day. Arrangements should be made prior to the field inspection with an analytical laboratory capable of performing the required analyses.

The laboratory analyses run on each sample should be carefully considered. Given the potential high cost for laboratory work, it is prudent to limit the number of analytical parameters (or analytes) tested for each sample. Tests may be selected based on the findings of indicator analyses, visual observations, field tests, and information collected about the types of materials processed, stored and/or spilled within each drainage area.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Insert City Seal

ILLICIT CONNECTION/ ILLICIT DISCHARGE INVESTIGATION REPORT

Response Time:
☐ 1-6 hrs. ☐ 13 hrs. ☐ 24 hrs. ☐ 48 hrs.

RESPONSE

Date:	Time:	Inspector:

INVESTIGATION

Location/ Address:

Reason for Investigation: ☐ Complaint ☐ Discharge/Spill Response ☐ Visual Monitoring
☐ Other: ___________________________________

Type of Material: ☐ Hazardous ☐ Wastewater ☐ Oil/Grease ☐ Soil/ Sediment ☐ Trash ☐ Sewage
☐ Fuel (Gas/Diesel) ☐ Chemicals ☐ Other _________________________

Estimated Quantity: ☐ Gallons ☐ Lbs.

Entered Storm Drain System: ☐ Yes ☐ No
Storm Drain Location: ________________________

Entered Receiving Waters: ☐ Yes ☐ No
Name of Receiving Water: ___________________________

Observations

Field Testing: ☐ Yes ☐ No
Details:

Sample Collected: ☐ Yes ☐ No
Details:

Direct/ Constructed Connections Found: ☐ Yes ☐ No
Details:

RESPONSIBLE PARTY

Name:

Address:

Phone/ email:

Repeat Violation? ☐ Yes ☐ No

OUTREACH MATERIAL

Outreach Material Distributed: ☐ None ☐ General Information ☐ BMP Brochure ☐ Other ________________

ENFORCEMENT

Enforcement: ☐ None ☐ Written Warning ☐ Notice of Violation ☐ Citation/Infraction ☐ Cease and Desist Order

Other Actions

FOLLOW-UP VISIT

Date:	Time:	Inspector:

Discharge Stopped? ☐ Yes ☐ No

Proper Clean-Up Action Taken: ☐ Yes ☐ No

Further Action Required: ☐ Yes ☐ No
Details:

ILLICIT CONNECTION/ ILLICIT DISCHARGE REPORTING & RESPONSE

Insert City Seal

Received by:	
Date:	Time Received:

REPORTING PARTY

Name:	Anonymous: ☐ Yes ☐ No
Address:	Phone/email:

INCIDENT

Date:				Time:			
Location/ Address:							
Land Use:	☐ Residential	☐ Commercial	☐ Industrial	☐ Public			
Type of Material:	☐ Hazardous	☐ Wastewater	☐ Oil/Grease	☐ Sediment	☐ Trash	☐ Other ______________	☐ Unknown
Estimated Quantity:	☐ Gallons	☐ Lbs.					
Entered Storm Drain System/ Receiving Waters?	☐ Yes	☐ No					

Description / Details

Agencies Contacted:

☐ Office of Emergency Services ☐ HazMat Team ☐ LA County ☐ Regional Board ☐ Other

Source Investigation Conducted? ☐ Yes ☐ No	Source Identified? ☐ Yes ☐ No

Direct/ Constructed Connections Found? ☐ Yes ☐ No

ALLEGED RESPONSIBLE PARTY

Name:	
Address:	Phone/ email:
Vehicle License No:	

ACTION & CLOSURE

Referred to:	Date:
Department:	Phone/ email:

Actions Taken/ Details

Date Closed:

RB-AR13660

Spill Prevention Coordination

Procedures

This attachment discusses spill prevention coordination procedures that identify:

- Divisions or sections responsible for responding to reports of spills
- General and specific spill response procedures including responsible division or section
- Spill response training activities
- Activities conducted to improve spill response procedures and equipment

Divisions or Sections Responsible for Responding to Reports of Spills

Identify the divisions or sections responsible for responding to reports of spills and note divisions or sections that respond to specific types of spills such as hazardous materials spills or sewage spills. Also indicate the specific field staff who respond to spills and the level of support they provide to lead emergency response agencies and source of spill investigations.

General and Specific Spill Response Procedures

Describe or reference general spill response procedures involved in responding to complaints and identifying spills through inspections. Include the spill response process from the spill identification stage through clean up and report preparation. Copies of the forms and reports prepared to document spills should also be included. Specific procedures for hazardous materials spills, floods, and sewage spills should be referenced. Contractor support for spill events, if applicable, should also be noted.

Spill Response Training Activities

Provide an overview of all spill response training that is conducted within the various divisions and sections of the agencies.

Activities to Improve Spill Response Procedures and Equipment

List all activities conducted within the implementing agency to improve spill response procedures and update equipment. Explain how improvements are identified, prioritized, and implemented. Include a schedule of how often spill response procedures and equipment are evaluate.

Spill Investigation, Containment and Cleanup

Investigation

Depending on the location of the spill and the type of material, the appropriate department/ agency should be notified. This may include:

- Storm drain maintenance, if the spill reaches the storm drain system
- Street and road maintenance, if the spill is in the public right-of-ways
- Sewer system maintenance, if the material is from the sewage system
- Industrial waste inspection, if the material is from industrial facilities
- Fire Departments/"first responders," if the material may be hazardous
- Contractors for hazardous materials, if the material is hazardous

These departments/agencies should determine the nature of the material and the extent of the spill. If any agency determines there is a chance that the spill involves hazardous materials, then the local Administering Agency will be notified. An example of spill investigation procedures is depicted in Figure D-1. Reporting procedures for hazardous substances are discussed further in Section 5 of this Illicit Connection/Illicit Discharge Elimination model program.

Containment and Cleanup

Once the nature and extent of the spill is determined, the appropriate departments and field superintendents will be notified to contain and clean up the spill. The three types of cleanup scenarios are (1) hazardous, (2) wastewater, and (3) other non-hazardous materials.

Hazardous

Handling procedures regarding releases of hazardous or potentially hazardous substances into the environment are covered in a number of federal and state regulations, including: Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); Superfund Amendments and Reauthorization Act (SARA); Resource Conservation and Recovery Act (RCRA); and multiple bills codified under Division 20 of the California Health and Safety Code. These procedures are well established and are practiced by local hazardous materials response teams - generally a local Fire Department.

Material determined to be hazardous will be contained by the appropriate hazardous material response team. The team will contact an approved contractor for cleanup. Details are contained in the local *Emergency Response Procedures* manual.

Wastewater

Field crews responding to a sewage spill or overflow should contain the spill to prevent entry of the sewage into the storm drain system or natural watercourse. This will involve a coordinated effort between the sewer, street, and storm drain maintenance crews.

To the maximum extent possible, sewage should be prevented from entering the storm drain system by covering or blocking storm drain inlets and catch basins or by containing or diverting the overflow away from open channels and other storm drain fixtures (using sandbags, inflatable dams, etc.).

In the event that raw sewage enters a storm drain catch basin, where possible the sewage should be vacuumed or pumped out of the catch basin. If a sewage overflow enters a storm drain channel, where possible the downstream channel area should be blocked, flushed with potable water and the captured water pumped to a nearby sewer manhole. Any time a sewage spill enters the storm drain system and has the potential to reach coastal waterways, the local agency and L.A. County Dept. of Health Services, Bureau of Environmental Protection must be notified (323) 881-4147.

Once the spill is contained, it should be removed and the area disinfected. Every effort should be made to ensure that the disinfectant is not discharged to the storm drain system, using methods such as those described above.

Other Non-hazardous Materials

Non-hazardous materials should generally be removed by appropriate crews with knowledge of or jurisdiction over the location of the spill, as indicated in Section D.1. Because the situations and materials will vary widely, procedures will vary as well.

All materials should be prevented from entering waterways to the maximum extent possible. Many materials in sufficient quantities can deplete the oxygen level in receiving waters, or smother benthic communities. Typical examples of these materials include landscape waste, milk, flour, and many other organic liquids and solids or fine powders. These materials should generally be removed by first collecting and/or sweeping up all solids and disposing them in a landfill or other approved location. Liquids should be diverted to an area away from waterways where they may be removed with a vacuum truck or can soak into the ground.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Watershed Management Program Appendix 3

A-3-2 Example Vacant Lot Ordinance

For the TSS Reduction Strategy

EXAMPLE VACANT LOT ORDINANCE

For the TSS Reduction Strategy (City of Whittier Municipal Code § 8.08.026)

8.08.026 VACANT LOTS

For the purpose of this section, a vacant lot shall mean any property which is either undeveloped or has an existing on-site building/structure that is either abandoned, vacant and/or is un-leased by the property owner for more than thirty days.

All vacant lots within the city (except those that do not immediately front onto a public street, are less than five feet wide in width or depth, are identified on the city's zoning map as "open space," are used as designated habitat conservation or for active agricultural production) shall be maintained in accordance with the following provisions of this section within thirty days of becoming vacant:

A. Unimproved Vacant Lot Types. Lots that are unimproved due to never having been developed or having become vacant subsequent to the removal of any pre-existing buildings, structures or impervious surfaces shall be subject to the approval of a vacant lot landscape and irrigation plan by the director of parks, recreation and community services and shall be improved and maintained at all times in accordance with the following provisions:

   1. Lots That Are Less Than One-Half Acre. For unimproved vacant lots that are less than one-half acre in size (21,780 square feet), the entire lot shall be improved and maintained in the following manner:

      a) The property owner shall landscape the entire lot using drought tolerate or xeriscape material that requires little to no water after the first three years of growth. Durable, high quality, synthetic turf may also be used as an alternative. The landscape material selected shall be reviewed and approved to the satisfaction of the director of parks, recreation and community services prior to installation, per Section 13.42.120 of the Whittier Municipal Code. The ground cover shall be maintained in good condition at all times.

      b) The lot shall be improved with an operable automatic irrigation system for the ground cover which shall be installed and maintained in good condition by the property owner at all times.

      c) The lot shall be maintained free of litter, weeds, graffiti, debris, including the stockpiling of any material, at all times. Any on-site litter, weeds, debris or stockpiling of material shall be immediately removed by the property owner, upon discovery. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals or take other steps to reasonably ensure that no litter, weeds, graffiti, debris or material stockpiling collects or is maintained on the lot.

d) Any dead or dying vegetation as well as any broken, malfunctioning or non-functioning irrigation components on the lot shall be replaced by the property owner within seventy-two hours of their discovery or notification. The property owner shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that there is no dead or dying vegetation nor any broken, malfunctioning or non-functioning irrigation components on the lot.

e) At the discretion of the director of parks, recreation and community services the standards contained in Section 8.08.026(A)(2) (Lots that are one-half acre or greater) may be applied to vacant lots that are one-half acre or less if deemed appropriate to mitigate any one or more of the following circumstances:

   i. To adequately secure the property from illegal dumping or other such illicit activities.
   ii. Because of public safety concerns or hazards associated with the property.
   iii. A declared state or regional drought.

2. Lots That Are One-Half Acre or Greater. For unimproved vacant lots that are one-half acre (21,780 square feet) or greater in size, the entire lot shall be improved and maintained in the following manner:

   a) The property owner shall provide a minimum five-foot wide landscape planter adjacent to all public rights-of-way (except those property lines located immediately adjacent to an alley) that abut their vacant lot.
   b) All landscape planters shall be improved with an operable automatic irrigation system. The landscape material selected shall consist of drought tolerate or xeriscape material that requires little to no water after the first three years of growth. Durable, high quality, synthetic turf may also be used as an alternative. The landscape material selected shall be reviewed and approved to the satisfaction of the director of parks, recreation and community services prior to installation, per Section 13.42.120 of the Whittier Municipal Code. The ground cover shall be maintained in good condition at all times.
   c) All on-site landscaping and irrigation shall be maintained in good condition at all times by the property owner of the lot. Any dead or dying landscaping shall be replaced by the property owner within seventy-two hours of their discovery or notification, including any broken, malfunctioning or non-functioning irrigation components. The property owner shall be responsible for inspecting the property at reasonable intervals or take other steps to reasonably ensure that all of the landscaping and irrigation on the lot is maintained in good condition and there are no broken, malfunctioning or non-functioning irrigation components on the lot.
   d) A six-foot high, view obscuring, decorative perimeter barrier shall be erected around the entire vacant lot, with a minimum five-foot wide perimeter

landscape planter in front of the fencing. In circumstances where the director of parks, recreation and community services finds that a higher perimeter barrier is warranted for adequate security of the site and/or because of unusual topographical circumstances associated with the vacant lot, the perimeter barrier may be constructed up to a maximum of eight feet high. All perimeter barriers shall include a gravel pathway leading to a security gate to provide accessibility to the interior of the lot for the police department or other emergency personnel. A key or security code for the gate shall be provided to the Whittier Police Department by the property owner upon installation and shall be kept up-to-date at all times.

e) All decorative, view obscuring, perimeter barriers shall consist of either painted wood, redwood, woodcrete, green vinyl chain-link fencing with a green windscreen securely attached (along the interior of the fence), or any other durable, aesthetically attractive, material deemed acceptable to the director of parks, recreation and community services. On corner or reversed corner lots, all fencing shall comply with Section 18.64.050 for visual safety.

f) All perimeter barriers shall be maintained in good condition at all times by the property owner. Any on-site graffiti shall be removed by the property owner within seventy-two hours of its discovery or notification. The property owner shall be responsible for inspecting the property at reasonable intervals.

B. Improved Vacant Lots. Vacant lots improved with existing on-site buildings or structures that are vacant, abandoned, or un-leased for thirty days or more (as determined by the director of parks) shall be maintained by the property owner as follows:

1. All existing on-site landscaping and irrigation shall be maintained in good condition at all times and in accordance with the provisions contained in Chapters 8.08, 8.22 and8.24 of this code, including any conditions of approval applied to the site as part of the approved vacant lot landscape and irrigation plan under Section 8.08.026(C).
2. Any dead or dying vegetation as well as any broken, malfunctioning or non-functioning irrigation components for the lot shall be replaced by the property owner within seventy-two hours of their discovery or notification. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that there is no dead or dying vegetation nor any broken, malfunctioning or non-functioning irrigation components on the lot.
3. The lot shall be maintained free of litter, weeds, and debris, including the stockpiling of any material, at all times. Any on-site litter, debris or stockpiling of material shall be immediately removed by the property owner, upon discovery or notification. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that no litter, weeds, graffiti, debris or material stockpiling collects or is maintained on the lot.

4. All on-site structures shall be maintained in good condition at all times. Damage to any on-site buildings or structures shall be abated within ten days by the property owner upon discovery. An alternative abatement period shall be required, if deemed necessary by the building official, to protect the public health, safety and welfare.
5. The lot shall be adequately secured at all times to prevent illegal dumping, criminal activity, vandalism, graffiti, on-site loitering by the homeless and any/all other attractive nuisances to the satisfaction of the director of parks, recreation and community services and the chief of police.

C. Vacant Lot Landscape and Irrigation Plan. Prior to the issuance of a demolition permit on any lot in which the construction of a new building, structure, parking lot, or impervious surface will not commence within thirty days after demolition, the property owner shall submit a vacant lot landscape and irrigation plan for review and approval of the director of parks, recreation and community services (with the appropriate plan check fees). The director of parks, recreation and community services may impose any reasonable conditions of approval on the vacant lot landscape and irrigation plan to ensure that the lot will be adequately maintained during the time that it is vacant. Upon approval of the plan, the landscape and irrigation improvements to the lot, as specified in the plan, shall be completed to the satisfaction of the director of parks, recreation and community services within thirty days after demolition. A reasonable extension of time may be granted by the director of parks, recreation and community services in those situations when the director, in his or her sole discretion, determines that a good faith effort is being made by the property owner to comply with the provisions of this section.

1. Appeal of Decision.
    a) The decision of the director of parks, recreation and community services to approve, conditionally approve or deny any vacant lot landscape and irrigation plan may be appealed in writing to the city manager within fifteen calendar days. The decision of the city manager shall be final, unless appealed in writing to the city council within fifteen calendar days of the city manager's decision. All decisions of the city council shall be final.
    b) At the sole discretion of the city council, the provisions contained within this ordinance may be made modified, as deemed appropriate, if a finding is made that the legal property owner has demonstrated an extreme financial hardship such as, but not limited to, the filing of bankruptcy, property tax default, their exists over six months of outstanding arrears to the monthly mortgage payment on the property, or any other extreme/unique hardship the city council believes is contrary to the purpose and intent of this ordinance.

D. View Obscuring Barriers and Fencing on Vacant Lots. There shall be no on-site fencing or view obscuring perimeter barriers that screen any vacant lot in any manner that obstructs vehicular and/or pedestrian visibility of the public right-of-way, or interferes with the public's use of the public right-of-way, as determined by the director of public works. The directors of public works and parks, recreation and community services shall approve the location and design of all vacant lot fencing and perimeter barriers prior to the construction of any such fencing or barriers on a vacant lot.

E. The director of parks, recreation and community services shall implement all applicable sections of Chapter 13.42 (Water Conservation in Landscaping), regardless of the size of the vacant lot, to ensure that the approved vacant lot landscape and irrigation plan conserves water to greatest extent possible, while preserving the health of the landscaping approved on the vacant lot.
F. Where a recorded easement on vacant lot exists, the director of parks, recreation and community services may require and/or permit the property owner to use an appropriate ground cover over the easement (i.e., gravel, turf block, paving or some other acceptable material) that would enable a vehicle to drive over the easement. Any impervious surface approved over an easement shall be subject to the prior written approval of the easement holder.
G. Implementation. All vacant lots, regardless of how they became vacant, that are existing at the time of the adoption of the ordinance shall be brought into immediate compliance with all applicable provisions of this section, unless currently landscaped and irrigated under a previously approved vacant lot and landscape and irrigation plan approved by the director of community development or director of parks, recreation and community services prior to the adoption of this current ordinance. A reasonable extension of time may be granted by the director of parks, recreation and community services in those situations when the director, at his or her sole discretion, determines that a good faith effort is being made by the property owner to comply with this section.
H. Noncompliance Declared Nuisance. Failure to comply with any of the applicable requirements in this section shall constitute a public nuisance, as designated in Section 8.08.030, and the city attorney or the district attorney may commence an action or proceeding for civil abatement, removal and enjoinment thereof, in the manner proscribed by law; and shall take other steps and apply to such courts as may have jurisdiction to grant such relief as well as abate or remove the nuisance, including abatement in accordance with the provisions of this chapter.

(Ord. 2906 § 1, 2008)

(Ord. No. 2928, § 1, 6-23-09; Ord. No. 2958, § 3, 10-12-10)

Watershed Management Program Appendix 3

A-3-3 Example Street Sweeping Municipal Code

For the TSS Reduction Strategy

EXAMPLE MUNICIPAL CODE LANGUAGE FOR PRIVATE PARKING LOT SWEEPING

For the TSS Reduction Program (City of Signal Hill Municipal Code § 12.16.060)

12.16.060 ILLICIT DISCHARGES

A. Except as otherwise permitted herein, all non-storm water discharges to the municipal storm drain system are prohibited.
B. No person shall cause, facilitate or permit any illicit discharge to the municipal storm drain system.
C. No person shall cause, facilitate or permit a discharge into an MS4 that causes or contributes to an exceedence of any water quality standard.
D. No person shall cause, facilitate or permit any discharge into an MS4 that causes or threatens to cause a condition of pollution, contamination, or nuisance (as defined in California Water Code § 13050).
E. No person shall cause, facilitate or permit any discharge into an MS4 containing pollutants which have not been reduced to the Maximum Extent Practicable.

Q. All owners and operators of industrial and/or commercial motor vehicle parking lots containing more than twenty-five parking spaces shall conduct regular sweeping and other similar measures to minimize the discharge of pollutants and other debris in the municipal storm drain system.

V. Any person who violates the terms of this section shall immediately commence all appropriate response action to investigate, assess, remove and/or remediate any pollutants discharged as a result of such violation, and shall reimburse the City or other appropriate governmental agency, for all costs incurred in investigating, assessing, monitoring and/or removing, cleaning up, treating or remediating any pollutants resulting from such violation, including all reasonable attorneys' fees and environmental and related consulting fees incurred in connection therewith.

(Ord. 2013-11-1462 § 1; Ord. 2003-02-1316 § 1; Ord. 2002-07-1304 § 2; Ord. 96-12-1215 § 1)

Reasonable Assurance Analysis for Lower Los Angeles River, Los Cerritos Creek, and Lower San Gabriel River

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1. Introduction

The Municipal Separate Storm Sewer System Permit (Permits) for Los Angeles County[1] and the City of Long Beach[2] includes optional provisions for a Watershed Management Program (WMP) that allows permittees the flexibility to customize their stormwater programs to achieve compliance with applicable receiving water limitations (RWLs) and water quality based effluent limitations (WQBELs) through implementation of control measures. A key element of each WMP is the Reasonable Assurance Analysis (RAA), which is used to demonstrate "that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term" (NPDES Permit Order No. R4-2012-0175, Section C.5.b.iv.[5], page 64; NPDES Permit Order No. R4-2014-0024, Section C.5.h.vii.[2]). This report presents the Reasonable Assurance Analysis (RAA) for the Lower Los Angeles River (LLAR), Los Cerritos Channel (LCC), and Lower San Gabriel River (LSGR) WMPs.

While the Permits prescribe the RAA as a quantitative demonstration that control measures (best management practices [BMPs]) will be effective, the RAA also promotes a modeling process to identify and prioritize potential control measures to be implemented by the WMP. In other words, the RAA not only demonstrates the cumulative effectiveness of BMPs to be implemented, it also supports their *selection*. Furthermore, the RAA incorporates the applicable compliance dates and milestones for attainment of the WQBELs and RWLs, and therefore supports BMP scheduling.

On March 25, 2014, the Los Angeles Regional Water Quality Control Board (Regional Board) issued "RAA Guidelines" (LARWQCB 2014) to provide information and guidance to assist permittees in development of the RAA. The approach herein is consistent with the RAA Guidelines.

This report is organized in nine sections, as follows:

- Section 1: Introduction
- Section 2: Applicable Interim and Final Requirements
- Section 3: Modeling System to be used for the RAA
- Section 4: Current/Baseline Pollutant Loading
- Section 5: Estimated Required Pollutant Reductions
- Section 6: Determination of BMP Capacity for RAA
- Section 7: Cumulative Volume Reduction Goals to Achieve Required Reductions
- Section 8: Pollutant Reduction Plan
- Section 9: References

[1] National Pollutant Discharge Elimination System Permit Order No. R4-2012-0175

[2] National Pollutant Discharge Elimination System Permit Order No. R4-2014-0024

2. Applicable Interim and Final Requirements

The WMPs for LLAR, LCC, and LSGR follow the process in the Permits and identify the Water Quality Priorities (WQ Priorities) including the highest (Category 1) Water Quality Priorities which are subject to Total Maximum Daily Loads (TMDLs) and WQBELs. Practically all of these TMDLs include associated compliance schedules that are considered in this RAA. The TMDL and WMP milestones/compliance dates establish the pace at which BMPs must be implemented. Traditionally, the approach of TMDL implementation plans has been focused on *final* TMDL compliance, whereas the Permit compliance paths offered to WMPs increase emphasis on *milestones*. In line with the RAA Guidelines, for all final TMDL and TMDL/WMP milestones that occur in the next two Permit cycles, the combination of BMPs expected to result in attainment of the corresponding Permit limits are identified.

The TMDL milestones for the LLAR, LCC, and LSGR WMP areas are shown in Table 2-2 through Table 2-4. The Permits require each WMP to provide reasonable assurance for the TMDL milestones that occur in the current Permit term. If applicable TMDLs do not prescribe a milestone in the current Permits, a milestone must be established. The array of TMDLs creates a potentially complicated sequence based on multiple pollutants, and thus this RAA includes a limiting pollutant analysis. As described in Section 5, the identified limiting pollutant for wet weather is zinc for LLAR, LCC, and LSGR. As such, the wet weather milestones for the Los Angeles River, Los Cerritos Channel, and San Gabriel River Metals TMDLs establish the pace of stormwater BMP implementation. The wet weather milestones established for the current Permits include the following:

- **Lower Los Angeles River:** Achieve 31% of the required reduction by September 30, 2017. This milestone was created for the WMP, as the metals TMDL includes a 25% milestone in 2012 (prior to the current Permit term) and a 50% milestone in 2024 (beyond the current Permit term). Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.
- **Los Cerritos Channel:** Achieve 10% of the required reduction[3] by September 30, 2017. This milestone is directly from the metals TMDL. Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.
- **Lower San Gabriel River:** Achieve 10% of the required reduction by September 30, 2017. This milestone is directly from the metals TMDL. Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.

The pollutant reduction plan to achieve these milestones is described in Section 8, along with the plan to achieve the milestones for the next Permit term (achieve 35% of the required reduction in LCC and LSGR and achieve 50% of the required reduction in LLAR). A summary of the milestones within the current and next Permit terms and final milestone based on final TMDLs are summarized in Table 2-1. The required reductions that form the basis of the milestones are calculated in Section 5.

[3] The interim milestones are expressed in terms of the *required* reduction not total reduction (e.g., if the required reduction to attain final limits is 50%, then the 10% milestone equates to a 5% reduction). These reductions are calculated in Section 5.

Table 2-1. Summary of schedule for interim and final milestones

WMP Area	Milestone 1 (2017)	Milestone 2 (interim date of applicable metals TMDL)	Milestone 3 (final date of applicable metals TMDL)
LLAR	31%	50%	100%
LCC	10%	35%	100%
LSGR	10%	35%	100%

Table 2-2. Schedule of TMDL milestones for the Lower LA River

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term) [1]									
				2012	**2013**	**2014**	**2015**	**2016**	2020	2024	2028	2032	2037
LAR Nutrients	Ammonia-N, Nitrate-N, Nitrite-N, Nitrate-N+Nitrite-N	Meet WQBELs	All	Pre 2012									
				Final									
LAR Trash	Trash	% Reduction	All	9/30	9/30	9/30	9/30	9/30					
				70%	80%	**90%**	**96.70%**	**100%**					
LAR Metals	Copper, Lead	% of MS4 area Meets WQBELs	Dry	1/11					1/11	1/11			
				50%					75%	100%			
	Copper, Lead, Zinc, Cadmium	% of MS4 area Meets WQBELs	Wet	1/11						1/11	1/11		
				25%						50%	100%		
LA River Bacteria	*E. coli*	Meet WQBELs	Wet and Dry[2]										3/23
													Final
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28								3/23	
				Interim								Final	
Long Beach City Beaches and LAR Estuary Bacteria	Total Coliform, Fecal Coliform, Enterococcus	Meet WLAs	All	USEPA TMDLs, which do not contain interim milestones or implementation schedule. The Permits allow MS4 Permittees to propose a schedule in a WMP.									

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

[2] The schedule for attaining the dry weather Bacteria TMDL is not shown in Table 3-2, which is stepwise by reach/segment and depends on whether a Load Reduction Strategy is developed for implementation.

Table 2-3. Schedule of TMDL milestones for Los Cerritos Channel WMP

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term) [1]									
				2012	**2013**	**2014**	**2015**	**2016**	2017	2020	2023	2026	2032
Los Cerritos Channel Metals	Copper	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Dry						9/30	9/30			
									30%	70%	100%		
	Copper, Lead, Zinc	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Wet						9/30	9/30			
									10%	35%	70%	100%	
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28									3/23
				Interim									Final

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

Table 2-4. Schedule of TMDL milestones for the Lower San Gabriel River WMP

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term) [1]									
				2012	**2013**	**2014**	**2015**	**2016**	2017	2020	2023	2026	2032
San Gabriel River Metals	Copper, Selenium	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Dry						9/30	9/30			
									30%	70%	100%		
	Copper, Lead, Zinc	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Wet						9/30	9/30			
									10%	35%	70%	100%	
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28									3/23
				Interim									Final

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

3. Modeling System used for the RAA

The Watershed Management Modeling System (WMMS) was used to develop this RAA. WMMS is specified in the Permits as a potential tool to conduct the RAA. The Los Angeles County Flood Control District (LACFCD), through a joint effort with U.S. Environmental Protection Agency (USEPA), developed WMMS specifically to support informed decisions associated with managing stormwater. The ultimate goal of WMMS is to identify cost-effective water quality improvement projects through an integrated, watershed-based approach. The WMMS encompasses Los Angeles County's coastal watersheds of approximately 3,100 square miles, representing 2,566 subwatersheds (Figure 3-1). As described in the following subsections, WMMS is a modeling system that incorporates three tools: (1) the watershed model for prediction of long-term hydrology and pollutant loading, (2) a BMP model, and (3) a BMP optimization tool to support regional, cost-effective planning efforts. A version of WMMS is available for public download from LACFCD.

The version of WMMS to be used for the RAA in the LLAR, LLC, and LSGR WMPs is customized from the public download version, including the following modification/enhancements:

- Updates to meteorological records to represent the last 10 years (per the RAA Guidelines) and to allow for simulation of the design storm;
- Calibration adjustments to incorporate the most recent 10 years of water quality data collected at the nearby mass emission station;
- Application of a second-tier of BMP optimization using System for Urban Stormwater Treatment and Analysis INtegration (SUSTAIN), which replaces the Nonlinearity-Interval Mapping Scheme (NIMS) component of WMMS.
- Optimization of BMP effectiveness for removal of bacteria pollutants (rather than metals only); and
- Updates to Geographic Information System (GIS) layers, as available.

The subwatersheds in the LLAR, LLC, and LSGR WMP areas that are represented by WMMS are shown in Figure 3-2 through Figure 3-4, which include modifications to confine to jurisdictional boundaries included in these WMP areas. Also shown are the "RAA assessment points", which are used to calculate required load reductions (described in Section 5).

3.1. Watershed Model - LSPC

The watershed model included within WMMS is the Loading Simulation Program C++ (LSPC) (Shen et al. 2004; Tetra Tech and USEPA 2002; USEPA 2003). LSPC is a watershed modeling system for simulating watershed hydrology, erosion, and water quality processes, as well as in-stream transport processes. LSPC also integrates a geographic information system (GIS), comprehensive data storage and management capabilities, and a data analysis/post-processing system into a convenient PC-based Windows environment. The algorithms of LSPC are identical to a subset of those in the Hydrologic Simulation Program–FORTRAN (HSPF) model with selected additions, such as algorithms to dynamically address land use change over time. Another advantage of LSPC is that there is no inherent limit to the size and resolution of the model than can be developed, making it an attractive option for modeling the Los Angeles region watersheds. USEPA's Office of Research and Development (Athens, Georgia) first made LSPC available as a component of USEPA's National TMDL Toolbox (http://www.epa.gov/athens/wwqtsc/index.html). LSPC has been further enhanced with expanded capabilities since its original public release.

The WMMS development effort culminated in a comprehensive watershed model of the Los Angeles County Flood Control District that includes the unique hydrology and hydraulics of the system and characterization of water quality loading, fate, and transport for all the key TMDL constituents (LACDPW 2010a, 2010b). Since the original development of the WMMS LSPC model, Los Angeles County personnel have independently updated the model with meteorological data through April 2012.

To support the objectives of the WMPs, jurisdictional boundaries were also intersected with the WMMS LSPC model subwatersheds resulting in a finer resolution spatial unit for modeling. Model land use was then resampled using this subwatershed-jurisdiction intersect, properly distributing land use categories at the jurisdictional level for attributing sources, while maintaining hydrologic connectivity within the watershed model. This refinement introduced a new layer of resolution, facilitating the rollup of modeled results by jurisdiction to better support source attribution and implementation responsibilities among the participating entities.

Figure 3-1. WMMS model domain and represented land uses and slopes by subwatershed

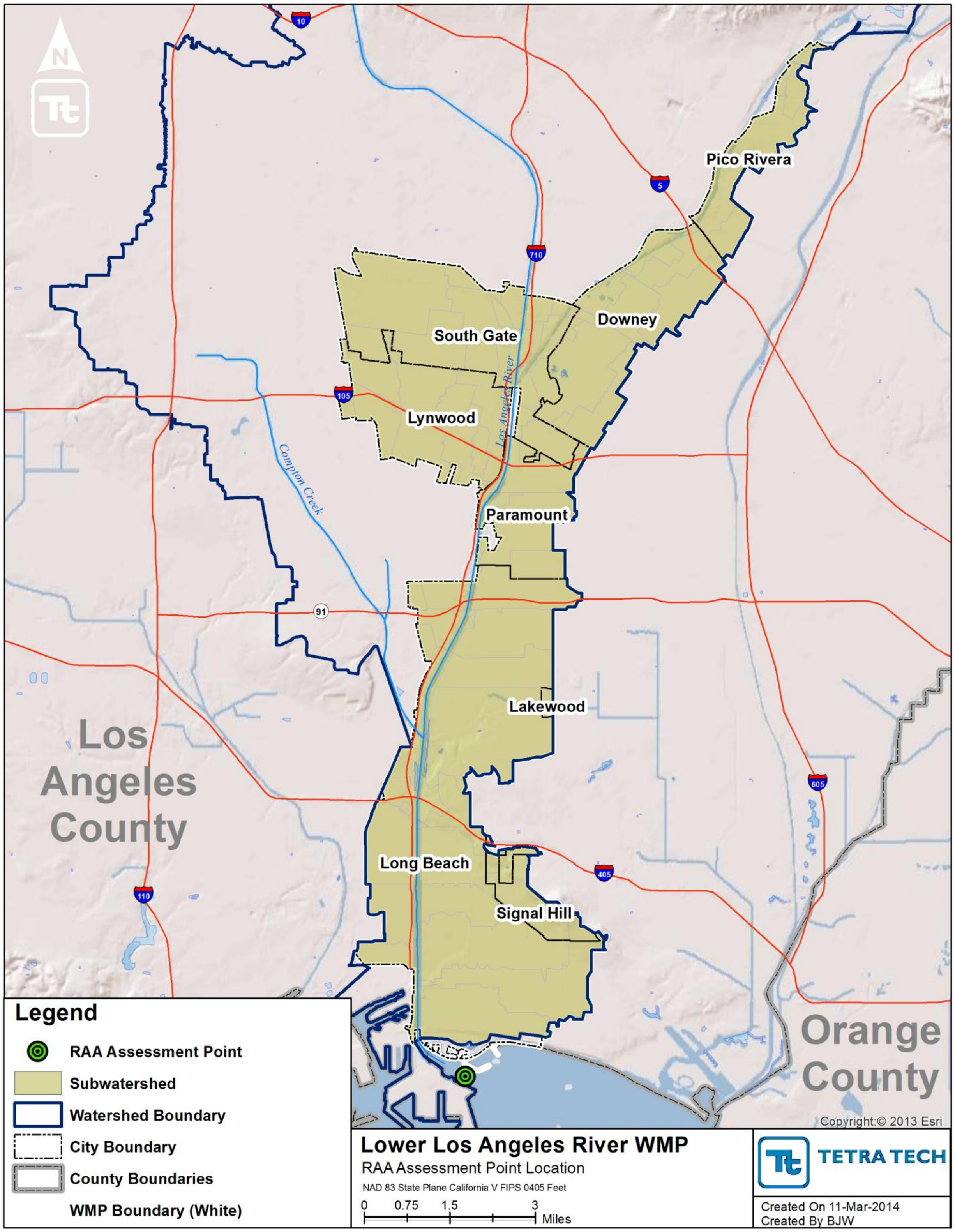

Figure 3-2. Lower LA River WMP Area subwatersheds represented by WMMS

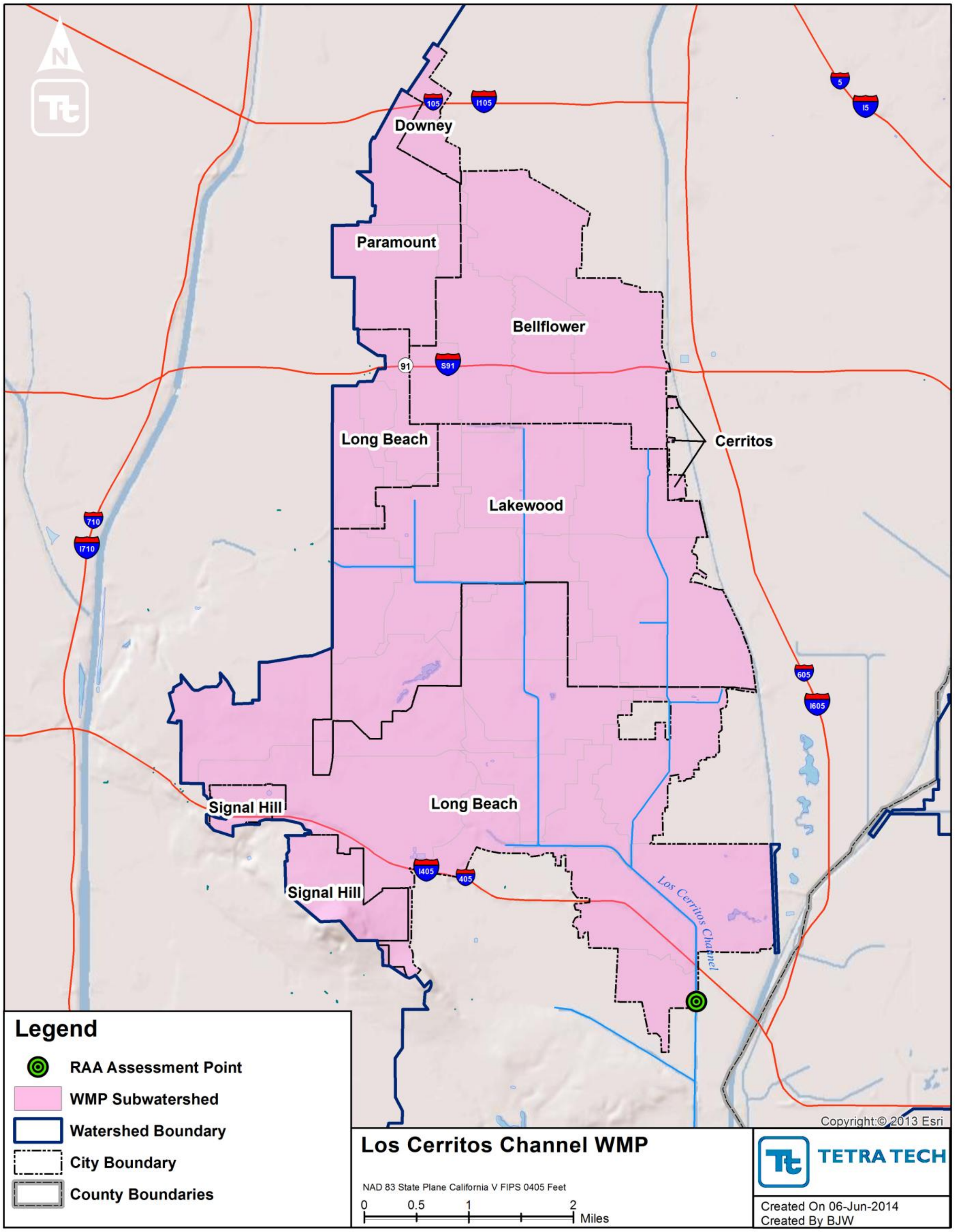

Figure 3-3. Los Cerritos WMP Area subwatersheds represented by WMMS

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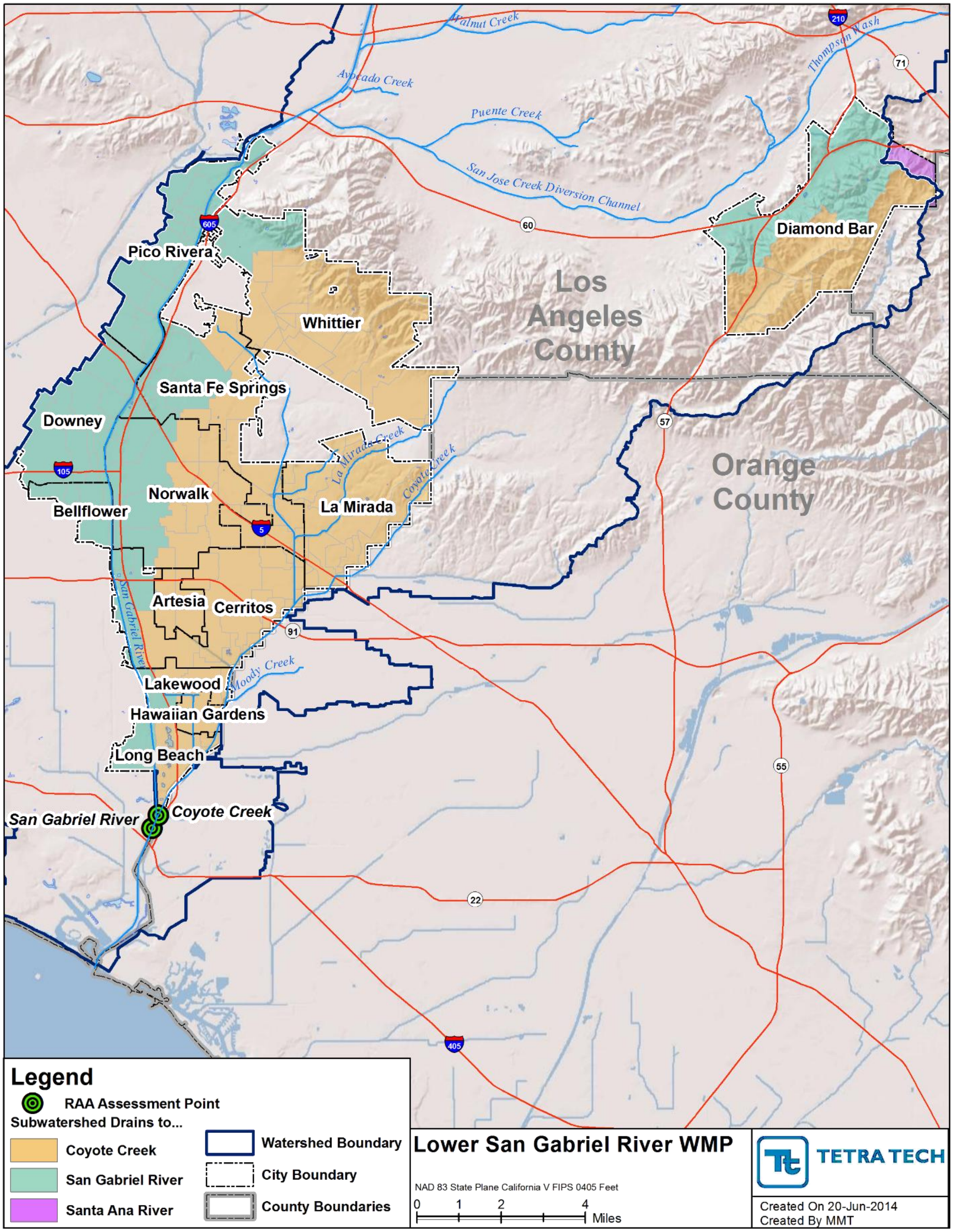

Figure 3-4. Lower San Gabriel River WMP Area subwatersheds represented by WMMS

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3.2. Small-Scale BMP Model – SUSTAIN

The System for Urban Stormwater Treatment and Analysis INtegration (SUSTAIN) was developed by USEPA to support practitioners in developing cost-effective management plans for municipal storm water programs and evaluating and selecting BMPs to achieve water resource goals (USEPA, 2009). It was specifically developed as a decision-support system for selection and placement of BMPs at strategic locations in urban watersheds. It includes a process-based continuous simulation BMP module for representing flow and pollutant transport routing through various types of structural BMPs. Users are given the option to select from various algorithms for certain processes (e.g., flow routing, infiltration, etc.) depending on available data, consistency with coupled modeling assumptions, and the level of detail required. Figure 2-3 shows images from the SUSTAIN model user interface and documentation depicting some of the available BMP simulation options in a watershed context.

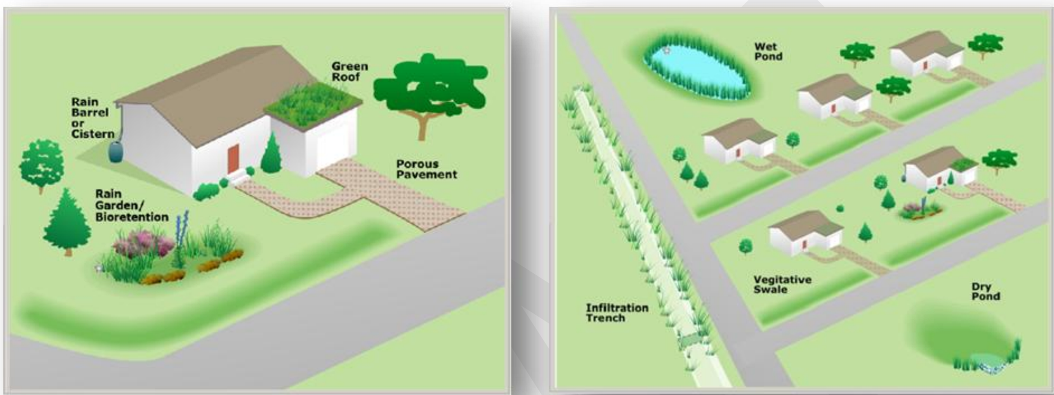

Figure 2-3. SUSTAIN model interface illustrating some available BMPs in watershed settings

SUSTAIN extends the capabilities and functionality of traditionally available models by providing integrated analysis of water quantity, quality, and *cost factors*. The SUSTAIN model in WMMS includes a cost database comprised of typical BMP component cost data from a number of published sources including BMPs constructed and maintained in Los Angeles County. SUSTAIN considers certain BMP properties as "decision variables," meaning that they are permitted to change within a given range during model simulation to support BMP selection and placement optimization. As BMP size changes, so do cost and performance. SUSTAIN runs iteratively to generate a cost-effectiveness curve comprised of optimized BMP combinations within the modeled study area (e.g., the model evaluates the optimal width and depth of certain BMPs to determine the most cost-effective configurations for planning purposes).

3.3. Large-Scale BMP Optimization Tool – NIMS/SUSTAIN

WMMS was specifically designed to dynamically evaluate effectiveness of BMPs implemented in subwatersheds for meeting downstream RWLs while maximizing cost-benefit. WMMS employs optimization based on an algorithm names Nonlinearity-Interval Mapping Scheme (NIMS) to navigate through the many potential scenarios of BMP strategies and identify the strategies that are the most cost effective (Zou et al. 2010). Given the relatively small spatial scale of the WMP area, NIMS was not applied for this study. Instead, a two-tiered approach was applied using the NSGA-II solution technique available in SUSTAIN. For Tier 1, treatment capacities were optimized for each contributing segment, which resulted in unique cost-effectiveness curves for each segment based on available opportunities therein. For Tier 2, the search space was composed of Tier 1 solutions, thereby streamlining the search process. The resulting Tier 2 curve represents the optimal large scale solution because it is comprised of optimized Tier 1 solutions. This approach is especially useful for prioritizing areas for management for scheduling implementation milestones as described in Section 8.

4. Current/Baseline Pollutant Loading

The LSPC model within WMMS was reconfigured and recalibrated specifically for the WMP areas to provide an estimate of current/existing pollutant loads from jurisdictions within the WMPs. Reconfiguration of model subwatersheds was performed to provide specific accounting of loadings from individual jurisdictions. Calibrations were performed to meet specifications of the RAA Guidelines (LARWQCB 2014).

4.1. Model Calibration to Existing Conditions

The LSPC watershed model was originally calibrated for hydrology using a regional approach relying on USGS observed daily streamflow datasets through Water Year (WY) 2006 (LACDPW 2010a). Water Quality was then calibrated using small-scale, land use level water quality monitoring data to develop representative event mean concentrations by land use (LACDPW 2010b). Model performance was also validated at the mass emissions monitoring stations in the context of a county-wide modeling effort. The calibration period for the original WMMS LSPC model began in 1996 and ended in 2006. For the RAA, an analysis was performed to evaluate performance of the LSPC model as it relates to the LLAR, LCC, and LSGR watersheds to understand and benchmark its applicability for use as a baseline condition. The evaluation of monitoring data was extended beyond the original WMMS-LSPC calibration to include the period from 10/1/2001 through 9/30/2011 incorporating both the average year (WY 2008) and 90th percentile (WY 2003) year.

Data available for the LACDPW water quality and hydrologic monitoring stations, S10 and F319 were used to reexamine simulated water quality and hydrology conditions in LA River. The two stations are co-located just south of the West Wardlow Road overpass and drain approximately 800 square miles, or nearly the entire LA River watershed. The monitoring stations were selected for comparison due to their location near the outlet of the LA River watershed, which encompasses the aggregate contributions of all upstream pollutant sources. The selected flow gage, F319, was also used to calibrate the WMMS LSPC model and, therefore, links the current and previous efforts. Water quality and hydrologic records for WYs 2003–2011 were compared to the simulated watershed model output to determine the necessary model parameter adjustments to establish an up-to-date model calibration. The locations of these two gages are presented in Figure 4-1. Statistical summaries and flow regime analysis of the water quality monitoring datasets from the Los Angeles River mass emission station S10 are presented in Attachment E.

Watershed model simulation of existing water quality conditions for the LCC watershed were evaluated for WYs 2003–2011 using data collected at the City of Long Beach Stearns Street monitoring location, just north of interstate 405. The water quality monitoring location is positioned at the WMP hydrologic outlet and captures the cumulative watershed loading effects impacting water quality conditions in this 27 square mile portion of the LCC watershed. No flow monitoring data are available in the watershed, thus simulated flow conditions could not be evaluated against observed data for LCC. The location of the water quality monitoring is presented in Figure 4-1 below and statistical summaries of the monitoring dataset are presented in Attachment E.

For the LSGR, hydrology was re-assessed at two monitoring locations using available data from WYs 2001-2011 The two monitoring locations selected include USGS 11087020 San Gabriel River at Whittier Narrows Dam CA and the LACDPW streamflow gage F354 located along Coyote Creek south of Spring Street (coincident with mass emission station S13). The USGS gage was selected for continuity with the development and calibration of the original WMMS LSPC modeling system. The primary monitoring location selected to calibrate water quality for LSGR was the LA County mass emission station S14. The San Gabriel River Monitoring Station is located below San Gabriel River Parkway in Pico Rivera. At this location the upstream tributary area is 450 square miles (LACDPW 2013). A second mass emission station, the Coyote Creek Monitoring Station (S13) located below Spring Street in the lower San Gabriel River watershed was also used to validate the water quality calibration. The locations of these two gages are presented below in Figure 4-1. Statistical summaries and flow regime analysis of the water quality monitoring datasets from the San Gabriel River and Coyote Creek mass emission stations S14 and S13 are presented in Attachment E.

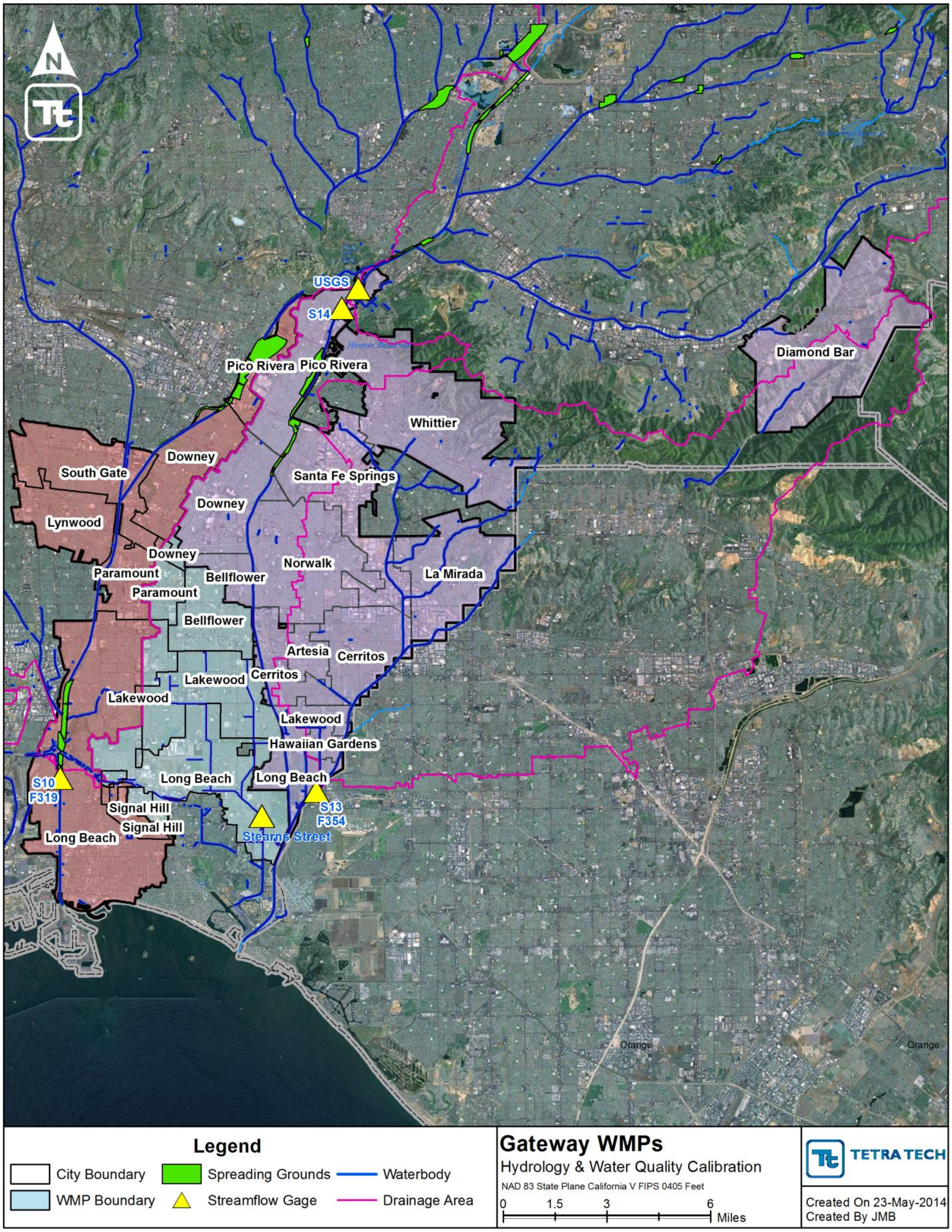

Figure 4-1. WMP groups hydrology and water quality calibration sites.

To demonstrate the ability to predict the effect of watershed processes and management actions, model calibration and validation are necessary and critical steps in any model application. Acceptable model calibration criteria for

benchmarking an RAA were developed by the Regional Board and are listed below in Table 4-1 (LARWQCB 2014). The objectives of establishing model assessment criteria are to ensure the calibrated model reflects all the model conditions and properly utilizes the available modeling parameters, thus yielding meaningful results. The lower bound of "Fair" level of agreement listed in Table 4-1 is considered a target tolerance for the model calibration process.

Table 4-1. Model assessment criteria from the RAA Guidelines

Constituent Group	Percent Difference Between Modeled and Observed		
	Very Good	Good	Fair
Hydrology / Flow	0 – 10	>10 – 15	>15 – 25
Sediment	0 – 20	>20 – 30	>30 – 40
Water Quality	0 – 15	>15 – 25	>25 – 35
Pesticides / Toxics	0 – 20	>20 – 30	>30 – 40

4.1.1. Hydrology Calibration

Table 4-2 and Table 4-3 present the hydrology calibration assessment for the Lower Los Angeles River and Lower San Gabriel River gages, respectively. Nash-Sutcliffe efficiency is a correlation coefficient commonly used in hydrological modeling to measure how well a model predicts temporal variation. A value of 1.0 means a perfect match between modeled and observed. A value of 0 means that the computed mean of observed data is as good a predictor as the model. A negative value means that the data-mean is a better predictor than the model. Because the Regional Board guidance only required annual average flow volume metric, evaluating Nash-Sutcliffe helped to demonstrate that the model also performed well at predicting *intra-annual* flow variablilty.

Table 4-2. Summary of model hydrology calibration performance for Lower Los Angeles River

Water Quality Parameter	Model Period	Hydrology Parameter	Modeled vs. Observed Volume (% Error)	Regional Board Guidance Assessment
In-stream flow at Los Angeles River below Wardlow Road (LA DPW F319)	10/1/2002 – 9/30/2011	Flow Volume	11.88	Good
		Nash-Sutcliffe	0.678	n/a

Table 4-3. Summary of model hydrology calibration performance for Lower San Gabriel River

Water Quality Parameter	Model Period	Hydrology Parameter	Modeled vs. Observed Volume (% Error)	Regional Board Guidance Assessment
In-stream flow at SAN GABRIEL R AB WHITTIER NARROWS DAM CA (USGS 1108702)	10/1/2001 – 9/30/2011	Flow Volume	-19.0	Fair
		Nash-Sutcliffe	0.74	n/a
Coyote Creek near Spring Street (LA DPW F354)	10/1/2003 – 9/30/2011	Flow Volume	4.9	Very Good
		Nash-Sutcliffe	0.61	n/a

4.1.2. Water Quality Calibration

Water quality calibration for the LLAR, LCC, and LSGR incorporated sampling from LA County mass emission stations at S10 (LA River), Strearns Street (LCC), and S13 and S14 along Coyote Creek and the San Gabriel River, respectively. The updated observed concentration data collected at these sites were used to refine the calibration and benchmark model performance. Daily observed loads were calculated by multiplying observed concentration and daily observed flow. Daily loads were estimated for LCC using simulated flows due to the lack of observed data. The percent error between this daily observed load and the daily modeled load was then calculated for each constituent. The results of this evaluation at the two gages are presented in Table 4-4 through Table 4-7.

Table 4-4. Summary of model performance by constituent at the Los Angeles River (S10) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	91	-6.8	Very Good
Total Copper	58	-3.4	Very Good
Total Zinc	58	-18.1	Good
Total Lead	52	-0.1	Very Good
Fecal Coliform	57	-5.1	Very Good
Total Nitrogen	58	-4.0	Very Good
Total Phosphorous	57	6.9	Very Good

Table 4-5. Summary of model performance by constituent at Los Cerritos Channel (Stearns St.) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	85	2.7	Very Good
Total Copper	57	-2.1	Very Good
Total Zinc	56	1.5	Very Good
Total Lead	57	2.2	Very Good
Fecal Coliform	55	1.0	Very Good
Total Nitrogen	56	17.5	Good
Total Phosphorous	56	-0.4	Very Good

Table 4-6. Summary of model performance by constituent at the San Gabriel River (S14) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	45	8.57	Very Good
Total Copper	42	-9	Very Good
Total Zinc	44	16.1	Very Good
Total Lead	44	-3.97	Very Good
Fecal Coliform	43	1.85	Very Good
Total Nitrogen	*Not evaluated at this location*		
Total Phosphorous	44	-2.27	Very Good

Table 4-7. Summary of model performance by constituent at the Coyote Creek (S13) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	42	1.28	Very Good
Total Copper	27	-28.9	Fair
Total Zinc	27	-32.44	Fair
Total Lead	25	-1.58	Very Good
Fecal Coliform	24	-34.48	Fair
Total Nitrogen	*Not evaluated at this location*		
Total Phosphorous			

Two fecal coliform samples were removed from the observed dataset at the San Gabriel River S14 mass emission station prior to performing the load calculation. These two samples appear to be outliers in the dataset with concentration values 10-100x greater than the remaining samples. These observations occurred on 10/17/2005 and 10/13/2009.

For pollutants not explicitly represented in the WMMS LSPC model, and for dry weather analysis, 90th percentile concentrations were calculated based on observed monitoring data at the LACDPW mass emission sites. The 90th percentile concentration was used for compliance with the Regional Board RAA guidelines (LARWQCB 2014). A summary of the 90th percentile concentrations for each constituent and waterbody are presented below in Table 4-8. For subsequent load reduction analyses, these concentrations were assumed for all wet or dry weather conditions they were assigned to represent existing conditions within their respective watersheds.

Table 4-8. 90th percentile concentrations assumed for non-modeled pollutants

Waterbody	Pollutant	Wet Weather	Dry Weather	90th Percentile Concentration	Units
Los Angeles River (S10)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Cadmium	●		4.8	ug/l
	Copper		●	25.68	ug/l
	Lead		●	3.43	ug/l
	E. coli		●	19,600	MPN/100 mL
Los Cerritos Channel (Stearns)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	25.4	ug/l
	E. coli		●	14,200	MPN/100 mL
San Gabriel River (S14)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	29.89	ug/l
	Selenium		●	4.77	ug/l
	E. coli		●	2,190	MPN/100 mL
Coyote Creek (S13)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	28.54	ug/l
	E. coli		●	11,500	MPN/100 mL

[1] DDT, PCBs and PAHs were below MDL, so concentrations were assumed half MDL.

4.2. Current Best Management Practices/Minimum Control Measures

It is important to note the model calibration incorporates local stormwater BMPs implemented through late 2012 into the baseline condition. The only BMPs/control devices that were explicitly incorporated into the baseline model were the Dominguez Gap basins. All other BMPs, which individually were assumed to have a small effect on water quality at the watershed scale, are implicitly represented in the baseline condition. BMPs implemented in 2013 can be categorized as WMP implementation measures and their volume/load reductions are a component of the pollutant reduction plan for attaining interim and final milestones.

5. Estimated Required Pollutant Load Reductions

This section provides a description of the process for identifying critical conditions and calculating required load reductions to meet interim and final limitations.

5.1. Selected Average (Interim) and Critical (Final) Conditions

The RAA Guidelines specify that average conditions shall be used to establish load reductions for interim milestones and critical conditions shall be used to establish load reductions for final limits. In addition, the Permits provide two pathways for addressing WQ Priorities (see Figure 5-1):

- Volume-based: Retain the standard runoff volume from the 85th percentile, 24-hour storm
- Load-based: Achieve the necessary pollutant load reductions to attain Permit limits

Both types of numeric goals were evaluated as part of this RAA.

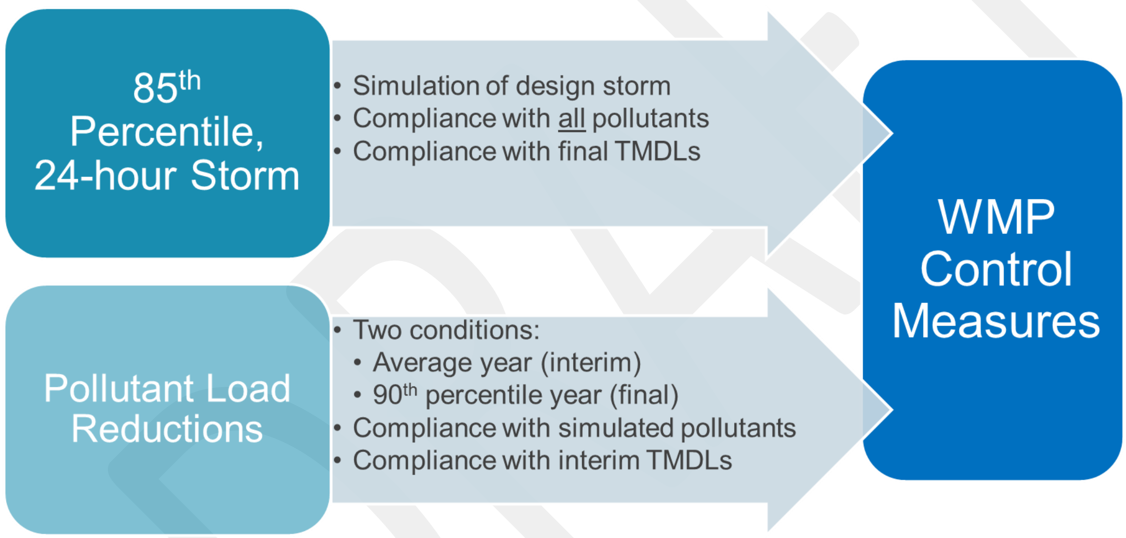

Figure 5-1. Two Types of Numeric Goals and WMP Compliance Paths according to the Permits

5.2. Representative Conditions for Wet Weather

Two approaches were considered and ultimately used in the RAA to represent wet weather critical conditions: the 90th percentile wet year and 85th percentile, 24-hour (design) storm, as described in the following subsections.

5.2.1. Average and 90th Percentile Wet Years

This RAA is based on continuous simulation, and a "representative" year-long time period was selected to represent average and critical conditions, which allows the modeling to capture the variability of rainfall and storm sizes/conditions. For LLAR, LCC, and LSGR, WY2008 was selected as the representative year for average conditions and WY2003 was selected as the representative year for the 90th percentile critical wet conditions.

To select these average and critical years for the RAA, the following steps were taken:

1. **Calculated key rainfall metrics for the last 25-years:** the average and critical years were identified by aggregating data from available rain gages across the entire Los Angeles River and San Gabriel River watersheds (LCC is in between, so the analysis for LLAR and LSGR also applies to LLC). For

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comparison, other regional watersheds were also analyzed and presented. The two key metrics evaluated were: (1) total annual rainfall, and (2) average rainfall per wet day (with wet days defined as days with rainfall totals greater than 0.1 inches). The first is clearly an indicator of volume, while the second is an indicator of rainfall intensity. To evaluate long-term conditions, the analysis covered 25 water years (WY) from 1987 through 2011—the total rainfall for each precipitation gage was area-weighted and aggregated into annual totals by water year (i.e. previous October through current September).

2. **Selected years from the most recent 10-years that are most representative of average and 90th percentile**: per the RAA Guidelines, the most recent 10-year period represented in the available data were used to develop the RAA. Table 5-1 and Table 5-2 show average rainfall volumes and intensities (inches per wet day), respectively, for the most recent 10 years compared against the entire 25-years. Both the average and 90th percentile values were compared across the 10- and 25-year records. For the San Gabriel River, 2007-08 is a representative average year based on both the rainfall volume (Table 5-1) and intensity (Table 5-2) metrics. Because BMP performance is typically intensity-dependent, average rainfall per wet day (Table 5-2) was selected as a better metric for use in determining the 90th percentile than annual average rainfall (Table 5-1), which led to selection of 2002-03 as the critical year.

It should be noted that wet weather conditions were also reflective on the definition of dry/wet days. As described in Section 5, for analysis of non-bacteria pollutants (including the limiting pollutant zinc) days with greater than 90th percentile daily average flow were flagged as "wet," which aligns with the critical condition used for the LAR and LSGR metals TMDLs.

5.2.2. 85th Percentile, 24-hour Storm

The design storm is identified in the RAA Guidelines as an acceptable critical condition, and capture of design storm volumes by BMPs is a specified compliance metric in the Permits for TMDLs. The design storm was evaluated and used as a wet weather critical condition for the RAA. As described above, the design storm is a volume-based standard. Each subwatershed within each WMP area has a unique 85th percentile runoff volume, due to varying rainfall amounts and land characteristics (imperviousness, soils, slope, and the like). The rainfall depths associated with the 85th percentile, 24-hour storm are shown in Figure 5-2, based on rolling 24-hour intervals for the 25-year period between October 1, 1987 and September 30, 2011. Within the WMP area, the 85th percentile rainfall depth values range between 0.72 and 1.08 inches.

To determine the "standard volume" associated the design storm, initial conditions were set in LSPC to reflect representative conditions at the start of the simulation, along with regionally derived infiltration rates, and 85th percentile rainfall depths were used as rainfall boundary conditions. At each location the storm distribution presented in Figure 5-3 was used to temporally distribute the 24-hour rainfall volumes (LACDPW 2006). The model was then run to predict the associated runoff volumes for each subwatershed in the WMP area. Those runoff volumes represent the volumes that would need to be retained in order to attain the numeric goals associated with the 85th percentile, 24-hour storm.

Shown in Figure 5-4 are the rainfall depths and runoff depths (runoff volume divided by subwatershed area) associated with the design storm for each subwatershed in the WMP areas. About 50 percent of the subwatersheds in all three WMP areas experiences 0.4 inches or more of runoff under the 85th percentile, 24-hour storm, while about 10 percent of the area experiences about 0.55 inches or more of runoff. Figure 5-5 summarizes the total design storm volumes (in acre-feet) for each jurisdiction. The runoff depths for each subwatershed in the WMP area are graphically shown in Figure 5-6, Figure 5-7, and Figure 5-8.

Table 5-1. Average Rainfall Depths (Water Years 2002–2011 vs. 25-year Average and 90th Percentile)

Year	Average Rainfall Totals (in./year)				
	Ballona Creek	Dominguez Channel	Malibu Creek	San Gabriel River	Los Angeles River
2001-02	25.4	19.1	28.1	30.6	30.5
2002-03	17.1	13.9	20.8	23	20.4
2003-04	10.2	8.1	9.2	13.7	11.2
2004-05	39.3	28.4	42.6	49.6	46.7
2005-06	14.1	9.8	16.9	17.9	17.5
2006-07	4.3	3.1	6.8	6.4	5.8
2007-08	13.2	11.9	18.6	19.4	17.5
2008-09	9.6	8.5	12.3	14.6	12.5
2009-10	16.8	14.9	20.3	24.1	20.5
2010-11	21.2	18.5	25.3	28.5	25.7
Avg. (1987-2011)	15.9	12.5	18.4	20.7	19.2
90th %ile (1987-2011)	30.8	22.9	34.7	37.8	36.9

Red Box: WMP Watersheds. Blue highlighted cells are the two years in each basin with the smallest difference from the 25-year average. Orange cells have the smallest difference from the 90th percentile of the 25-year record.

Table 5-2. Average Rainfall Intensity (Water Years 2002–2011 vs. 25-year Average and 90th Percentile)

Year	Average Rainfall Per Wet Day (in./wet day)				
	Ballona Creek	Dominguez Channel	Malibu Creek	San Gabriel River	Los Angeles River
2001-02	0.36	0.32	0.41	0.42	0.36
2002-03	0.79	0.66	0.88	0.92	0.84
2003-04	0.61	0.48	0.61	0.66	0.58
2004-05	0.98	0.69	1.03	1.07	1.03
2005-06	0.53	0.41	0.61	0.64	0.61
2006-07	0.31	0.27	0.39	0.41	0.37
2007-08	0.56	0.52	0.68	0.76	0.71
2008-09	0.49	0.48	0.56	0.65	0.57
2009-10	0.64	0.6	0.71	0.82	0.72
2010-11	0.62	0.58	0.73	0.76	0.7
Avg. (1987-2011)	0.59	0.52	0.67	0.72	0.66
90th %ile (1987-2011)	0.78	0.66	0.91	0.97	0.89

Red Box: WMP Watersheds. Blue highlighted cells are the two years in each basin with the smallest difference from the 25-year average. Orange cells have the smallest difference from the 90th percentile of the 25-year record.

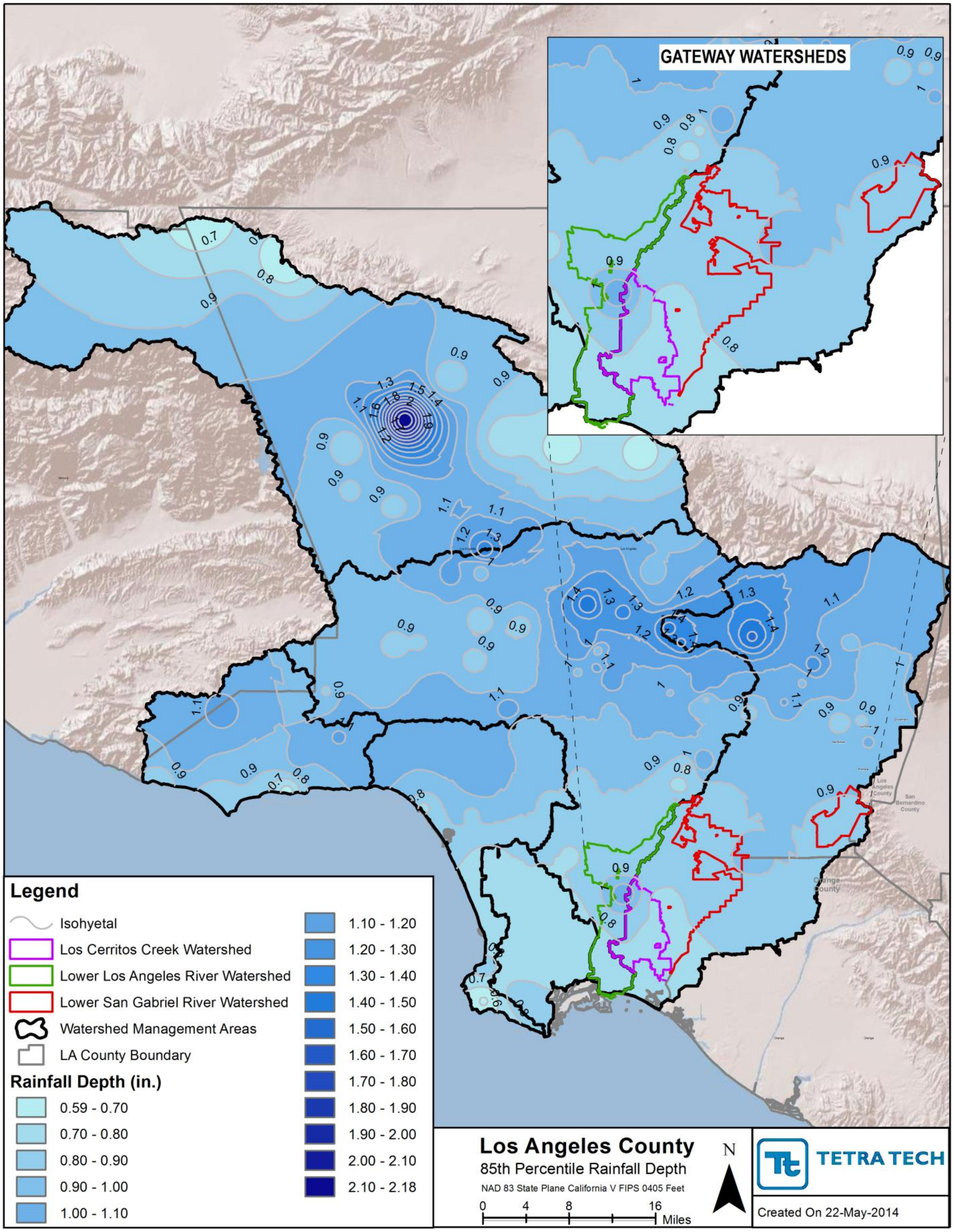


Figure 5-2. Rainfall depths associated with the 85th percentile, 24-hour storm.

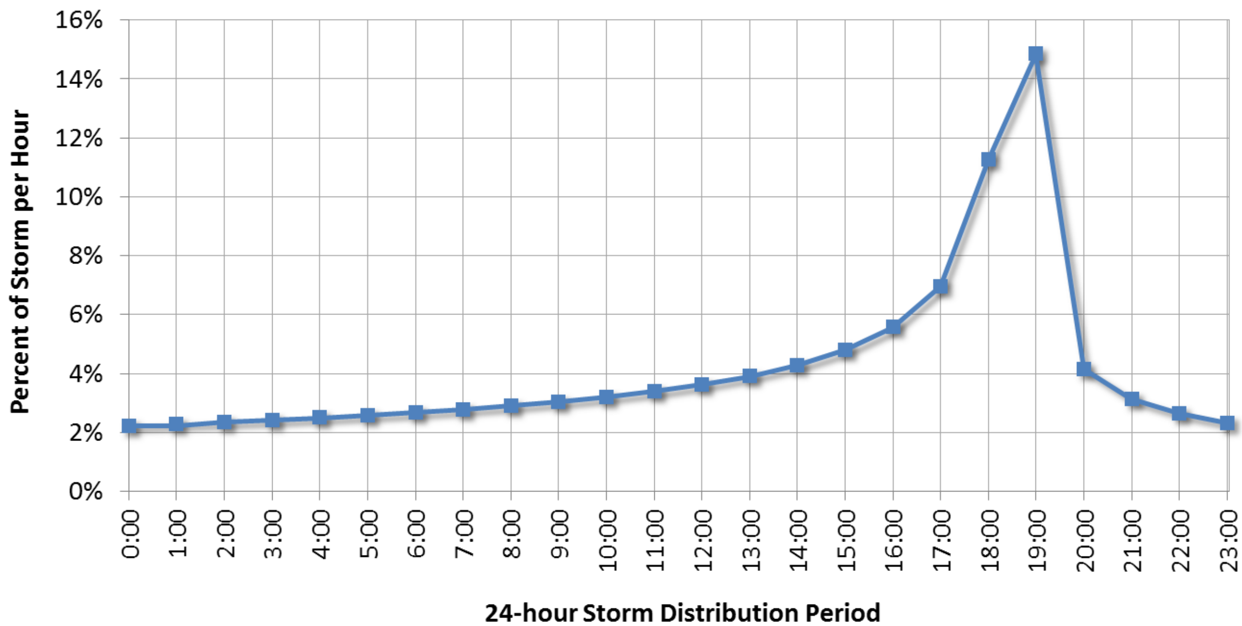


Figure 5-3. Temporal Distribution for 85th Percentile 24-hour Storm for LSPC Simulation.

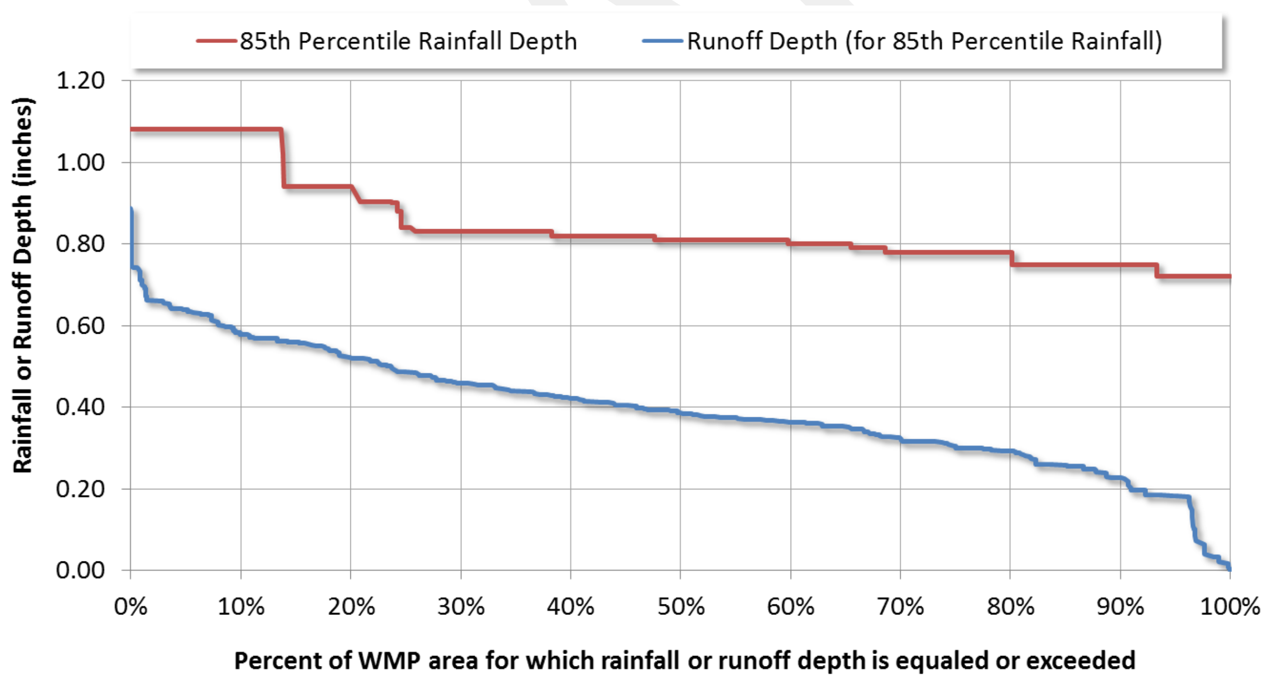


Figure 5-4. Rainfall and Runoff Depths Associated with 85th Percentile Rainfall in the WMP subwatersheds.

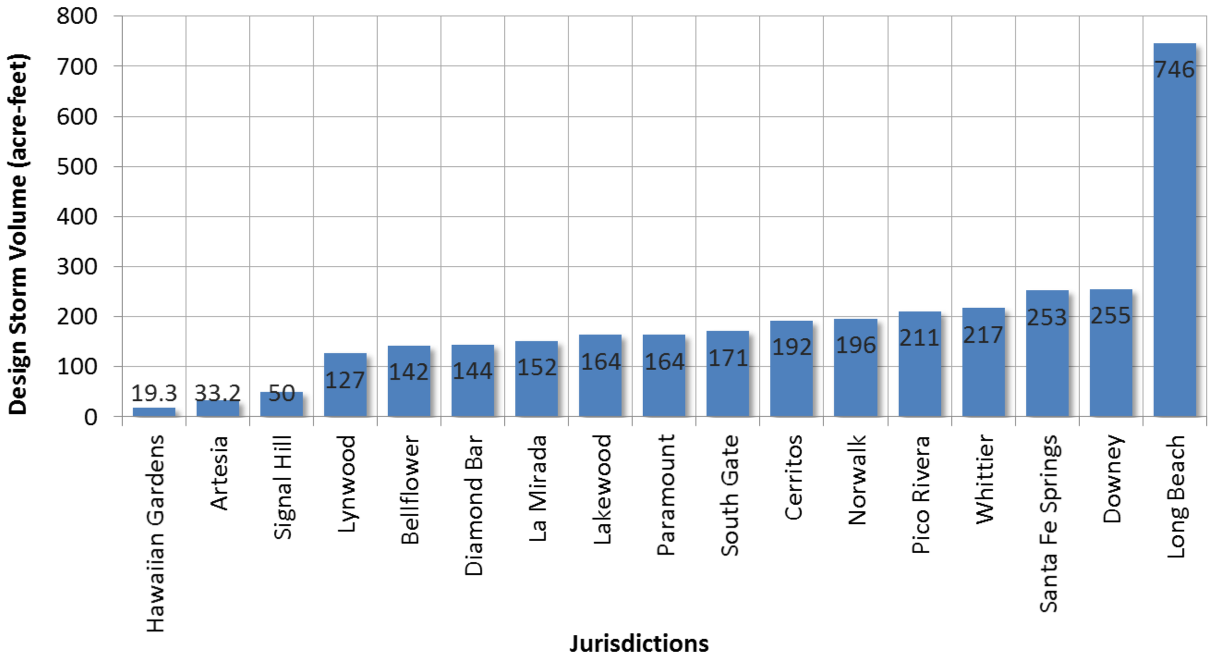


Figure 5-5. Runoff Volume Associated with the 85th Percentile, 24-hour Storm (by jurisdiction).

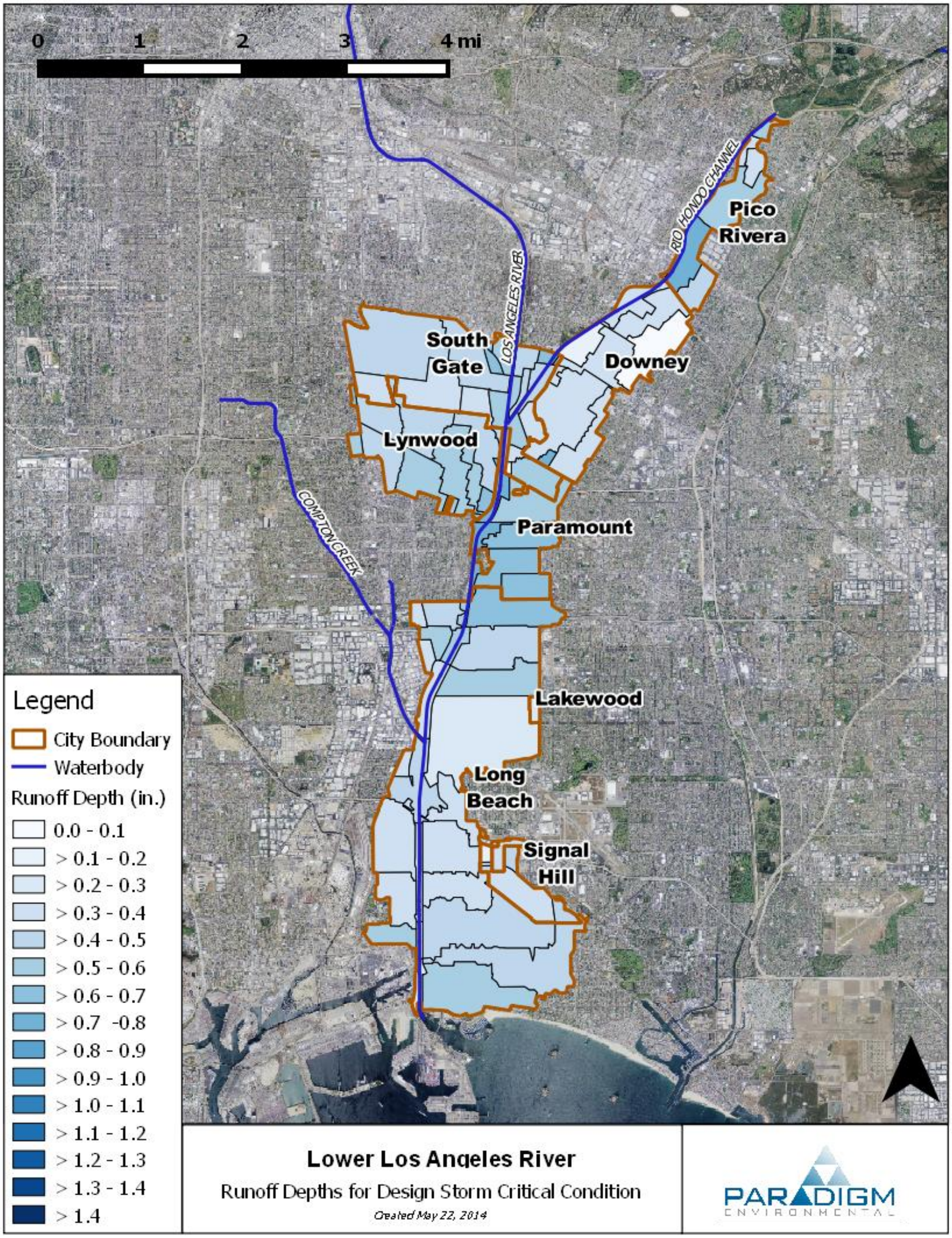


Figure 5-6. Runoff Associated with the 85th Percentile, 24-hour Storm for Lower Los Angeles River.

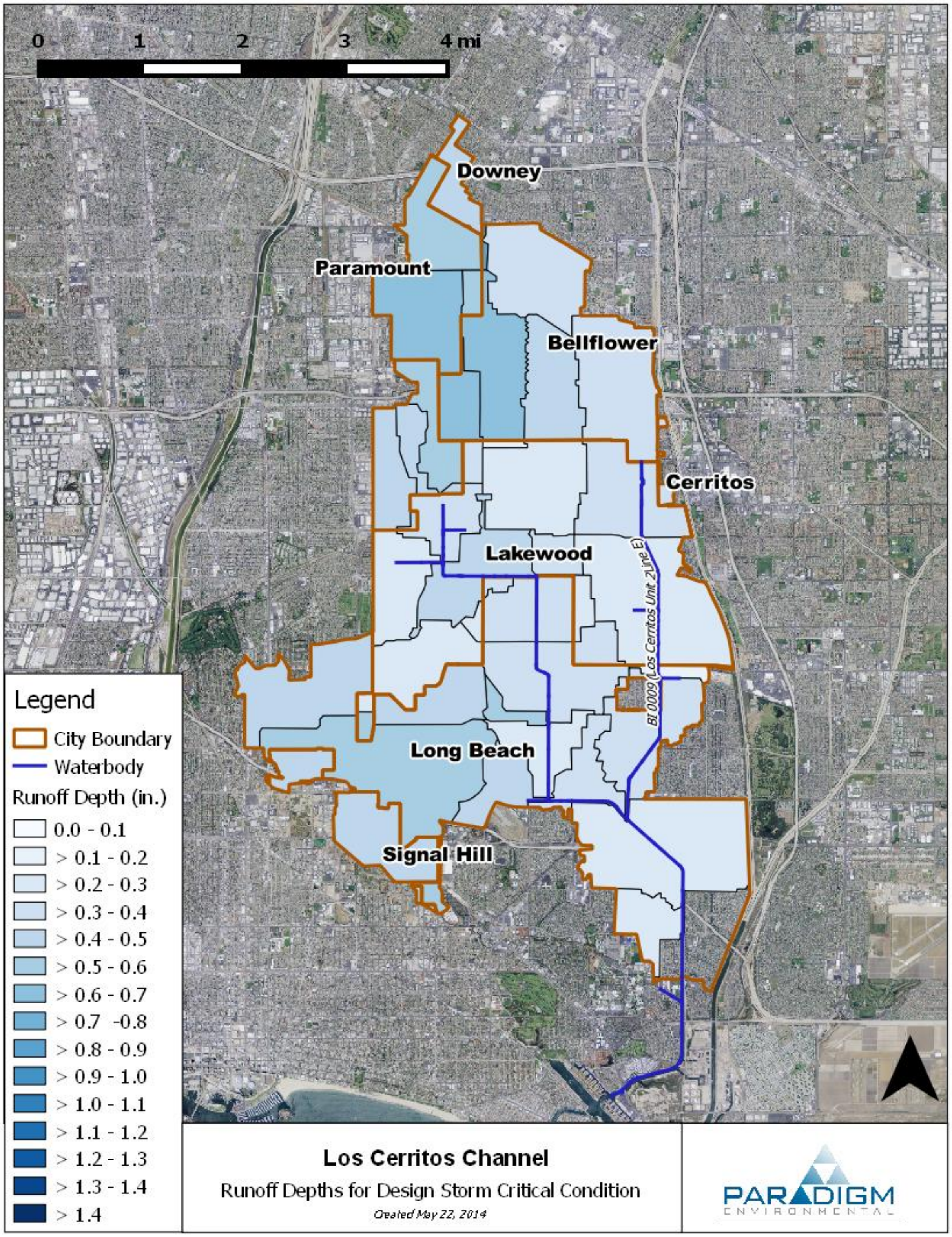


Figure 5-7. Runoff Associated with the 85th Percentile, 24-hour Storm for Los Cerritos Channel.

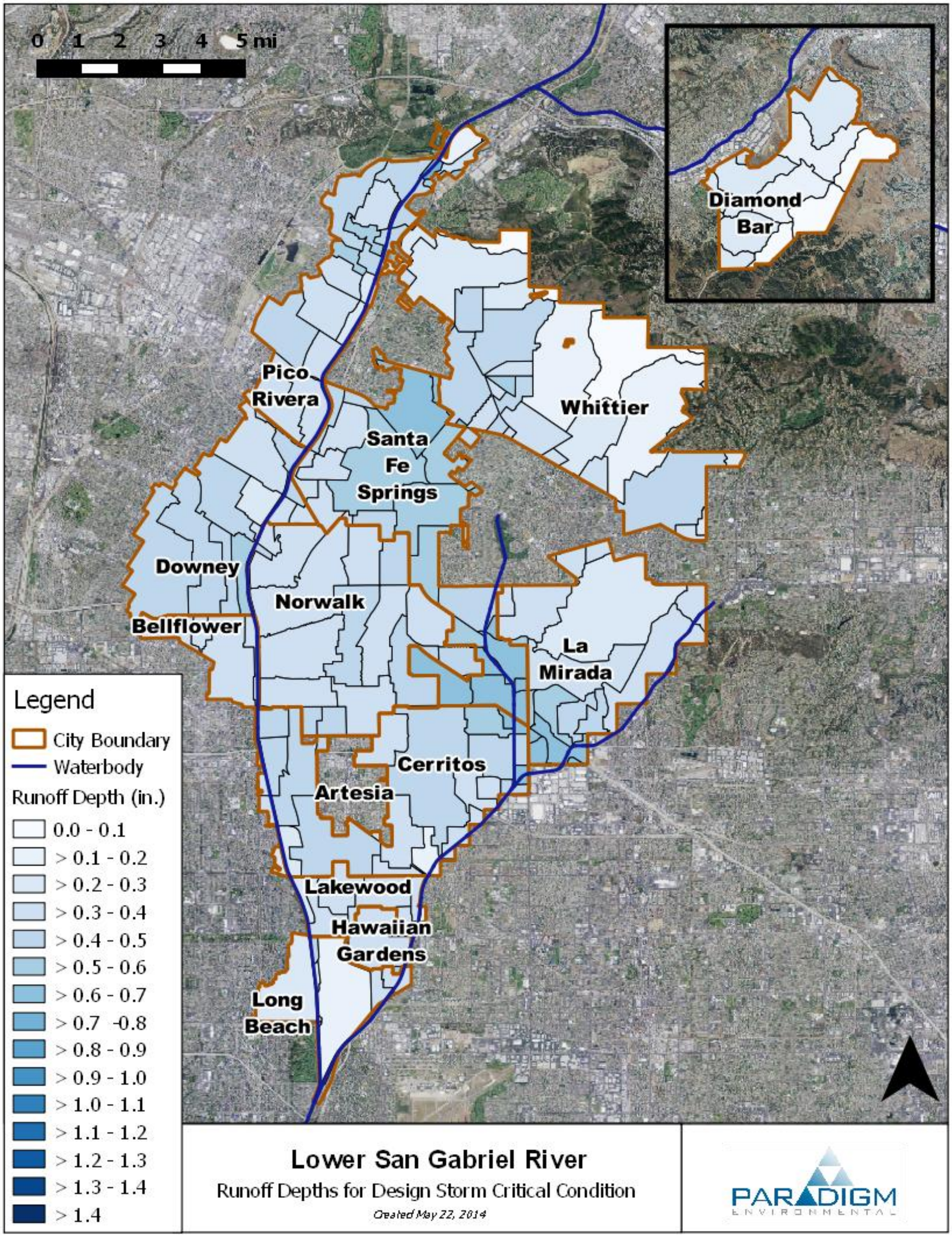


Figure 5-8. Runoff Associated with the 85th Percentile, 24-hour Storm for Lower San Gabriel River.

5.2.3. Representative Conditions for Dry Weather

Although clearly defined definitions exist for wet periods, definitions for dry periods are less clearly defined. Wet weather periods are either defined in terms of rainfall or instream flow. For bacteria, a wet day is one with a rainfall total greater than 0.1 inches plus the three subsequent days, while metals criteria define wet days as those with instream flow above the 90th percentile. One seemingly intuitive way of defining a dry period is simply to use the "non-wet" days represented as the inverse of wet days. However, summary of model results indicate some residual influence of wet weather among the "non-wet" days. This presents some challenges for estimating loads and evaluating dry weather compliance because BMP planning would be better served by choosing design conditions that are more influenced by natural background baseflow and/or anthropogenic activities such as point source discharges or dry weather runoff from irrigation (instead of post-rain event interflow).

The RAA Guidelines recommend using the most recent 10 years of data for modeling scenarios to ensure that the plans are based on a representative range of wet and dry conditions. Regional precipitation and instream flow patterns are highly variable; therefore, a representative dry period is one that consistently represents minimal influence to wet weather conditions. To identify a representative dry period, the analysis covered 25 WYs from 1987 through 2011. The following steps were taken:

1. The total rainfall for each precipitation gage in the study area was summarized and classified into wet and non-wet periods according to the bacteria criteria definition for wet weather (i.e. days with rainfall > 0.1 inches plus the three subsequent days).
2. Dry periods were evaluated on a monthly time scale. Table 5-3 shows the average number of consecutive 30-day dry periods, counted by month of the associated mid-interval date, for each of the rainfall gages within the three WMP areas over the 25 years of rainfall evaluated. The color-ramp indicates relative dryness, with red being driest. Table 5-3 indicates that on average, the months of June, July, and August are the driest months in the year, averaging 24-30 consecutive dry intervals. Note that because this table counts mid-interval dates by month, values approaching 30 actually indicate continuous dry intervals approaching 60 days (15 days on either side of the 30 day interval).
3. Select periods within the average and critical year were identified for dry weather simulations. The areal coverage or non-wet intervals in the two selected representative years (2008 and 2003) were compared against the 10-year period (2001-2011) and the long-term 25-year period (1998-2011). Figure 5-9, Figure 5-10, and Figure 5-11 show the selected representative dry period against summaries of non-wet weather conditions in the LLAR, LCC, and LSGR WMP areas, respectively. Within the two selected years, the 45-day period between 8/17 and 9/30 was found to be the most representative of dry weather conditions because (1) no rainfall occurred at any of the gages throughout all three WMP areas, (2) it was during a time of the year that was historically shown to experience the least amount of spatially-weighted rainfall in a year, and (3) it was late in the summer following an extended period of no rainfall for both 2003 and 2008.

The identified periods between 8/17 and 9/20 during the average and critical years were used for subsequent dry weather simulations for the dry weather component of the RAA.

Table 5-3. Consecutive 30-day Dry Periods per month by WMP and rainfall gage (10/1/1987 – 9/30/2011)

WMP	StaID	Average Number of Consecutive 30-Day Dry Intervals Per Month (10/1/1987 – 9/30/2011)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Los Cerritos Channel	D1254	2.2	1.9	6.2	11.9	22.3	25.2	28.9	28.9	21.4	12.7	7.8	4.4
	D1255	2.8	1.8	4.4	8.8	20.3	25.1	29.7	29.8	21.8	13.0	7.3	2.9
	D225	3.0	2.3	6.3	10.5	20.6	24.7	28.8	29.5	21.4	13.1	9.1	3.6
	D388	2.1	1.3	3.8	8.5	18.6	24.0	27.6	29.2	21.0	12.3	5.1	3.2
	D415	1.9	1.2	5.7	9.6	19.0	24.0	28.1	29.1	23.4	13.1	8.9	3.7
Lower Los Angeles River	D1113	4.2	2.5	8.3	9.8	19.5	24.4	28.1	27.8	23.6	13.7	8.8	4.5
	D1114	1.6	1.1	4.0	8.9	19.6	25.1	29.7	29.6	20.8	12.3	5.5	3.0
	D1256	2.1	1.4	4.8	10.4	20.5	24.6	28.8	29.8	23.5	14.2	6.2	3.1
	D291	3.3	1.1	5.0	8.8	19.4	24.4	28.7	28.4	21.9	11.6	4.6	3.5
	D388	2.1	1.3	3.8	8.5	18.6	24.0	27.6	29.2	21.0	12.3	5.1	3.2
	D415	1.9	1.2	5.7	9.6	19.0	24.0	28.1	29.1	23.4	13.1	8.9	3.7
Lower San Gabriel River	D106	4.2	0.6	6.0	10.9	19.7	24.6	28.6	29.0	23.9	14.0	8.2	4.0
	D1088	2.2	1.0	3.8	9.0	17.6	24.1	28.5	29.0	20.9	12.6	5.9	2.7
	D1095	2.4	0.5	4.4	10.0	19.2	24.6	28.6	29.1	21.2	14.2	7.1	4.2
	D1114	1.6	1.1	4.0	8.9	19.6	25.1	29.7	29.6	20.8	12.3	5.5	3.0
	D1254	2.2	1.9	6.2	11.9	22.3	25.2	28.9	28.9	21.4	12.7	7.8	4.4
	D1255	2.8	1.8	4.4	8.8	20.3	25.1	29.7	29.8	21.8	13.0	7.3	2.9
	D1256	2.1	1.4	4.8	10.4	20.5	24.6	28.8	29.8	23.5	14.2	6.2	3.1
	D1257	2.0	0.5	4.5	10.6	18.9	24.4	28.6	29.8	21.2	10.3	5.7	3.0
	D1271	1.8	1.6	3.9	9.4	18.1	24.4	28.6	29.7	21.6	11.7	7.3	3.4
	D156	3.0	1.5	5.2	10.1	19.2	24.6	28.5	29.3	21.0	13.4	7.2	5.0
	D17	1.7	1.2	5.2	9.1	17.5	22.4	28.6	29.0	22.6	11.3	5.2	3.7
	D225	3.0	2.3	6.3	10.5	20.6	24.7	28.8	29.5	21.4	13.1	9.1	3.6
	D269	1.8	0.5	4.2	8.1	18.0	24.2	28.6	29.1	22.2	13.0	6.7	3.2

Legend:	Wet	→	Dry

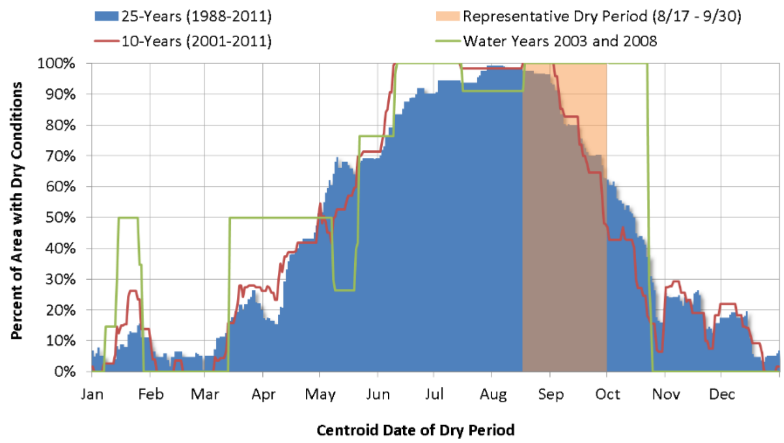


Figure 5-9. Spatiotemporal summary of non-wet weather conditions in the Lower Los Angeles River WMP area.

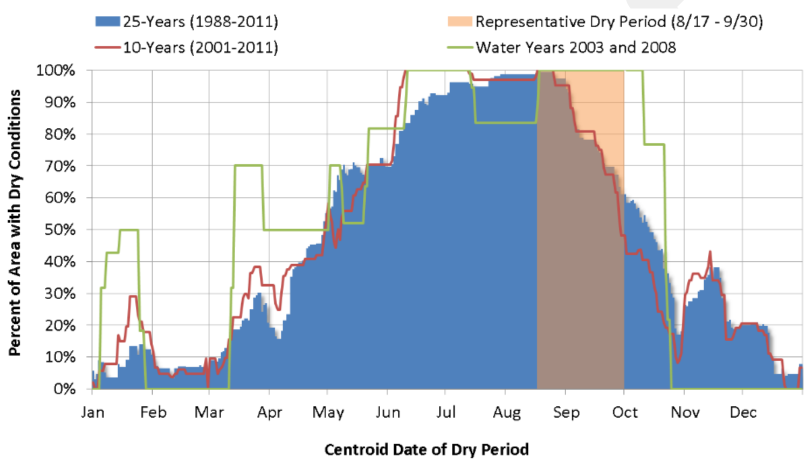


Figure 5-10. Analysis of summary of non-wet weather conditions in the Los Cerritos Channel WMP area.

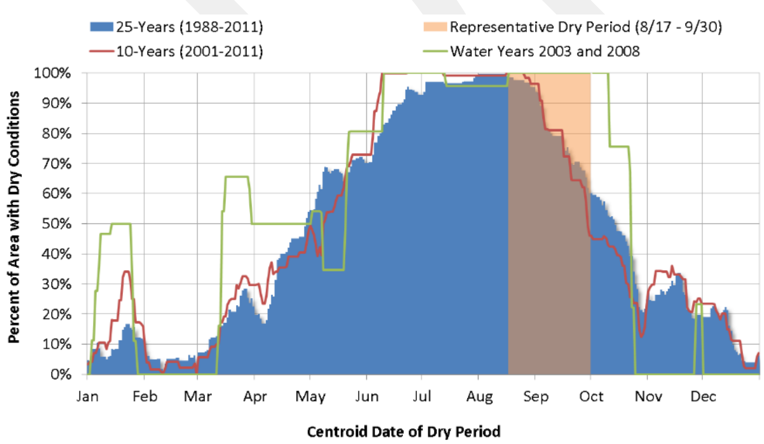


Figure 5-11. Spatiotemporal summary of non-wet weather conditions in the Lower San Gabriel River WMP area.

5.3. Calculated Required Pollutant Reductions to Achieve Final Limits

Using the average storm year (2007-08) and 90th percentile storm year (2002-03), required pollutant reductions were calculated for attainment of interim and final limitations, respectively, applicable to each WMP area. Per the RAA Guidelines, the percent reduction used to determine the control measures necessary to attain interim milestones shall be based on the average year, while the control measures for attainment of the final limits are based on the 90th percentile year.

Required load reductions were evaluated at RAA Assessment Points located at the bottom-most discharge from each WMP areas (shown in Figure 3-2 through Figure 3-4). The RAA Assessment Points represent locations where the collective discharge from each jurisdiction with each WMP area can be assessed to contribute to pollutant loads to the receiving waters. Pollutant loads outside of the WMP areas are not considered in this loading analysis at the RAA Assessment Points, although in reality other loads exist. However, transport of pollutant loads from individual jurisdictions within the WMP areas are considered, including the effect of LACFCD infrastructure and other hydraulic features that can impede flows and associated pollutant loads to the location of the RAA Assessment Points. The result is an accounting system that provides reasonable tracking and estimation of required load reductions throughout each individual WMP area so that meaningful goals can be set for BMP implementation planning.

Applicable targets for wet and dry conditions for Category 1 WQ Priorities (corresponding to the TMDLs within each watershed) are listed in Table 5-4 and Table 5-5, respectively. These targets were used to establish the daily "exceedance load" and daily "allowable load". The differences in these loads, as predicted by LSPC, were tracked across the average year and 90th percentile year and used to calculate the required pollutant reduction. While Category 1 WQ Priorities were emphasized, targets were also applied for Category 2 and Category 3 WQ Priorities. In particular, to provide a comprehensive WMP planning approach, copper, lead, zinc and *E. coli* were assessed for all RAA assessment points (even if a TMDL is not applicable).

For bacteria targets, it should be noted that Allowable Exceedance Days and high flow suspension (HFS) days were incorporated (if applicable) into the percent reduction calculation. The approach of the LA River Bacteria TMDL was used to align Exceedance Days and HFS days. The HFS applies to LLAR and LSGR but not LCC (and thus HFS days were not incorporated into the required reduction calculation for LCC). For LSGR and LCC, a bacteria TMDL has not been adopted but the RAA Guidelines state that targets and critical conditions from other TMDLs in the region should be utilized. If the Allowable Exceedance Days were removed from the percent reduction calculations for LSGR and LCC, the required reductions would increase.

Table 5-4. Applicable wet weather TMDL targets for Category 1 WQ Priorities

WMP Area	Waterbody	Pollutant	Target	Source
LLAR	LAR Reach 1 (freshwater)	Cd kg/d	2.8×10^{-9} X daily storm volume (L) - 1.8	WQBEL
	LAR Reach 1 (freshwater)	Cu kg/d	1.5×10^{-8} X daily storm volume (L) - 9.5	WQBEL
	LAR Reach 1 (freshwater)	Pb kg/d	5.6×10^{-8} X daily storm volume (L) - 3.85	WQBEL
	LAR Reach 1 (freshwater)	Zn kg/d	1.4×10^{-7} X daily storm volume (L) - 83	WQBEL
	All LLAR	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	All LLAR	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	All LLAR	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL
	LAR Reach 1 (freshwater)	*E-coli* MPN/100mL	235 (exceedances allowed during HFS days and 10 exceedance days)	WQBEL

WMP Area	Waterbody	Pollutant	Target	Source
LCC	All LCC	Cu g/d	$4.709 X 10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	Pb g/d	$26.852 X 10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	Zn g/d	$46.027 X 10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	All LCC	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	All LCC	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL
LSGR	SG Reach 2	Pb ug/L	81.34	WQBEL
	Coyote Cr.	Cu ug/L	24.71	WQBEL
	Coyote Cr.	Pb ug/L	96.99	WQBEL
	Coyote Cr.	Zn ug/L	144.57	WQBEL
	SG Reach 1 & Coyote Cr.	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	SG Reach 1 & Coyote Cr.	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	SG Reach 1 & Coyote Cr.	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL

Table 5-5. Applicable dry weather TMDL targets for Category 1 WQ Priorities

WMP Area	Waterbody	Pollutant	Target	Source
LLAR	LAR Reach 1 (freshwater)	Cu ug/L	23	WQBEL
	LAR Reach 1 (freshwater)	Pb ug/L	12	WQBEL
	LAR Reach 1 (freshwater)	*E-coli* MPN/100mL	126	WQBEL
LCC	All LCC	Cu g/d	67.2	WQBEL
	All LCC	*E-coli* MPN/100mL	126	WQBEL
LSGR	SG Reach 1	Cu ug/L	18	WQBEL
	SG Reach 1	*E-coli* MPN/100mL	126	WQBEL
	San Jose Cr. Reach 1&2	Se ug/L	5	WQBEL
	San Jose Cr. Reach 1&2	*E-coli* MPN/100mL	126	WQBEL
	Coyote Cr.	Cu kg/d	0.941	WQBEL
	Coyote Cr.	*E-coli* MPN/100mL	126	WQBEL

5.3.1. Wet-Weather Required Pollutant Reductions

The wet weather pollutant reduction targets for average and critical conditions are summarized in **Error! Reference source not found.** (all WMP areas) and shown graphically in Figure 5-12 through Figure 5-15 (individual WMP areas). These analyses were used to determine the limiting pollutant. The limiting pollutant is defined as the pollutant requiring the greatest load reduction, and BMPs implemented to achieve the limiting pollutant reductions are protective of other pollutant reductions (e.g., sediment or volume reductions). In **Error! Reference source not found.**, the red color gradient highlights limiting pollutants, with a deeper red generally indicating a more limiting pollutant. Zinc was identified as the limiting pollutant for each WMP area[4]. The determination of limiting pollutant considered implementation actions to control the pollutant – for example, State Bill 346 will result in significant reductions of copper loading from brake pads. Because total source control measures are not on the horizon for zinc, it becomes the limiting pollutant instead of copper. The evaluation of copper and organics as limiting pollutants and rationale for their exclusion is described below.

Although DDT and PCBs were estimated to have high load reduction requirements to meet WQBELs, they were not identified as limiting pollutants because the maximum detection limits (MDLs) used for the analysis heavily affected the calculated required reductions. Rather than use LSPC for reduction calculations, monitoring data were used directly and many reported concentrations for DDT, PCBs, and PAHs were below MDLs, so concentrations were assumed in the model to equal half the MDL. The MDL is above the target leading to non-detects requiring reductions. Of course, toxics will be addressed by control measures implemented for zinc. The Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL states that "implementation of other TMDLs in the watershed may contribute to the implementation of this TMDL," and implementation of the effective TMDLs in Los Angeles River and San Gabriel River are integrated within Phase I of the implementation of the toxics TMDL (LARWQCB and USEPA 2011). As a result, DDT, PCBs, and PAHs were not represented in Figure 5-12 through Figure 5-15.

Although copper was calculated to have a higher required reduction than zinc, the effect of Senate Bill 346 is expected to reduce those reductions without any implementation of structural control measures. The Brake Pad Partnership was formed in 1999 as a collaboration of cities, industry, and other entities to address the lack of information and research regarding the impact of brake debris material in the environment. After its formation, the Brake Pad Partnership commissioned several technical studies to better quantify the fate and transport of copper to San Francisco Bay including a detailed source assessment. Overall findings of the study estimated that of the anthropogenic sources of copper, approximately 35 percent are attributed to brake pad releases (BPP 2010). Even if the reduction was only half of this amount, the adjustment to the required copper reduction would still result in zinc being the limiting pollutant in LLAR, LCC, and LSGR.

After excluding organics and total copper for the reasons described previously, total zinc becomes the limiting pollutant in each of the WMP areas during the 90th percentile year. In other words, reductions of zinc during WMP implementation will drive reduction of other pollutants, particularly because the pollutant reduction plan emphasizes sediment control (other pollutants are typically transported with sediment) and retention/infiltration rather than pollutant treatment.

[4] In LSGR, a higher percent reduction for bacteria was calculated for the average year than the 90th percentile (see Figure 5-14). Although total annual rainfall in 2008 and 2003 were virtually identical over the entire SGR watershed (20.5 and 20.4 inches/year, respectively), 2003 had fewer wet days than 2008, resulting in relatively more intense events on average (about 18 percent higher). As a result, 2003 had more HFS days than 2008—exceedances during HFS days are not considered when computing the required load reduction, lowering the required reduction.

Table 5-6. Wet-weather pollutant reduction targets by WMP area with analysis of limiting pollutants[5]

WMP	Year	Organics				Metals		Bacteria
		DDT	PCB	PAH	TCu [2]	TPb	TZn [3]	E-Coli
Lower Los Angeles River (LLAR)	2003	87.3%	72.0%	0.0%	84.1%	38.6%	67.4%	23.4%
	2008	90.0%	77.9%	0.0%	82.8%	32.9%	64.9%	45.1%
Los Cerritos Channel (LCC)	2003	86.6%	70.3%	0.0%	95.6%	76.7%	90.8%	40.4%
	2008	89.6%	77.1%	0.0%	87.1%	3.6%	75.6%	47.9%
Lower San Gabriel River (LSGR)	2003	79.5%	54.6%	0.0%	40.1%	0.0%	29.3%	22.9%
	2008	91.4%	80.7%	0.0%	18.0%	0.0%	25.0%[4]	53.0%
Coyote Creek (CC)	2003	75.9%	46.8%	0.0%	37.5%	0.0%	28.3%	19.1%
	2008	91.3%	76.8%	0.0%	22.7%	0.0%	30.4%[4]	59.2%

Color ramps highlight potentially limiting (Red) vs. pollutants determined to be non-limiting for this analysis (Blue)

1. Average year is 2008 and 90th percentile year is 2003
2. Red box: Organics managed through sediment and associated metals reduction. Organic load reductions above influenced by assigned concentrations at half the MDLs (monitoring data below MDLs), and therefore are suspect and not considered limiting. Cu is not limiting after brake-pad reductions
3. Blue Box: Zinc is limiting pollutant for the 90th percentile year
4. Bacteria reduction target is lower in 2003 than 2008 because more days were classified as high-flow suspension (HFS)

[5] For the Diamond Bar jurisdiction of the San Gabriel River WMP area, a portion flows to the Santa Ana River. Since this area is open space and therefore not associated with MS4 runoff, no reductions were determined necessary. Loadings for the 90th percentile year from this area are 1.16 kg/year of total Cu, 0.87 kg/year of total Pb, 5.21 kg/year of total Zn, and 4.91×10^{12} #/year of E-coli.

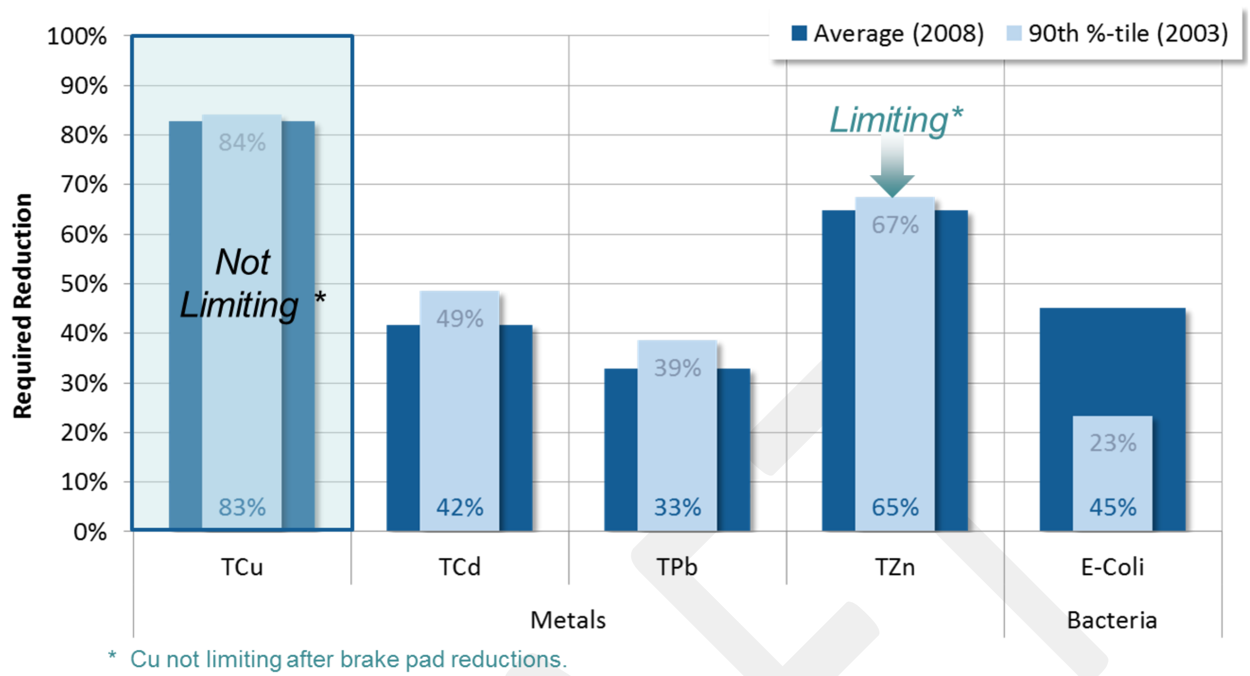


Figure 5-12. Wet-weather pollutant reduction targets and limiting pollutant for Lower Los Angeles River WMP.[6]

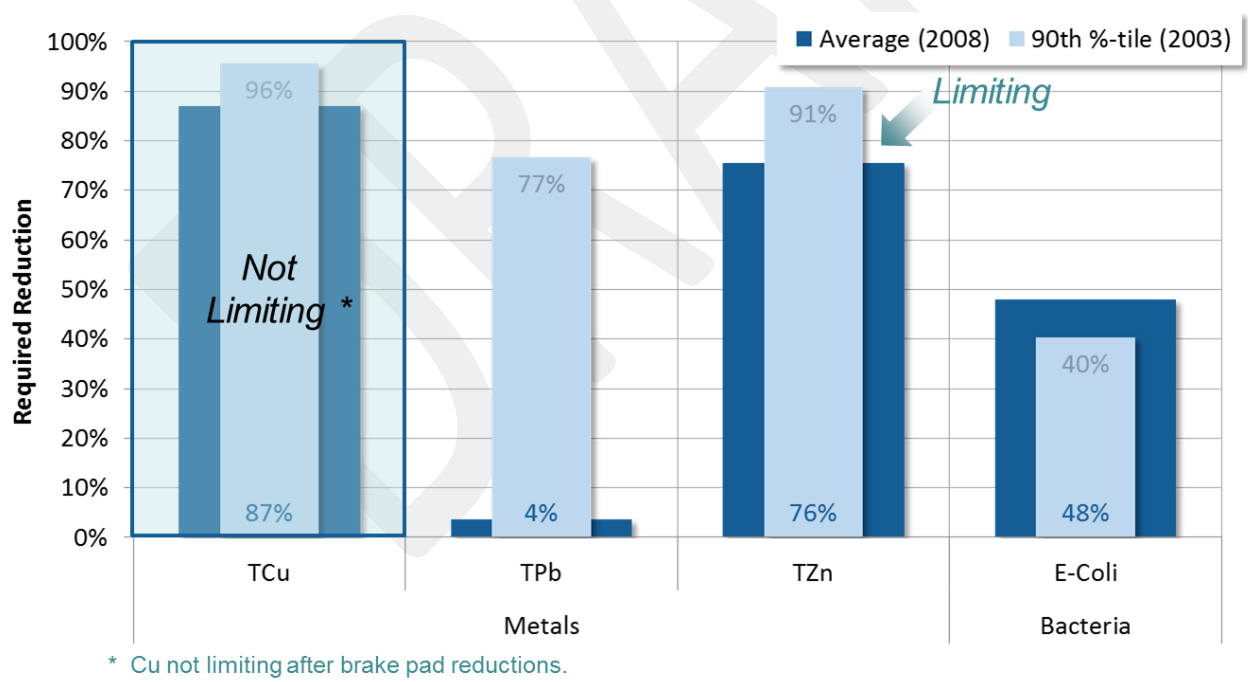
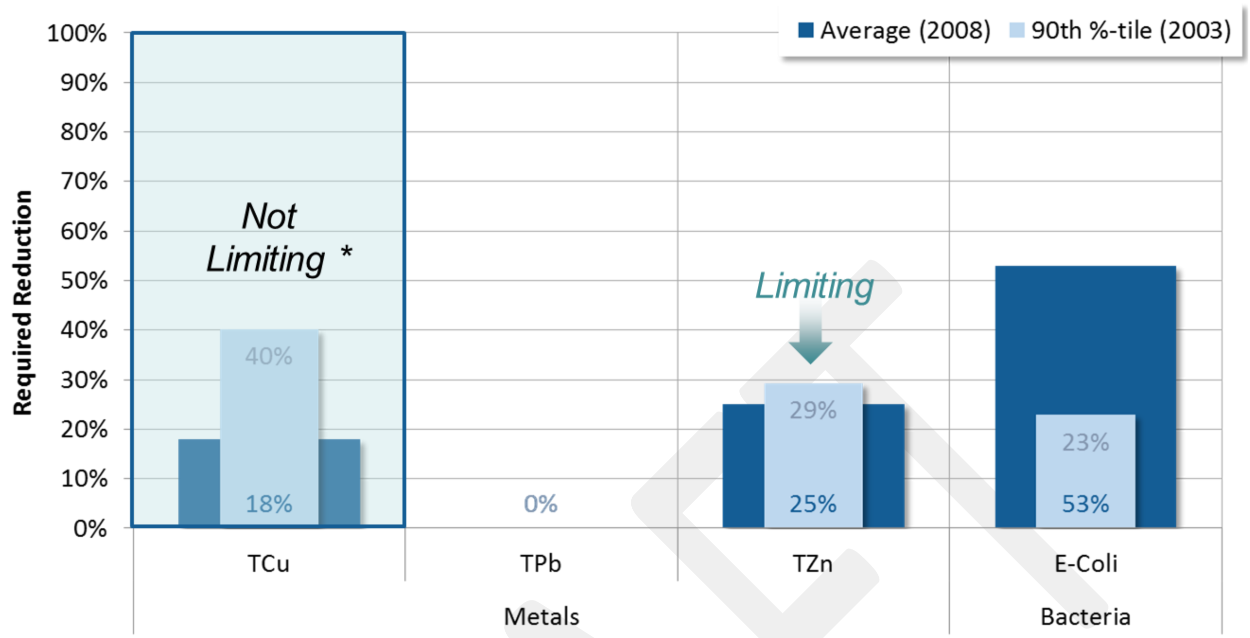


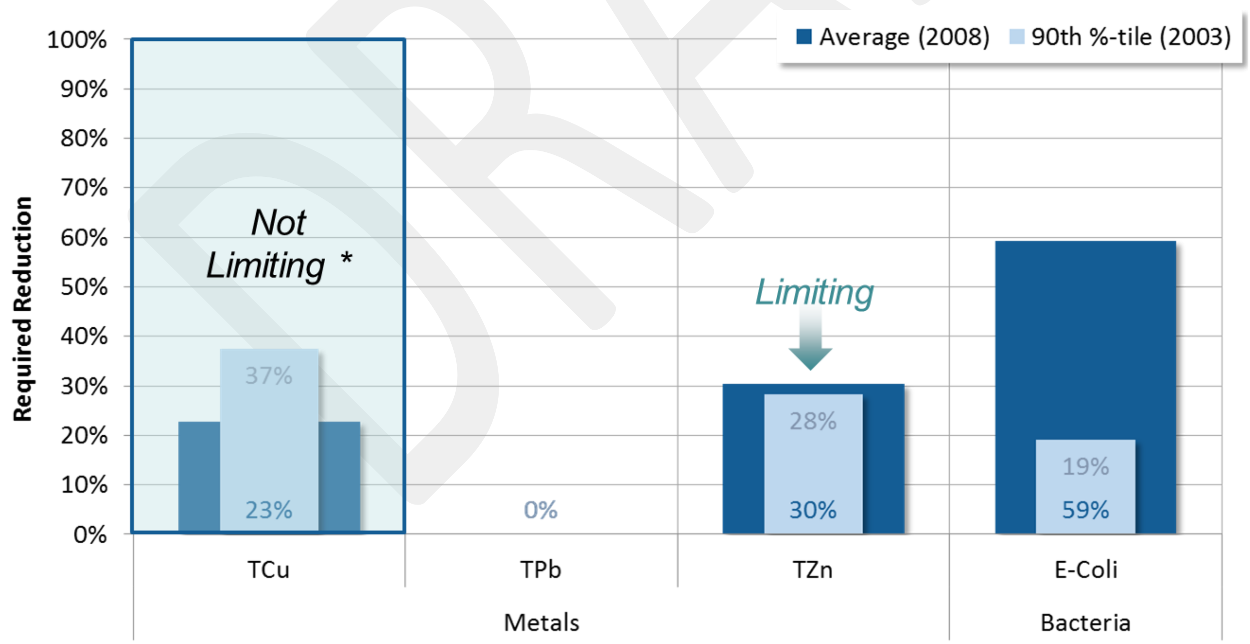
Figure 5-13. Wet-weather pollutant reduction targets and limiting pollutant for Los Cerritos Chanel WMP.

[6] Note that the Los Cerritos Channel TMDLs for Metals requires no reduction of Pb.



* Cu not limiting after brake pad reductions.

Figure 5-14. Wet-weather pollutant reduction targets and limiting pollutant for Lower San Gabriel River.



* Cu not limiting after brake pad reductions.

Figure 5-15. Wet-weather pollutant reduction targets and limiting pollutant for Coyote Creek.

RB-AR13712

5.3.2. Dry-Weather Pollutant Reduction Targets

Using the representative dry-weather period of August 17 through September 30, as defined in Section 5.2.3, modeled instream flow was multiplied by the observed dry weather concentrations to get existing conditions loads, which are shown in Table 5-7. Likewise, target concentrations were also multiplied by modeled instream flow to get allowable load for each waterbody, which is shown in Table 5-8. Finally, Table 5-9 summarizes dry-weather reduction targets for each listed segment for both the average year and the 90th percentile year.

For dry weather, bacteria is the limiting pollutant (not zinc) because the required reductions are much higher than other pollutants. Reductions of bacteria during WMP implementation will drive reductions of other pollutants.

Table 5-7. Existing condition dry-weather loads by water body

Existing Condition		Dry Weather Flow (cfs)		Existing Load (kg/day or MPN/day)		
Waterbody	**Pollutant**	**2003**	**2008**	**2003**	**2008**	**Mean**
LAR Reach 1 (freshwater)	Cu ug/L	99.97	65.63	6.28	4.12	5.20
LAR Reach 1 (freshwater)	Pb ug/L	99.97	65.63	0.84	0.55	0.69
LAR Reach 1 (freshwater)	*E. coli* MPN/100ml	99.97	65.63	4.79E+13	3.15E+13	3.97E+13
LCC	Cu ug/L	4.65	2.20	0.29	0.14	0.21
LCC	*E. coli* MPN/100ml	4.65	2.20	1.62E+12	7.64E+11	1.19E+12
SG Reach 1	Cu ug/L	69.04	75.36	5.05	5.51	5.28
SG Reach 1	*E. coli* MPN/100ml	69.04	75.36	3.70E+12	4.04E+12	3.87E+12
San Jose Cr. Reach 1 & 2	Se ug/L	12.54	19.62	0.06	0.09	0.07
San Jose Cr. Reach 1 & 2	*E. coli* MPN/100ml	12.54	19.62	6.72E+11	1.05E+12	8.62E+11
Coyote Cr.	Cu ug/L	19.65	15.69	1.37	1.10	1.23
Coyote Cr.	*E. coli* MPN/100ml	19.65	15.69	5.53E+12	4.41E+12	4.97E+12

Table 5-8. Allowable TMDL dry-weather loads by water body

Existing Condition		Dry Weather Flow (cfs)		Allowable Load (kg/day or MPN/day)		
Waterbody	Pollutant	2003	2008	2003	2008	Mean
LAR Reach 1 (freshwater)	Cu ug/L	99.97	65.63	5.63	3.69	4.66
LAR Reach 1 (freshwater)	Pb ug/L	99.97	65.63	2.94*	1.93*	2.43*
LAR Reach 1 (freshwater)	*E. coli* MPN/100ml	99.97	65.63	3.08E+11	2.02E+11	2.55E+11
LCC	Cu ug/L	4.65	2.20	0.07	0.07	0.07
LCC	*E. coli* MPN/100ml	4.65	2.20	1.43E+10	6.78E+09	1.06E+10
SG Reach 1	Cu ug/L	69.04	75.36	3.04	3.32	3.18
SG Reach 1	*E. coli* MPN/100ml	69.04	75.36	2.13E+11	2.32E+11	2.23E+11
San Jose Cr. Reach 1 & 2	Se ug/L	12.54	19.62	0.15*	0.24*	0.20*
San Jose Cr. Reach 1 & 2	*E. coli* MPN/100ml	12.54	19.62	3.87E+10	6.05E+10	4.96E+10
Coyote Cr.	Cu ug/L	19.65	15.69	0.94	0.94	0.94
Coyote Cr.	*E. coli* MPN/100ml	19.65	15.69	6.06E+10	4.48E+10	5.45E+10

*Existing dry-weather loads are currently below the allowable loads thus showing compliance for this pollutant.

Table 5-9. Required dry-weather percent reductions by water body

WMP	Waterbody	Pollutant	Required Dry-Weather Percent Reductions		
			2003	2008	Mean
LLAR	LAR Reach 1 (freshwater)	Cu	10%	10%	10%
	LAR Reach 1 (freshwater)	Pb	0%	0%	0%
	LAR Reach 1 (freshwater)	*E. coli*	99.36%	99.36%	99.36%
LCC	LCC	Cu	76.74%	50.85%	68.43%
	LCC	*E. coli*	99.11%	99.11%	99.11%
LSGR	Coyote Cr.	Cu	31.42%	14.11%	23.73%
	Coyote Cr.	*E. coli*	98.90%	98.90%	98.90%
	SG Reach 1	Cu	39.78%	39.78%	39.78%
	SG Reach 1	*E. coli*	94.25%	94.25%	94.25%
	San Jose Cr. Reach 1 & 2	Se	0%	0%	0%
	San Jose Cr. Reach 1 & 2	*E. coli*	94.25%	94.25%	94.25%

Color Ramp shows relative magnitude of reductions—darker means higher reductions

6. Determination of Potential BMP Capacity for RAA

The process for determining the necessary cumulative BMP capacity depends on the type of numeric goal being addressed. As shown in Figure 6-1, the volume-based (design storm) approach, necessary BMP capacity was determined through a design storm analysis. For the load-based (pollutant reduction), the analysis leveraged the optimization routines in the customized WMMS. An initial step in the RAA was a comparison of the volume reductions required by the load-based and volume-based numeric goals, to support selection of the wet weather critical conditions.

For LLAR, LCC, and LSGR, the 90th percentile WY (2002-03) weather was selected as the critical condition for wet weather.

Details on the analyses performed to determine potential BMP treatment capacity are provided in Attachment A. The attachment describes the approach for incorporating nonstructural BMPs, accounting for the effect of LACFCD infrastructure, and separating the contribution from non-MS4 sources.

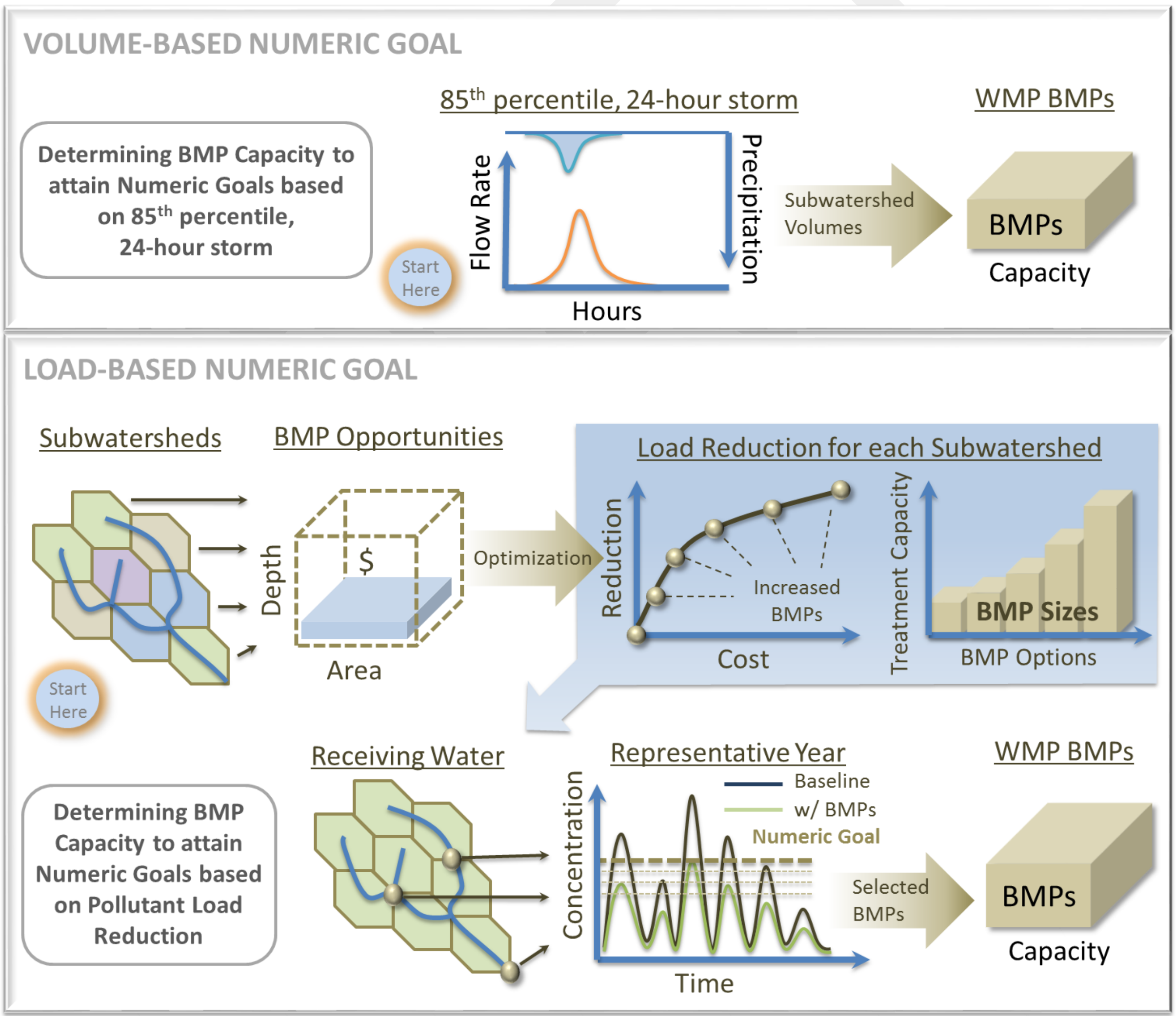


Figure 6-1. Illustration of Process for Determining Required BMP Capacities for the WMP using Volume-Based (top panel) and Load-Based (bottom panel) Numeric Goals.

7. Cumulative Volume Reduction Goals to Achieve Required Pollutant Reductions

The first output of the RAA is a series of "volume reduction goals" for each subwatershed and jurisdiction in the WMP area. WMMS was used to determine the stormwater retention volumes for each subwatershed that would achieve the required load reductions, as reported in this section. These calculated runoff reduction volumes for each subwatershed are a surrogate compliance metric for the responsible agencies. It should be noted that upon implementation, opportunities may arise where flow-through BMPs may provide similar ultimate pollutant load reduction, and may replace the need to implement volume-based reduction BMPs.

These volumes also form the basis for selection of BMPs to achieve those volume reductions, as described in Section 9 and Attachment A.

7.1. Volume Reductions for Structural BMPs

Structural BMPs were modeled using the assumptions outlined in Attachment A. BMP capacities were optimized across the entire study area to achieve the final milestone pollutant reduction requirements at each of the assessment points. Instead of summarizing optimization results in terms of BMP capacity, which is really specific to the network described in Attachment A, the results were summarized as required *annual* wet-weather retention volume (in acre-feet). This provides a volumetric basis that is (1) closely related to load reduction and (2) readily transferable as a control target for parallel BMP modeling at a finer resolution. Because the volumes were isolated to wet days, it is also not skewed by dry-weather runoff retention. The following subsections provide more details about the wet- and dry-weather analysis components.

7.1.1. Wet Weather

Using the structural BMP routing network in WMMS (described in Attachment A), the required *annual* wet-weather retention volume (in acre-feet) were calculated using the critical year time series. For milestones, the percent reduction was based on average year targets while final limits were based on critical year targets. The reported annual volumes are (1) based on required load reductions and (2) ready for BMP modeling at a finer resolution. A 10 percent load reduction was assumed to result from implementation of all nonstructural control measures outlined in the WMPs, setting the foundation of WMP implementation, and structural control measures provide additional load reduction.

Table 7-1 through Table 7-4 present incremental and cumulative retention volumes required to achieve each load reduction milestone by jurisdiction. The milestones are based on the metals TMDLs as described in Section 2. In order to calculate the incremental volume reductions for each milestone, optimization was performed for each jurisdiction to (1) emphasize BMP implementation in subwatersheds that volume reduction could most cost effectively reduce pollutants and (2) establish a cost-effective sequence of subwatersheds for each jurisdiction to achieve the milestones over time. In other words, WMMS was used to develop an implementation schedule that provides early gains in receiving water quality.

Table 7-1. Annual volume reduction goals to achieve interim and final milestones for Lower Los Angeles River WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Downey	31%	143.8	143.8
	50%	221.7	365.5
	Final	360.5	726.0
Lakewood	31%	14.3	14.3
	50%	0.0	14.3
	Final	0.0	14.3
Long Beach	31%	540.7	540.7
	50%	1090.8	1,631.5
	Final	2270.1	3,901.7
Lynwood	31%	303.3	303.3
	50%	185.2	488.6
	Final	619.6	1,108.1
Paramount	31%	181.8	181.8
	50%	227.8	409.6
	Final	579.2	988.8
Pico Rivera	31%	365.3	365.3
	50%	0.0	365.3
	Final	12.0	377.3
Signal Hill	31%	32.8	32.8
	50%	106.6	139.4
	Final	58.4	197.9
South Gate	31%	229.3	229.3
	50%	343.2	572.6
	Final	940.0	1,512.6

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
2: Includes full implementation of planned non-structural practices

Table 7-2. Annual volume reduction goals to achieve interim and final milestones for Los Cerritos Channel WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Bellflower	10%	NS	NS
	35%	336.1	336.1
	Final	801.3	1,137.4
Cerritos	10%	NS	NS
	35%	9.7	9.7
	Final	3.2	12.9
Downey	10%	NS	NS
	35%	77.0	77.0
	Final	35.8	112.8
Lakewood	10%	NS	NS
	35%	282.4	282.4
	Final	874.8	1,157.2
Long Beach	10%	NS	NS
	35%	560.9	560.9
	Final	2115.2	2,676.1
Paramount	10%	NS	NS
	35%	278.8	278.8
	Final	353.1	631.9
Signal Hill	10%	NS	NS
	35%	269.9	269.9
	Final	52.7	322.6

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

Table 7-3. Annual volume reduction goals to achieve interim and final milestones for Lower San Gabriel River WMP

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Artesia	10%	NS	NS
	35%	1.1	1.1
	Final	0.0	1.1
Bellflower	10%	NS	NS
	35%	1.3	1.3
	Final	61.5	62.8
Cerritos	10%	NS	NS
	35%	6.6	6.6
	Final	52.8	59.4
Diamond Bar	10%	NS	NS
	35%	0.3	0.3
	Final	32.8	33.0
Downey	10%	NS	NS
	35%	4.3	4.3
	Final	259.6	263.9
Lakewood	10%	NS	NS
	35%	7.4	7.4
	Final	2.2	9.6
Long Beach	10%	NS	NS
	35%	26.9	26.9
	Final	2.3	29.2
Norwalk	10%	NS	NS
	35%	0.8	0.8
	Final	136.1	136.9
Pico Rivera	10%	NS	NS
	35%	0.2	0.2
	Final	74.8	75.1
Santa Fe Springs	10%	NS	NS
	35%	0.0	0.0
	Final	106.0	106.0
Whittier	10%	NS	NS
	35%	0.0	0.0
	Final	7.5	7.5

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

Table 7-4. Annual volume reduction goals to achieve interim and final milestones for the Coyote Creek portion of Lower San Gabriel River WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Artesia	10%	NS	NS
	35%	47.9	47.9
	Final	0.0	47.9
Cerritos	10%	NS	NS
	35%	0.1	0.1
	Final	194.2	194.3
Diamond Bar	10%	NS	NS
	35%	1.0	1.0
	Final	73.0	74.0
Hawaiian Gardens	10%	NS	NS
	35%	27.0	27.0
	Final	3.4	30.4
La Mirada	10%	NS	NS
	35%	0.8	0.8
	Final	174.9	175.7
Lakewood	10%	NS	NS
	35%	17.5	17.5
	Final	8.2	25.7
Long Beach	10%	NS	NS
	35%	37.5	37.5
	Final	0.0	37.5
Norwalk	10%	NS	NS
	35%	3.0	3.0
	Final	149.5	152.5
Santa Fe Springs	10%	NS	NS
	35%	0.4	0.4
	Final	260.3	260.7
Whittier	10%	NS	NS
	35%	2.1	2.1
	Final	252.6	254.7

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

7.1.2. Dry Weather

Dry-weather reductions from non-structural BMPs were calculated using flow from representative dry period (Section 5.2) of 8/17/2003 through 9/30/2003 and 90th percentile concentrations calculated from observed data (Section 5.2.1). Similar to wet weather, a 10% load reduction is assumed to result from the cumulative effect of nonstructural BMPs. Also, the effects of a 25% reduction in irrigation of urban grass was explicitly simulated in the model to estimate the resulting associated reduction of dry weather flows at the RAA Assessment Points. Irrigation was modeled as artificial rainfall within the LSPC model as a function of the potential evapotranspiration of urban grass. Once irrigation was reduced 25%, this directly impacted a large portion of the nonstormwater discharges drivin primarily from over irrigation and impacts on dry weather flows were significant. The projected effect of non-structural and irrigation controls on dry weather flow and loads is presented in Table 7-5. Since *E. Coli* is the limiting dry weather pollutant with required reductions in excess of 90%, the remaining volume reduction not controlled by non-structural measures will be treated by the structural BMPs described in the previous section.

Table 7-5. Projected dry weather reductions from non-structural control measures

Watershed	Constituent	Quantity (Volume or Mass)			Percent Reduction Achieved	
		Baseline	NM	NS	NM	NS
Lower Los Angeles River	Flow (M Gal.)	198.3	178.5	86.6	10.0%	56.4%
	Copper (kg)	19.28	17.35	8.42	10.0%	56.4%
	Lead (kg)	2.58	2.32	1.12	10.0%	56.4%
	E. Coli (Billion MPN)	147,166	132,449	64,230	10.0%	56.4%
Los Cerritos Channel	Flow (M Gal.)	133.6	120.2	56.3	10.0%	57.8%
	Copper (kg)	12.84	11.56	5.42	10.0%	57.8%
	E. Coli (Billion MPN)	71,808	64,627	30,277	10.0%	57.8%
Lower San Gabriel River	Flow (M Gal.)	163.3	147.0	71.2	10.0%	56.4%
	Copper (kg)	18.48	16.63	8.06	10.0%	56.4%
	Selenium (kg)	2.95	2.65	1.29	10.0%	56.4%
	E. Coli (Billion MPN)	13,540	12,186	5,903	10.0%	56.4%
Coyote Creek	Flow (M Gal.)	213.4	192.0	88.4	10.0%	58.6%
	Copper (kg)	23.05	20.75	9.55	10.0%	58.6%
	E. Coli (Billion MPN)	92,887	83,599	38,491	10.0%	58.6%

NM: Non-modeled non-structural practices achieve 10% reduction
NS: Non-structural 25% irrigation reduction practices achieve an additional approximately 60% reduction

8. MS4 Volume Reduction Goals to Achieve Required Pollutant Reductions

Each jurisdiction in the Group's WMP area is subject to stormwater runoff from non-MS4 facilities. In particular, Caltrans roads and facilities regulated by nontraditional or general industrial permits contribute to the runoff volume for each subwatershed. It will be important for these entities to retain their runoff and/or eliminate their cause/contribution to receiving water exceedances. The runoff from these non-MS4 facilities was therefore estimated and subtracted from the cumulative volume reduction goal (Section 7) to establish the MS4 responsible targets as described in Attachment A.

8.1. Summary of MS4 Responsible Reduction Goals

Runoff volumes estimated for non-MS4 permitted areas and Caltrans were subtracted from the reduction target to generate the required MS4 treatment capacity shown in Table 8-1 through Table 8-4.

Table 8-1. Lower Los Angeles River Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

	COMPLIANCE TARGET – FINAL MILESTONE		
Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Downey	726.0	654.7	71.2
Lakewood	14.3	14.3	-
Long Beach	3,901.7	3,039.6	862.1
Lynwood	1,108.1	667.9	440.2
Paramount	988.8	606.1	382.7
Pico Rivera	377.3	287.2	90.0
Signal Hill	197.9	188.9	9.0
South Gate	1,512.6	1,174.3	338.2
TOTAL	8,826.5	6,633.1	2,193.5

Table 8-2. Los Cerritos Channel Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

	COMPLIANCE TARGET – FINAL MILESTONE		
Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Bellflower	1,137.4	990.4	147.0
Cerritos	12.9	12.9	0.0
Downey	112.8	93.0	19.8
Lakewood	1,157.2	1,152.1	5.1
Long Beach	2,676.1	1,629.8	1,046.2
Paramount	631.9	525.5	106.4
Signal Hill	322.6	284.3	38.3
TOTAL	6,050.9	4,688.0	1,364.8

Table 8-3. San Gabriel River Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

Jurisdiction	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Artesia	1.1	1.1	0.0
Bellflower	62.8	57.4	5.4
Cerritos	59.4	4.1	55.3
Diamond Bar	33.0	1.1	32.0
Downey	263.9	87.3	176.7
Lakewood	9.6	2.2	7.4
Long Beach	29.2	29.2	0.0
Norwalk	136.9	4.8	132.1
Pico Rivera	75.1	60.4	14.7
Santa Fe Springs	106.0	30.3	75.8
Whittier	7.5	7.1	0.4
TOTAL	784.6	284.9	499.7

Table 8-4. Coyote Creek Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

Jurisdiction	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Artesia	47.9	15.9	32.0
Cerritos	194.3	56.7	137.6
Diamond Bar	74.0	36.7	37.4
Hawaiian Gardens	30.4	27.1	3.4
La Mirada	175.7	124.9	50.8
Lakewood	25.7	19.7	6.0
Long Beach	37.5	0.0	37.5
Norwalk	152.5	52.5	99.9
Santa Fe Springs	260.7	12.6	248.1
Whittier	254.7	200.1	54.6
TOTAL	1,253.4	546.1	707.3

9. Pollutant Reduction Plan

The BMPs used to achieve the MS4 volume reduction goals in Section 8 are not, per se, a component of the Permit compliance determination. Instead, over time each agency will report and demonstrate that the *cumulative* effect of projects implemented over time add up to the required reductions for interim milestones and final targets (reported as "MS4 Compliance Target"). However, the initial scenario of BMPs for WMP implementation (referred to as a Pollutant Reduction Plan in the RAA Guidelines) and their costs may be the most beneficial outcome of the WMP. A detailed WMP implementation scenario is presented in Attachment B, broken down by jurisdiction and subwatershed. The volume reductions are separated among right-of-way (ROW) BMPs and Low Impact Development (LID) on public parcels (in combination with nonstructural BMPs).

The Pollutant Reduction Plan is considered an "initial" scenario because over time, through adaptive management, the responsible agencies will likely "shift" among different types of BMPs (e.g., increase implementation of green streets and reduce implementation of regional BMPs) or substitute alterative BMPs altogether (e.g., implement dry wells instead of green streets). These shifts will be supported by analyses to show the substituted BMPs provide an equivalent volume reduction as the replaced BMPs.

9.1. Existing/Planned Regional Control Measures

Existing regional BMPs play an integral part in measuring the current reductions and need for future control measures. The annual volume or load removed from the existing and planned regional control measures were subtracted from the MS4 responsible runoff to determine the remaining treatment volume required. Detailed information for the existing and planned regional control measures is found in Attachment A.

The existing and planned regional control measure information was provided for the Lower Los Angeles River and Lower San Gabriel River. The jurisdictions that were impacted are listed with the associated annual reduction provided by these facilities in Table 9-1 and Table 9-2.

Table 9-1. Lower Los Angeles River Critical Year Existing/Planned Regional BMP Runoff Volume Reductions

	COMPLIANCE TARGET		
Jurisdiction	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Existing/Planned Regional BMP Reductions (acre-ft/year)	Remaining MS4 Responsible Critical Year Storm Volume (acre-ft/year)
Lakewood	14.3	6.4	7.9
Long Beach	3,039.6	633.4	2,406.2
Signal Hill	188.9	22.7	166.2

Table 9-2. Lower San Gabriel River Critical Year Existing/Planned Regional BMP Runoff Volume Reductions

	COMPLIANCE TARGET		
Jurisdiction	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Existing/Planned Regional BMP Reductions (acre-ft/year)	Remaining MS4 Responsible Critical Year Storm Volume (acre-ft/year)
Downey	87.3	24.0	63.3

9.2. Future Control Measures for Attainment of Interim and Final Limits

The Pollutant Reduction Plans for wet and dry weather illustrate the sequencial BMP implementation strategy to attain all interim and final limits. Within each of the jurisdictions, the subwatershed subareas were individually prioritized and associated with milestones on the basis of cost-effectiveness for zinc removal. The optimization modeling results presented in Section 7 and Figure 9-1, Figure 9-2 and Figure 9-3 shown below identify the prioritization of subwatershed implementation based on the most effective combination of BMPs. The implementation schedule outlined in the Pollutant Reduction Plans for wet and dry weather are based upon this prioritization. The plans are presented in the following subsections.

9.2.1. Wet Weather

The interim and final targets are presented in total acre-feet per year that requires treatement through structural BMPs (less the non-MS4 and existing regional volumes as described in Sections 8 and 9.1). To properly capture the annual volume, BMPs are sized to the minimum volume needed to capture the target annual volume. Thus, the BMPs are presented as a volume (acre-feet) that has the ability to capture the required annual total to meet compliance.

An overall jurisdictional summary table is presented in Table 9-3 that outlines the required BMP volume to achieve compliance in the associated WMP group. The BMP volumes are the sum of existing distributed BMPs, potential green street BMPs, LID on public parcels, and remaining BMP volume that must be implemented as regional (or other) projects as necessary to meet the annual volume reduction target.

Table 9-4 through Table 9-7 outlines the jurisdiction-wide BMP volume targets necessary to meet the annual volume interim and final limits established in Section 8. Each distributed BMP was associated with a jurisdictional subwatershed and the associated implementation schedule, thus summing their impact across different interim goals. The remaining BMP volume after accounting for existing distributed BMPs is spread across right-of-way BMPs, LID on public parcels, and remaining BMP volume including potential regional projects. Priority was given to LID on public parcels, followed by right-of-way BMPs and finally other BMPs. Deatiled discussion on how the BMPs in the right-of-way and LID on public parcels were determined is found in Attachment A. Detailed tables are provided in Attachment B for each jurisdiction and associated subwatersheds. Detailed tables describing the existing distributed BMPs are found in Attachment D.

Table 9-3. Jurisdictional Final Target BMP Volumes by WMP Group

	LLAR	LCC	LSGR - SGR	LSGR - CC	
Jurisdiction	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**TOTAL**
Artesia	-	-	0.1	1.1	**1.2**
Bellflower	-	118.2	5.5	-	**123.7**
Cerritos	-	1.6	0.6	6.4	**8.6**
Diamond Bar	-	-	0.2	8.9	**9.1**
Downey	83.4	10.2	17.5	-	**111.2**
Hawaiian Gardens	-	-	-	2.2	**2.2**
La Mirada	-	-	-	15.2	**15.2**
Lakewood	1.2	169.5	0.4	1.9	**173.0**
Long Beach	319.1	208.7	2.7	0.0	**530.5**
Lynwood	95.5	-	-	-	**95.5**
Norwalk	-	-	0.3	4.7	**5.0**
Paramount	76.6	55.1	-	-	**131.7**
Pico Rivera	41.2	-	10.8	-	**52.0**
Santa Fe Springs	-	-	4.9	2.1	**7.0**
Signal Hill	22.3	28.6	-	-	**50.9**
South Gate	173.0	-	-	-	**173.0**
Whittier	-	-	1.4	39.1	**40.5**
TOTAL	**812.3**	**591.9**	**44.4**	**81.6**	**1,530.2**

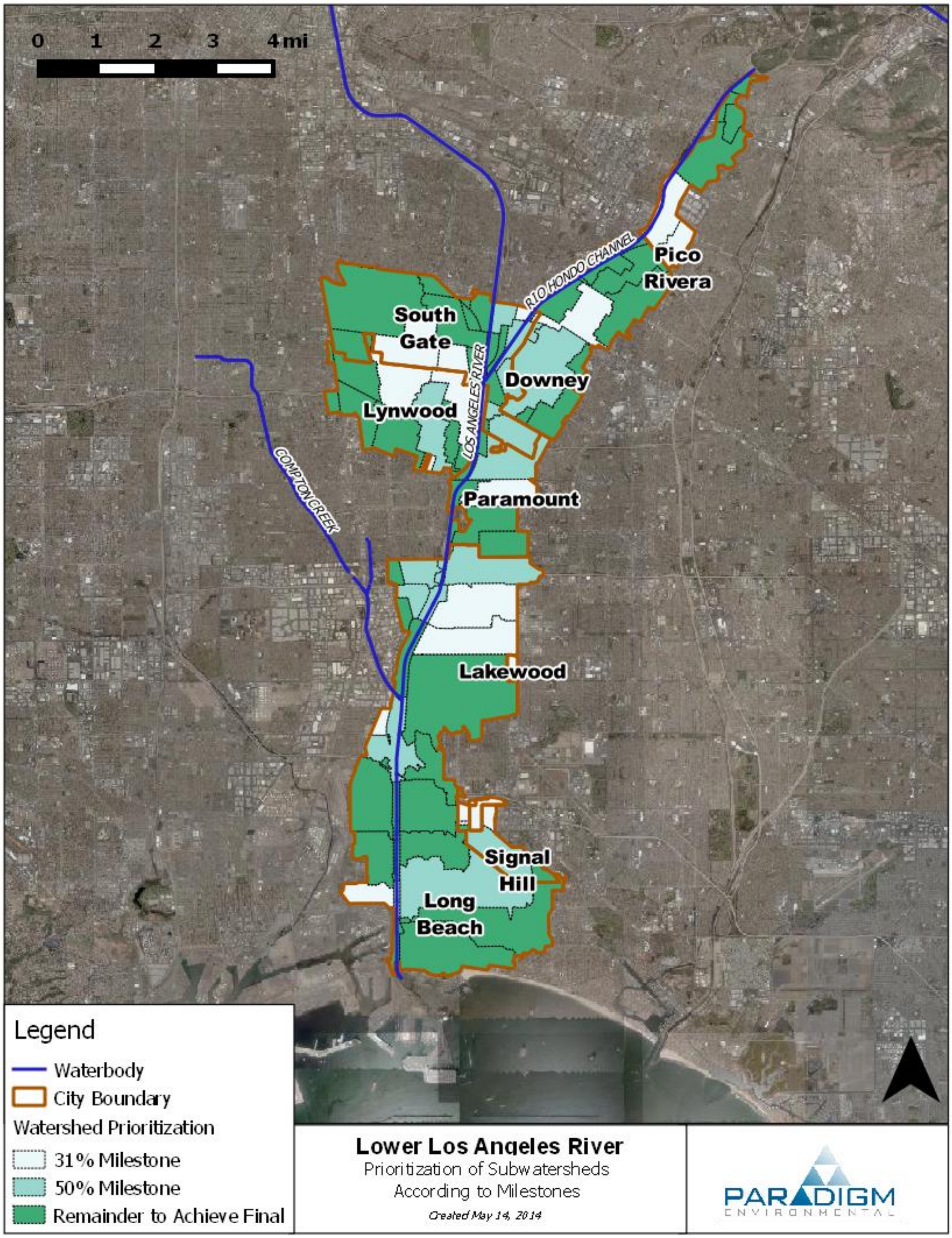


Figure 9-1. LLAR implementation areas associated with Interim and final milestones.

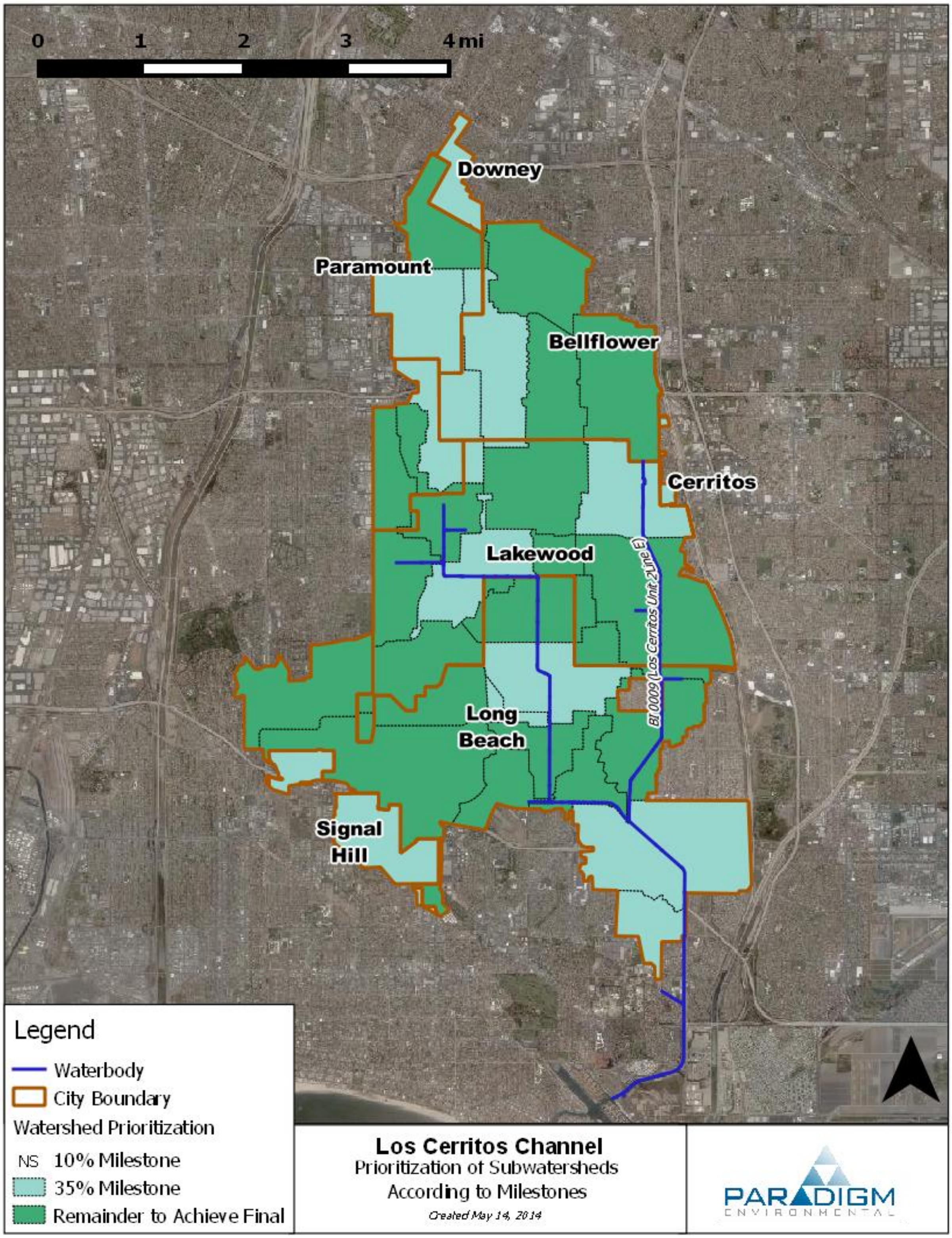


Figure 9-2. LCC implementation areas associated with Interim and final milestones.

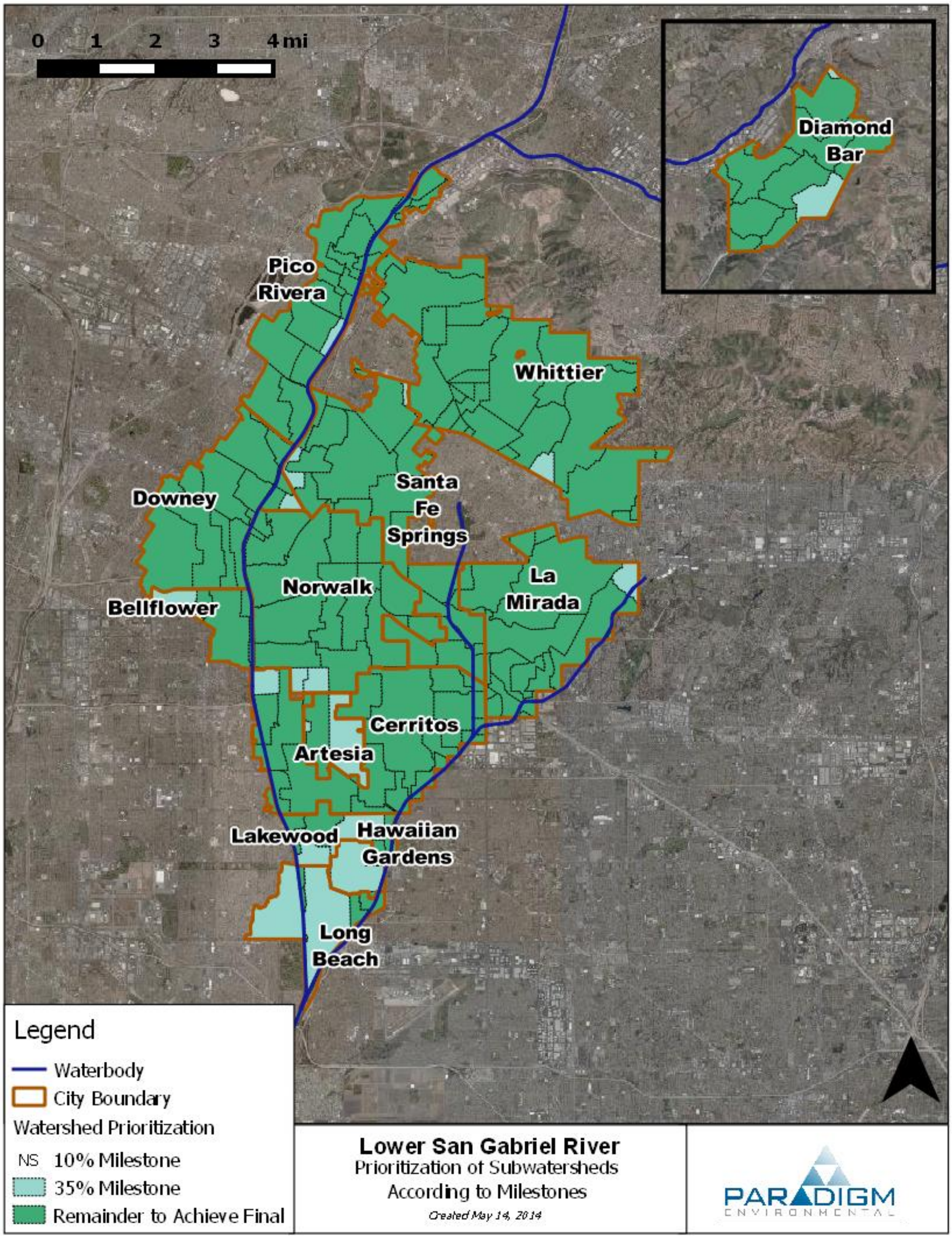


Figure 9-3. LSGR implementation areas associated with Interim and final milestones.

Table 9-4. Lower Los Angeles River Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Downey	31%	143.8	143.8	1.1	12.2	12.2	0.7	0.7	7.1	7.1
	50%	187.1	330.9	0.7	2.5	14.7	10.1	10.8	0.6	7.7
	Final	323.9	654.7	2.0	31.2	45.9	4.4	15.3	10.7	18.4
Lakewood	31%	7.9	7.9	NA	1.1	1.1	0.0	0.0	-	-
	50%	-	7.9		-	1.1	-	0.0	-	-
	Final	-	7.9		-	1.1	-	0.0	-	-
Long Beach	31%	6.5	6.5	NA	1.0	1.0	0.0	0.0	-	-
	50%	567.0	573.5		40.3	41.3	7.5	7.5	24.7	24.7
	Final	1,832.7	2,406.2		113.4	154.6	20.8	28.3	111.5	136.2
Lynwood	31%	235.9	235.9	NA	18.4	18.4	2.7	2.7	13.1	13.1
	50%	134.9	370.8		12.8	31.2	3.8	6.5	0.1	13.2
	Final	297.2	667.9		22.7	53.9	4.5	11.1	17.3	30.5
Paramount	31%	163.7	163.7	0.1	9.0	9.0	1.7	1.7	10.2	10.2
	50%	65.7	229.4		7.4	16.4	0.8	2.5	0.3	10.4
	Final	376.6	606.1		14.9	31.2	2.1	4.7	30.2	40.6
Pico Rivera	31%	275.3	275.2	NA	11.5	11.5	0.5	0.5	27.4	27.4
	50%	-	275.2		-	11.5	-	0.5	-	27.4
	Final	12.0	287.2		1.3	12.8	0.0	0.5	0.5	27.9
Signal Hill	31%	8.5	8.5	0.2	0.8	0.8	0.2	0.2	0.2	0.2
	50%	105.8	114.3		7.0	7.8	0.9	1.1	5.9	6.1
	Final	51.9	166.2		2.2	10.0	0.0	1.1	4.9	11.0
South Gate	31%	229.3	229.3	4.7	23.2	23.2	0.9	0.9	6.5	6.5
	50%	198.1	427.4		15.0	38.3	0.8	1.7	12.6	19.1
	Final	746.9	1,174.3		49.3	87.5	5.1	6.8	54.7	73.8

Table 9-5. Los Cerritos Channel Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Bellflower	10%	NS	NS		-	-	-	-	-	-
	35%	244.4	244.4	NA	15.1	15.1	1.2	1.2	16.2	16.2
	Final	746.0	990.4		43.0	58.1	3.2	4.5	39.4	55.6
Cerritos	10%	NS	NS		-	-	-	-	-	-
	35%	9.7	9.7	NA	1.0	1.0	0.0	0.0	0.5	0.5
	Final	3.2	12.9		-	1.0	-	0.0	0.1	0.6
Downey	10%	NS	NS		-	-	-	-	-	-
	35%	57.2	57.2	0.1	5.3	5.3	0.0	0.0	2.7	2.7
	Final	35.8	93.0		-	5.3	-	0.0	2.1	4.8
Lakewood	10%	NS	NS		-	-	-	-	-	-
	35%	282.4	282.4	NA	31.5	31.5	4.7	4.7	6.9	6.9
	Final	869.7	1,152.1		90.0	121.5	7.0	11.8	29.3	36.2
Long Beach	10%	NS	NS		-	-	-	-	-	-
	35%	473.5	473.5	NA	33.8	33.8	12.3	12.3	16.4	16.4
	Final	1,156.3	1,629.8		87.9	121.7	9.5	21.8	48.9	65.3
Paramount	10%	NS	NS		-	-	-	-	-	-
	35%	267.0	267.0	NA	14.3	14.3	3.0	3.0	17.1	17.1
	Final	258.5	525.5		8.5	22.8	3.5	6.4	8.7	25.8
Signal Hill	10%	NS	NS		-	-	-	-	-	-
	35%	231.6	231.6	0.0	11.2	11.2	1.2	1.2	14.2	14.2
	Final	52.7	284.3		-	11.2	-	1.2	2.0	16.2

NS: Non-structural practices achieve 10% milestone
NA: No information/not enough information provided
*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

Table 9-6. San Gabriel River Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Artesia	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.1	1.1		-	-	0.1	0.1	-	-
	Final	-	1.1		-	-	-	0.1	-	-
Bellflower	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.3	1.3		0.2	0.2	0.0	0.0	-	-
	Final	56.1	57.4		1.5	1.8	3.7	3.7	0.0	0.0
Cerritos	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	4.1	4.1		0.6	0.6	0.0	0.0	-	-
Diamond Bar	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	1.1	1.1		0.2	0.2	-	-	-	-
Downey	10%	NS	NS		-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	63.3	63.3	7.1	10.0	10.0	0.4	0.4	-	-
Lakewood	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	2.2	2.2		0.2	0.2	0.0	0.0	0.1	0.1
Long Beach	10%	NS	NS	NA	-	-	-	-	-	-
	35%	26.9	26.9		1.1	1.1	1.3	1.3	-	-
	Final	2.3	29.2		0.3	1.4	-	1.3	0.0	0.0

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Norwalk	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.8	0.8		-	-	0.1	0.1	-	-
	Final	4.0	4.8		-	-	0.3	0.3	-	-
Pico Rivera	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.2	0.2		0.0	0.0	-	-	-	-
	Final	60.2	60.4		10.7	10.8	-	-	0.0	0.0
Santa Fe Springs	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	30.3	30.3		4.6	4.6	-	-	0.3	0.3
Whittier	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.0	0.0		-	-	-	-	0.0	0.0
	Final	7.1	7.1		1.4	1.4	-	-	-	0.0

NS: Non-structural practices achieve 10% milestone
NA: No information/not enough information provided
*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

Table 9-7. Coyote Creek Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Artesia	10%	NS	NS	NA	-	-	-	-	-	-
	35%	15.9	15.9		-	-	1.1	1.1	-	-
	Final	-	15.9		-	-	-	1.1	-	-
Cerritos	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.1	0.1		0.0	0.0	-	-	-	-
	Final	56.6	56.7		3.0	3.1	3.4	3.4	-	-
Diamond Bar	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.0	1.0		0.3	0.3	-	-	-	-
	Final	35.6	36.7		8.0	8.2	-	-	0.7	0.7
Hawaiian Gardens	10%	NS	NS	NA	-	-	-	-	-	-
	35%	23.6	23.6		0.3	0.3	1.5	1.5	-	-
	Final	3.4	27.1		0.2	0.6	0.1	1.6	0.0	0.0
La Mirada	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	124.9	124.9		9.6	9.6	5.6	5.6	-	-
Lakewood	10%	NS	NS	NA	-	-	-	-	-	-
	35%	17.5	17.5		0.9	0.9	0.7	0.7	-	-
	Final	2.3	19.7		-	0.9	0.3	0.9	-	-
Long Beach	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	0.0	0.0		-	-	0.0	0.0	-	-

Jurisdiction	Milestone	COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Norwalk	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.6	1.6		-	-	0.2	0.2	-	-
	Final	50.9	52.5		1.4	1.4	3.2	3.4	-	-
Santa Fe Springs	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	12.6	12.6		1.0	1.0	-	-	1.1	1.1
Whittier	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	200.1	200.1		39.0	39.0	-	-	0.0	0.0

NS: Non-structural practices achieve 10% milestone

NA: No information/not enough information provided

*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

9.2.2. Dry Weather

Dry weather reductions are attained through a combination of non-structural practices and structural BMPs as they are implemented as part of the wet weather attainment of limits. As wet-weather BMPs are implemented, they serve to remove the dry-weather flows thus meeting the compliance set forth to achieve dry-weather reductions. As a summary of the dry weather analysis, Table 9-8 through Table 9-11 outline the jurisdiction-wide attainment of interim and final milestones for dry weather. The reduction from implemented BMPs compares the actual dry-weather reduction versus the compliance target.

Table 9-8. Lower Los Angeles River Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Downey	31%	30.8%	65.9%
	50%	49.7%	76.9%
	Final	99.4%	99.4%
Lakewood	31%	30.8%	99.4%
	50%	49.7%	99.4%
	Final	99.4%	99.4%
Long Beach	31%	30.8%	62.1%
	50%	49.7%	74.3%
	Final	99.4%	99.4%
Lynwood	31%	30.8%	71.8%
	50%	49.7%	80.2%
	Final	99.4%	99.4%
Paramount	31%	30.8%	51.0%
	50%	49.7%	72.4%
	Final	99.4%	99.4%
Pico Rivera	31%	30.8%	71.8%
	50%	49.7%	71.8%
	Final	99.4%	99.4%
Signal Hill	31%	30.8%	69.3%
	50%	49.7%	94.9%
	Final	99.4%	99.4%
South Gate	31%	30.8%	62.8%
	50%	49.7%	75.9%
	Final	99.4%	99.4%

Table 9-9. Los Cerritos Channel Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Bellflower	10%	9.9%	58.1%
	35%	34.7%	71.4%
	Final	99.1%	99.1%
Cerritos	10%	9.9%	56.4%
	35%	34.7%	99.1%
	Final	99.1%	99.1%
Downey	10%	9.9%	59.8%
	35%	34.7%	99.1%
	Final	99.1%	99.1%
Lakewood	10%	9.9%	55.6%
	35%	34.7%	69.6%
	Final	99.1%	99.1%
Long Beach	10%	9.9%	60.1%
	35%	34.7%	76.9%
	Fin al	99.1%	99.1%
Paramount	10%	9.9%	52.8%
	35%	34.7%	79.8%
	Final	99.1%	99.1%
Signal Hill	10%	9.9%	60.8%
	35%	34.7%	99.1%
	Final	99.1%	99.1%

Table 9-10. San Gabriel River Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Artesia	10%	9.4%	57.6%
	35%	33.0%	94.3%
	Final	94.25%	94.25%
Bellflower	10%	9.4%	49.9%
	35%	33.0%	57.6%
	Final	94.25%	94.25%
Cerritos	10%	9.4%	43.7%
	35%	33.0%	48.1%
	Final	94.25%	94.25%
Diamond Bar	10%	9.4%	58.2%
	35%	33.0%	58.8%
	Final	94.25%	94.25%
Downey	10%	9.4%	57.4%
	35%	33.0%	58.1%
	Final	94.25%	94.25%
Lakewood	10%	9.4%	43.1%
	35%	33.0%	73.7%
	Final	94.25%	94.25%
Long Beach	10%	9.4%	46.6%
	35%	33.0%	91.6%
	Final	94.25%	94.25%
Norwalk	10%	9.4%	54.8%
	35%	33.0%	55.7%
	Final	94.25%	94.25%
Pico Rivera	10%	9.4%	51.8%
	35%	33.0%	51.9%
	Final	94.25%	94.25%
Santa Fe Springs	10%	9.4%	54.4%
	35%	33.0%	57.9%
	Final	94.25%	94.25%
Whittier	10%	9.4%	57.9%
	35%	33.0%	58.0%
	Final	94.25%	94.25%

Table 9-11. Coyote Creek Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Artesia	10%	9.9%	60.9%
	35%	34.6%	85.1%
	Final	98.9%	98.9%
Cerritos	10%	9.9%	56.3%
	35%	34.6%	56.3%
	Final	98.9%	98.9%
Diamond Bar	10%	9.9%	61.3%
	35%	34.6%	65.9%
	Final	98.9%	98.9%
Hawaiian Gardens	10%	9.9%	59.7%
	35%	34.6%	96.9%
	Final	98.9%	98.9%
La Mirada	10%	9.9%	57.4%
	35%	34.6%	58.7%
	Final	98.9%	98.9%
Lakewood	10%	9.9%	60.7%
	35%	34.6%	76.5%
	Final	98.9%	98.9%
Long Beach	10%	9.9%	54.5%
	35%	34.6%	91.9%
	Final	98.9%	98.9%
Norwalk	10%	9.9%	59.2%
	35%	34.6%	60.8%
	Final	98.9%	98.9%
Santa Fe Springs	10%	9.9%	51.7%
	35%	34.6%	52.0%
	Final	98.9%	98.9%
Whittier	10%	9.9%	60.7%
	35%	34.6%	61.4%
	Final	98.9%	98.9%

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Attachment A: DETERMINATION OF BMP TREATMENT CAPACITY

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

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Figure 1-10. Example determination of runoff coefficient inflection point for an arbitrary soil type in Appendix C of LACDPW (2006). 16

1. Determination of BMP Treatment Capacity

The process for determining the necessary cumulative BMP capacity depends on the type of numeric goal being addressed. As shown in Figure 1-1, the volume-based (design storm) approach, necessary BMP capacity was determined through a design storm analysis. For the load-based (pollutant reduction), the analysis leveraged the optimization routines in the customized WMMS. An initial step in the RAA was a comparison of the volume reductions required by the load-based and volume-based numeric goals, to support selection of the wet weather critical conditions.

This appendix describes key analyses conducted to determine the potential capacity of different BMPs including non-structural BMPs. In addition, it describes the approach for non-MS4 sources.

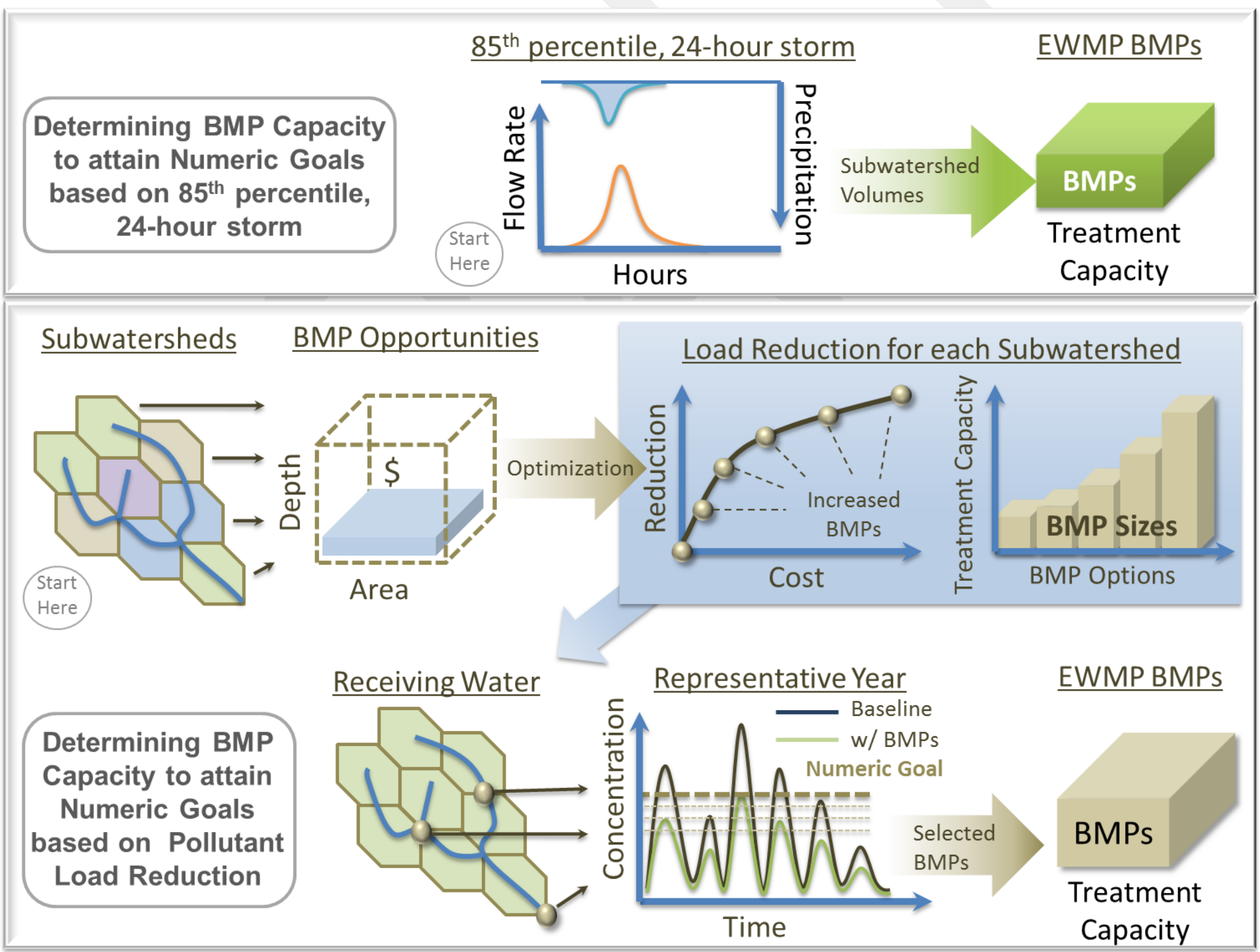

Figure 1-1. Illustration of Process for Determining Required BMP Capacities for the WMP using Volume-Based (top panel) and Load-Based (bottom panel) Numeric Goals.

1.1. Load Reduction Optimization Modeling Analysis

During development of WMMS, distributed BMPs were modeled at the subwatershed-scale using a generalized BMP treatment train. Depending on the land use type, different types of BMPs were applied. The three generalized BMP pathways were: (1) transportation, (2) residential, and (3) commercial/industrial/institutional. A conceptual schematic of the BMP network and pathways is presented in Figure 1-2 (LACDPW 2011).

For the RAA, subwatershed-scale SUSTAIN models were developed using the WMMS modeling assumptions. Each BMP from the treatment train described in Figure 1-2 was configured consistently with modeling performed during development of the WMMS system and followed the Regional Board RAA guidelines. A summary of key BMP parameters used for RAA modeling are presented in Table 1-1. Background infiltration rates were changed from those used during WMMS development (0.5 inches per hour) to site-specific infiltrations rates provided in the Los Angeles County Hydrology Manual and associated spatial datasets (LACDPW 2006). These rates also deviate somewhat from the values suggested in the RAA Guidelines (0.1 – 0.3 inches per hour); however, the data are locally-derived, published and reliable which provides adequate justification for their use.

First, SUSTAIN models were configured using the existing condition watershed model runoff timeseries and land use distributions as inputs, and benchmarked against the aggregated LSPC model results to establish baseline consistency. Second, using the SUSTAIN configuration with the respective BMP opportunities per pathway (as presented in Figure 1-2) in each subwatershed, optimization runs were formulated to maximize zinc reduction (i.e. the limiting target pollutant) while minimizing total estimated implementation cost. This resulted in a matrix of high-resolution cost-effectiveness curves for each subwatershed. Finally, a Tier-II optimization framework was configured to collectively optimize target load reductions at the downstream assessment point, with an added equitability constraint to ensure that each jurisdiction shared proportionally in the reduction effort. For the Tier-II optimization, instead of the decision variables being individual BMPs within a network like before, they were comprised of individual solutions taken off the cost-effectiveness curves at each subwatershed. The primary objective was to quantify the stormwater retention volume and load reductions provided by the collective actions occurring within each contributing jurisdiction tributary to the assessment point.

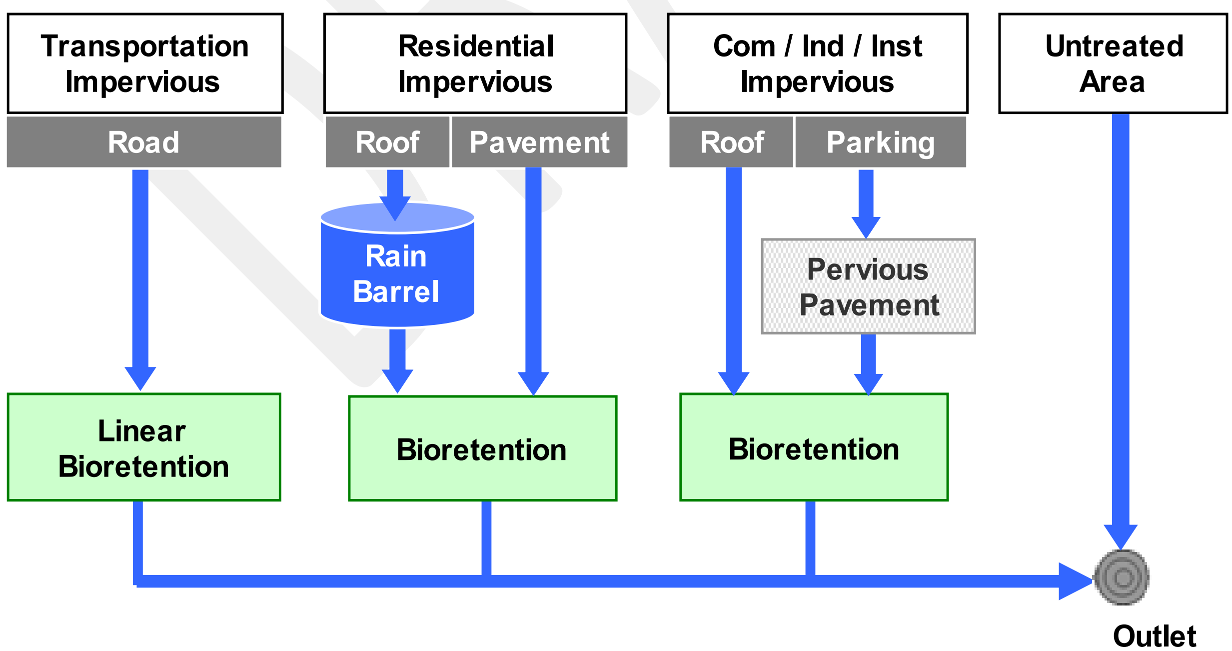

Figure 1-2. Conceptual schematic of the WMMS aggregate BMP treatment train (LACDPW 2011b).

Table 1-1. BMP parameters used in the load reduction modeling analysis

Constituent Group	Rain Barrel	Bioretention	Porous Pavement
Media Infiltration Rate (in/hr)	n/a	0.1 – 0.9	0.1 – 0.9
Substrate Layer Porosity (fraction)	n/a	0.4	0.4
Substrate Layer Field Capacity (fraction)	n/a	0.3	0.055
Substrate Layer Wilting Point (fraction)	n/a	0.1	0.05
Underdrain Gravel Porosity (fraction)	n/a	0.5	0.45
Vegetative Parameter, A (unitless)	n/a	0.6	1.0
Background Infiltration Rate (in/hr)	n/a	0.1 – 0.9	0.1 – 0.9
First Order Decay Rate (1/day)[1]	0.2 – 0.8	0.2 – 0.8	0.2 – 0.8
Underdrain Filtration Rate (%)[1]	n/a	0.5 – 0.9	0.5 – 0.9

1. Rates vary by pollutant and the type of BMP soil media

1.2. BMP Capacity Analysis for the Rights-of-Way

A key consideration for WMP implementation is the potential BMP capacity that could be provided by rights-of-way (ROW). In order to highlight the potential structural BMP implementation approaches to meet the volume targets, a BMP opportunity analysis was conducted. Two broad categories of BMPs – ROW BMPs and LID on public parcels – were used to describe the networks of BMPs needed to meet the target reductions.

This section describes how right-of-ways were evaluated for opportunities to locate BMPs and evaluate the key components that affect the ability of the ROW BMP networks to be effective: space available in the ROW, types of BMPs to site in the ROW, drainage areas that could potentially be treated by ROW BMPs, and estimated BMP infiltration rates.

Stormwater BMPs in the ROW are treatment systems arranged linearly within the street ROW and are designed to reduce runoff volumes and improve runoff water quality from the roadway and adjacent parcels. Implementing BMPs in the ROW provides an opportunity to meet water quality goals by locating BMPs in areas owned or controlled by a municipality to avoid the cost of land acquisition or establishing an easement. Implementing BMPs in the ROW allows for direct control of construction, maintenance, and monitoring activities by the responsible jurisdiction. Bioretention and permeable pavement are typically best suited for implementation in the ROW

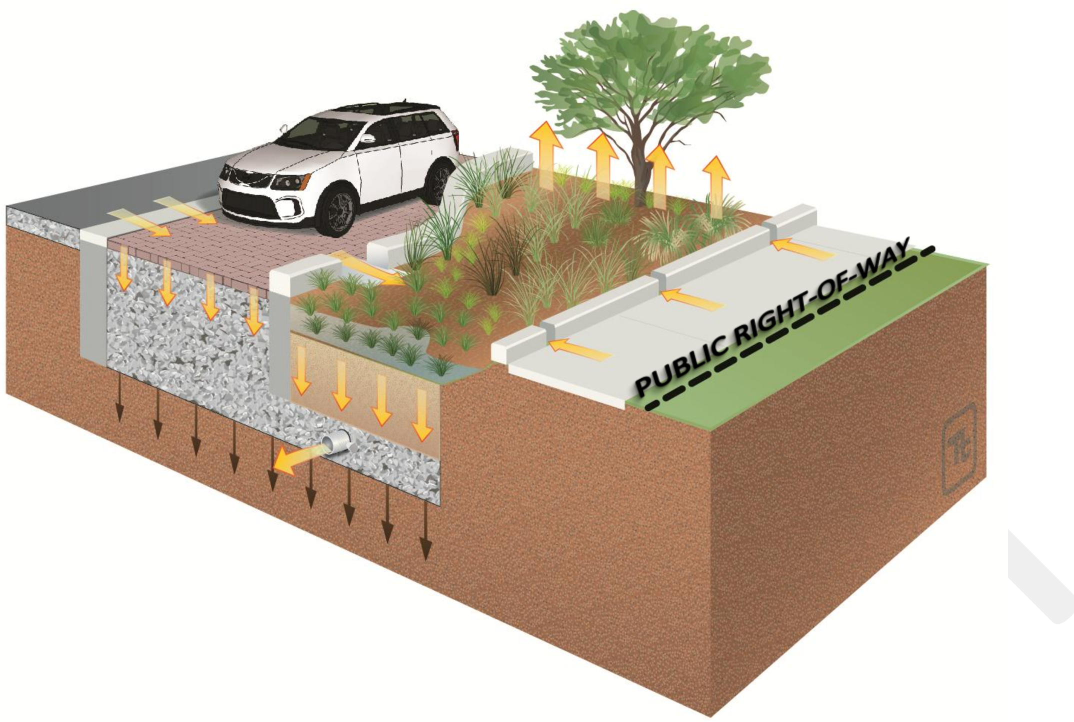

Figure 1-3. Conceptual schematic of ROW BMPs with an underdrain (Arrows indicate water pathways).

Not all roads are suited for ROW BMP retrofits; therefore, screening is required to eliminate roads where ROW BMP retrofits are impractical or infeasible due to physical constraints. While ROW BMP retrofits can be implemented in a variety of settings, the physical characteristics of the road itself such as the road type, local topography, and depth to groundwater can significantly influence the practicality of designing and constructing these features. A screening protocol was established to identify realistic opportunities for retrofits based on the best available GIS data. The opportunities identified during this process provide the foundation for the engineering analysis to determine the volume of stormwater that can be treated by ROW BMP retrofits in the subject watersheds. This section describes the data and the screening process used to identify the best available roads for ROW BMP retrofits.

1.2.1. Data Used

To evaluate BMP opportunities and available implementation areas, several key data sets were processed and formatted. Table 1-2 outlines the data set names, formats, descriptions, and sources.

Table 1-2. Summary of Data

Data Set	Format	Description	Source
Parcels	GIS Shapefile	Outlines property boundaries and sizes	Los Angeles County (LAC) Assessor
Roads	GIS Shapefile	Shows street centerline network & classification by Topologically Integrated Geographic Encoding and Reference (TIGER)	LAC GIS Portal
Land Use	GIS Shapefile	Subdivides the region into predefined land use categories with similar runoff properties. Each individual land use feature identifies the associated percent impervious coverage.	LAC WMMS Model
Subwatersheds	GIS Shapefile	Defines drainage areas to selected outlet points	LAC WMMS Model
Slopes	GIS Shapefile	Classifies regions by the slope category	LAC WMMS Model
Soils	GIS Shapefile	Outlines spatial extents of dominant soil types	LAC GIS Portal
Jurisdictions	GIS Shapefile	Establishes city and county boundaries	LAC GIS Portal
Drainage Network	GIS Shapefile	Identifies stormwater structure layout and conveyance methods	LAC GIS Portal
Groundwater Contours	GIS Shapefile	Illustrates groundwater depth as measured from the surface	LAC BOS
Soil Runoff Coefficient Curves	PDF File	Curves characterize effect of rainfall intensity on runoff coefficient per soil type	Hydrology Manual Appendix C (LADPW 2006)
Aerial Imagery	Layer File	Orthoimage of entire region	ESRI Maps & Data Imagery
Runoff Rates	Time Series	Hourly runoff for land uses for the continuous simulation model	LAC WMMS Model

1.2.2. ROW BMP Screening

High traffic volumes, speed limits, slopes, and groundwater tables, impact the feasibility of ROW BMP implementation. Road classification data contains information typically useful for determining if the street is subject to high traffic volumes and speeds, and Census TIGER road data provides the best available road classification information for the study area. Table 1-3 shows the Master Address File (MAF)/TIGER Feature Classification Codes (MTFCC) deemed appropriate for ROW BMP retrofit opportunities. Only roads with the MTFCCs listed in Table 1-3 can be considered for ROW BMP retrofits in this screening analysis. All other roads are screened out.

Table 1-3. ROW BMP MTFCC

MTFCC	Description
S1400	Local neighborhood road, rural road, city street
S1730	Alley
S1780	Parking lot road

In addition to the screening of road types, opportunities were further screened to remove segments that have steep slopes. BMP implementation on streets with grades greater than 10 percent present engineering challenges that substantially reduce the cost effectiveness of the retrofit opportunity. From the available slope information, roads were considered as retrofit opportunities if the slope was less than 10 percent.

The final screen applied to the roads is the depth to groundwater. Implementing ROW BMPs in areas where the groundwater table is high is not recommended due to the fact that the BMPs are rendered ineffective due to their storage capacity being seriously diminished with groundwater inflow. From the groundwater contours provided, roads were eliminated as opportunities if the depth to groundwater was less than 10 feet. Attachment C highlights the areas identified with groundwater depths of 10 feet or less. The highlighted areas provide a starting point for elimination, however it should be noted that further evaluation may be necessary based on local knowledge of areas with high groundwater tables or daylighting of perched groundwater layers as identified by the jurisdictions.

The results of the ROW BMP screening are presented in Attachment C. Attachment C shows the roads available for retrofit (highlighted in green) versus all of the roads within the study area. An overall watershed map and individual jurisdictional maps for each watershed show all the identified retrofit opportunities. The maps indicate that a majority of the roads within each jurisdiction pass through the screening as potential retrofits. It should be noted that due to the coarse nature of the road classification data, only freeways, highways, and major roads were eliminated in the classification screening process. In practice, retrofitting every street that passed through the screening will likely not be feasible and adaptive management strategies will be necessary in the future to further refine the road classification data layer to more accurately identify road types suitable for ROW BMP retrofits.

The screened opportunities were used as the basis to evaluate the potential runoff volume reduction provided by ROW BMP implementations. In the following section, an engineering assessment is presented that determines the ROW BMP contributing drainage areas and the overall volume reductions achieved through ROW BMP implementation.

1.2.3. ROW BMP Configuration

The three most important assumptions necessary to evaluate BMP volume reduction performance are (1) the physical BMP configuration assumptions, (2) the contributing drainage area characteristics, and (3) the in-situ soil infiltration rates. By understanding the area draining to the BMPs and the volume capacity and function of the BMPs, an assessment can be performed to evaluate the potential of ROW retrofit BMPs to capture the required runoff volume in each subwatershed. This section summarizes the information and processes used to establish BMP configuration assumptions to be used for the runoff analysis presented in the following section.

1.2.4. BMP Assumptions Based on Green Streets

ROW BMPs consists of multiple types and combinations of stormwater treatment options. A well-established and often utilized ROW BMP is green streets. Green streets provide multiple benefits for pollutant and volume reduction and have been implemented in locations throughout the nation. In the future and as updates are made to the WMP, other ROW BMPs may be incorporated to achieve the required volume reductions.

Green streets typically consist of bioretention areas between the curb and sidewalk (herein referred to as the parkway) and/or permeable pavement within the parking lane. Prior to evaluating green street BMP treatment capacity, it is imperative to establish a configuration that can be assumed for typical implementation watershed-wide. This establishes the parkway space needed for the BMPs (plan view) and also determines the hydraulic function and storage capacity of the subsurface systems.

Bioretention systems are surface and subsurface water filtration systems, which use vegetation and underlying soils to store, filter, and reduce runoff volume while removing pollutants. Figure 1-4 represents a typical bioretention system incorporated into a green street design. Bioretention systems consist of a ponding depth and engineered soil media depth to treat runoff. Table 1-4 outlines typical widths, depths, and soil parameters associated with green street bioretention cells. Green streets were assumed to have no underdrains because the

WMP emphasizes low impact development and stormwater volume reduction to achieve pollutant load reductions.

Driveways and utilities limit the road length that can be converted into a green street. From past experience and aerial imagery review in the local watersheds, it was determined that 30 percent of the road length could be considered as the maximum possibility for conversion into bioretention area. This factor was used to limit the total length of potential green street bioretention areas. The parameters outlined above and in the table below were assumed to be the typical green street BMP implementation configuration for the screening analysis and the BMP treatment capacity evaluation described in the next section.

Table 1-4. BMP Design and Modeling Parameters for Subsequent Analyses

Component	Design Parameter	Value
Ponding Area	Depth	0.8 feet
	Width	4.0 feet
Media Layer	Depth	3.0 feet
	Porosity	0.4
Overall Profile	Effective Depth[1]	2.0 feet

[1] Effective depth is the maximum equivalent depth of water stored within the bioretention area less the depth displaced by soil media (vertical summation of surface ponding depth and void storage depth)

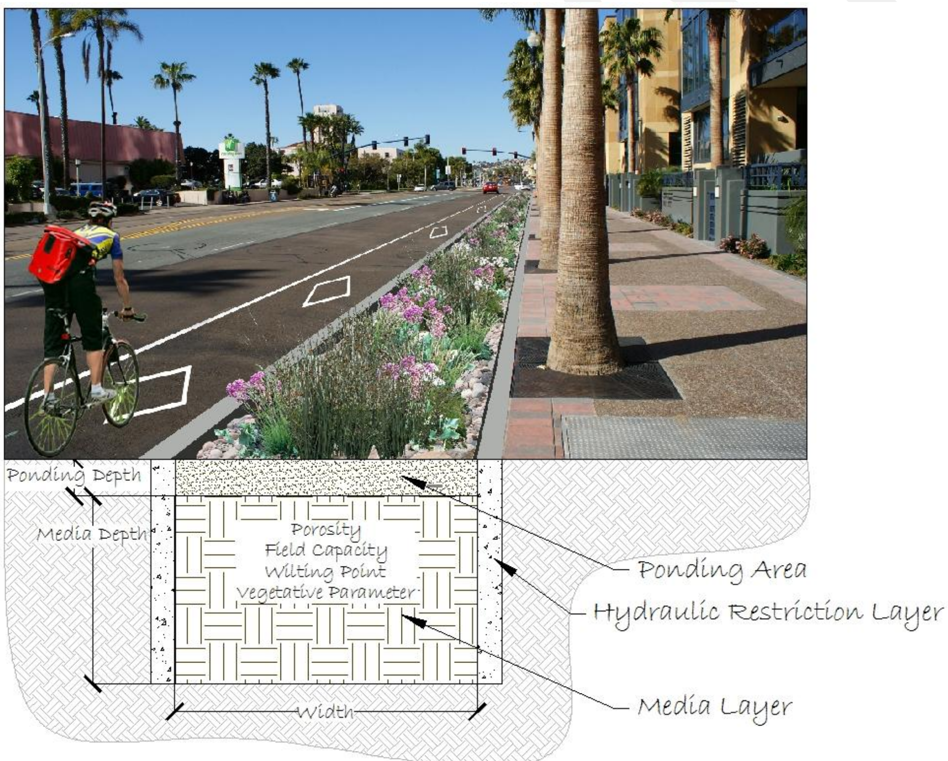

Figure 1-4. Typical bioretention section view (City of San Diego 2011).

Contributing Drainage Area Analysis

The purpose of this analysis was to realistically represent the area, type, and impervious coverage of land draining to potential green streets throughout the entire watershed. This is a critical step in WMP development because it predicts what volume of runoff can be assumed treated by green streets and what remaining (untreated) runoff must be routed to regional BMPs or addressed in other ways. The following engineering analyses were performed at a subwatershed-scale within the limits of available data and resources to estimate the maximum potential green street treatment capacity; given more detailed street-by-street drainage area data, the assumptions and results presented herein could be refined in future efforts to optimize green street treatment capacity. Figure 1-5 illustrates a simplified routing schematic used to represent the available runoff flow pathways to green street and regional BMPs throughout the watershed. The following subsections explain how each representative drainage area illustrated in Figure 1-5 was characterized.

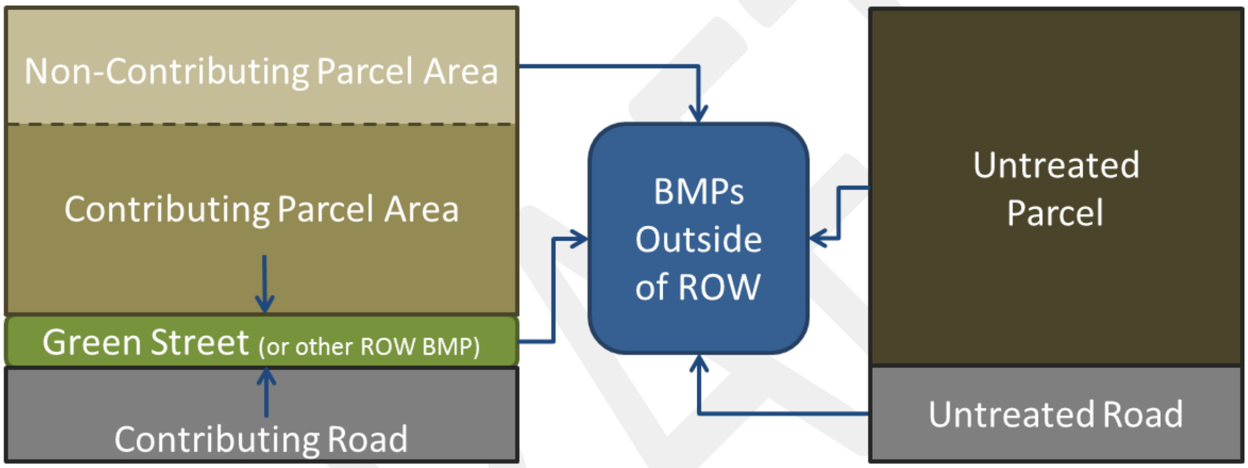

Figure 1-5. Green streets model schematic (arrows denote direction of runoff routing; figure not to scale).

Typical Parcel Size & Street Frontage Analysis

The nature of the green street analysis requires an understanding of typical parcel sizes and how much of the parcel drains to the ROW. Much of the runoff from parcels and the road drains to the ROW and is conveyed downstream through curb, gutter, and pipes. By identifying the typical parcel size, frontage length, and associated road area that drains to a candidate right-of-way area (Figure 1-6) the total area draining to potential green street retrofit opportunities was extrapolated throughout the watershed. For purposes of this study, only the high-density residential, multifamily residential, commercial, institutional, and industrial land uses were considered as contributing substantial runoff to the ROW (all other land uses contain minimal impervious area and thus contribute insubstantial runoff to the ROW).

The typical parcel size for each land use was determined by identifying all parcels for each land use. Once all the parcels were selected, the median parcel size for each land use was calculated and tabulated. This method evaluated thousands of parcels throughout the entire watershed and provided the most accurate depiction of the typical parcel size for each land use based on available data. Results are shown in Table 1-5.

Each parcel is adjacent to a portion of the ROW where the green street would be implemented. A subset of parcels approximate to the median parcel size for each land use was selected to determine the average frontage length. The portion of the selected parcels that was in contact with the ROW was measured using desktop analysis tools and averaged between all parcels of the same land use. Results are shown in Table 1-5.

Road area draining to green streets constitutes a substantial component of the total impervious drainage area. To establish road drainage areas, typical road widths were defined by sampling representative road segments located in each land use. Widths were measured from curb-to-curb using aerial orthoimagery and reported to the nearest even integer. The median sampled road width for each land use was calculated and compared with the City of Los Angeles Standard Street Dimensions (City of Los Angeles Bureau of Engineering 1999) for validation. To predict the resulting contributing road areas, the previously measured frontage length was multiplied by half the road width. Roads were assumed to be crowned; therefore, only half of the width would drain to one side of the road. Results are shown in Table 1-5.

As discussed in Section 1.2.4, only 30 percent of the frontage length could be converted into bioretention area. This factor was multiplied by the frontage length and used in limiting the total length of bioretention available within the model, as presented in Table 1-5.

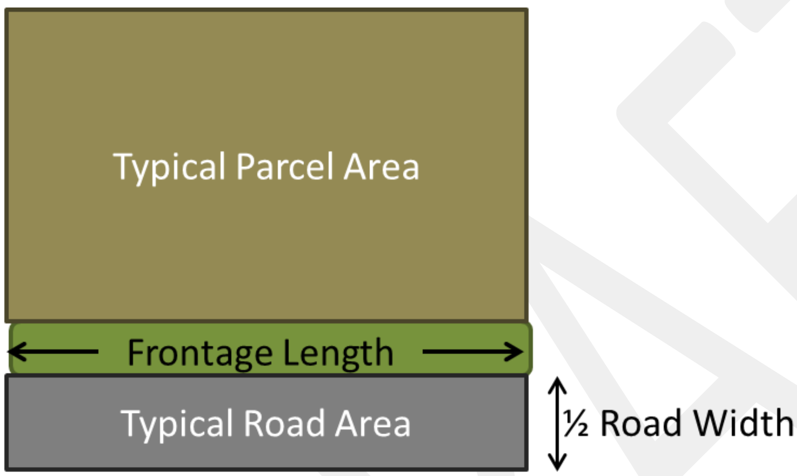

Figure 1-6. Typical parcel area, road width, road area, and frontage length schematic (figure not to scale)

Table 1-5. Typical parcel area, road area, and frontage length

Land Use	Typical Parcel Area (ft^2)	Frontage Length (ft)	Typical Road Width (ft)	Typical Road Area (ft^2)	BMP Length (ft)
High-density Residential	6,528	57	38	1,083	17
Multifamily Residential	13,526	60	30	900	18
Commercial	12,429	100	63	3,150	30
Institutional	38,215	143	37	2,646	43
Industrial	26,467	117	46	2,691	35
Other Land Use (Open Space, Vacant, etc.)	n/a[1]	100	40	2,000	30

[1] assumed not draining to ROW

Contributing Parcel Area Analysis

Many parcels will not always entirely drain to the ROW because portions can be retained on-site or flow onto an adjacent property. The actual volume of water that can be treated by a green street BMP was determined by identifying the typical proportion of the parcel that drains to the ROW (as shown in context of the model

schematic in Figure 1-7). This step also determines the area, and associated runoff, that is *not* expected to drain to green streets and is routed directly to downstream regional facilities or other practices (herein referred to as non-contributing parcel area).

The contributing areas to the green street BMPs were found using random sampling and identifying the surrounding parcel drainage patterns. Parcels were selected using a random number generator and drainage areas were determined on a desktop analysis using topography, aerial imagery, and drainage infrastructure features. The average contributing percentage was identified by evaluating multiple sites. Table 1-6 shows the percent contributing areas by land use that were determined from this analysis.

The impervious coverage of contributing parcel areas was also characterized during this step so that runoff could be simulated and routed to green streets in each land use. This was performed by tabulating the imperviousness data from the WMMS Model for each individual land use feature. The area-weighted mean impervious coverage was then calculated for each land use type. Results are tabulated for each land use in Table 1-6.

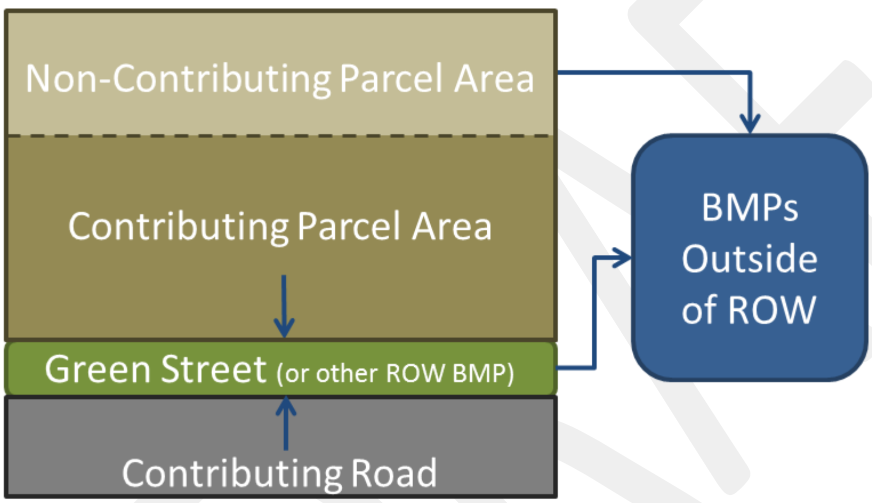

Figure 1-7. Parcel contributing area to ROW (impervious varies by land use; arrows denote direction of runoff routing; figure not to scale).

Table 1-6. Contributing area percentage by land use

Land Use	Contributing to ROW	Non-contributing to ROW	Percent Impervious
High-density Residential	80%	20%	36%
Multifamily Residential	80%	20%	60%
Commercial	80%	20%	90%
Institutional	80%	20%	72%
Industrial	35%	65%	66%
Other Land Use (Open Space, Vacant, etc.)	0%	100%	n/a

Untreated Roads Tabulation

Untreated roads consist of roadways with steep slopes, classifications not suited for green street implementation, or adjacent to open space or vacant parcels. Untreated road and associated adjacent parcel area that will ultimately drain to other BMPs was tabulated using available GIS data and screening results from Section 1.2.2 (conceptually illustrated in Figure 1-8).

Because green streets are implemented in the linear environment of the transportation corridor, it was assumed that the percentage of parcel area draining to green streets would be proportional to the percentage of suitable roads for green streets (as identified in Section 1.2.2) in each subwatershed. In other words, parcels associated with unsuitable roads were assumed to bypass green street treatment and routed directly to other facilities (these areas are defined herein as *untreated parcels*). The total treated and untreated parcel areas were reconciled with the total areas of each land use (per subwatershed) in the WMMS Model for validation and consistency.

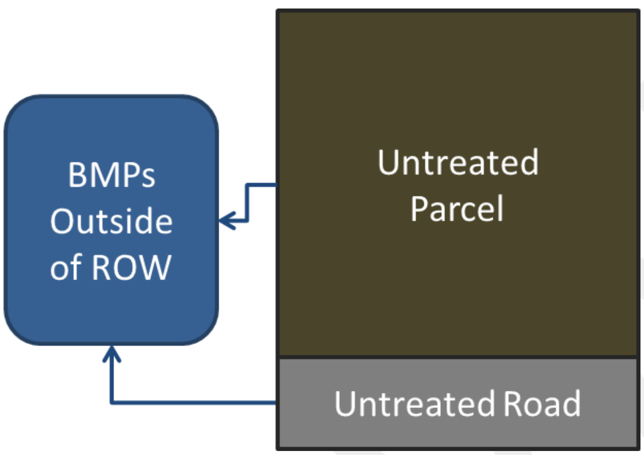

Figure 1-8. Schematic depicting untreated parcel and untreated road runoff routing (arrows denote direction of runoff routing; figure not to scale).

Summary of Contributing Drainage Areas

Results of the preceding analyses are presented in Figure 1-9. Areas that were assumed *un*treated by green streets include unsuitable roads and adjacent parcels, portions of suitable parcels that do not drain to the ROW, and predominantly pervious parcels (Open Space, Vacant, etc.), as discussed in preceding subsections; runoff from these untreated areas is assumed routed directly to regional facilities. Note that contributing areas are not necessarily proportional to contributing runoff due to variation in impervious coverage; runoff routing resulting from the preceding analyses is presented in the following section.

Given more detailed street-by-street engineering analyses, the potential area treated by green streets could be optimized, but the results below represent realistic estimates based on sound engineering judgment and currently available data and resources. Adaptive management strategies could target specific land uses that tend to bypass green street treatment (e.g. runoff, and associated treatment capacity, generated by industrial areas could be addressed through relevant industrial permits or onsite BMPs). Additional discussion on adaptive management strategies is provided in Section 8 of the main report.

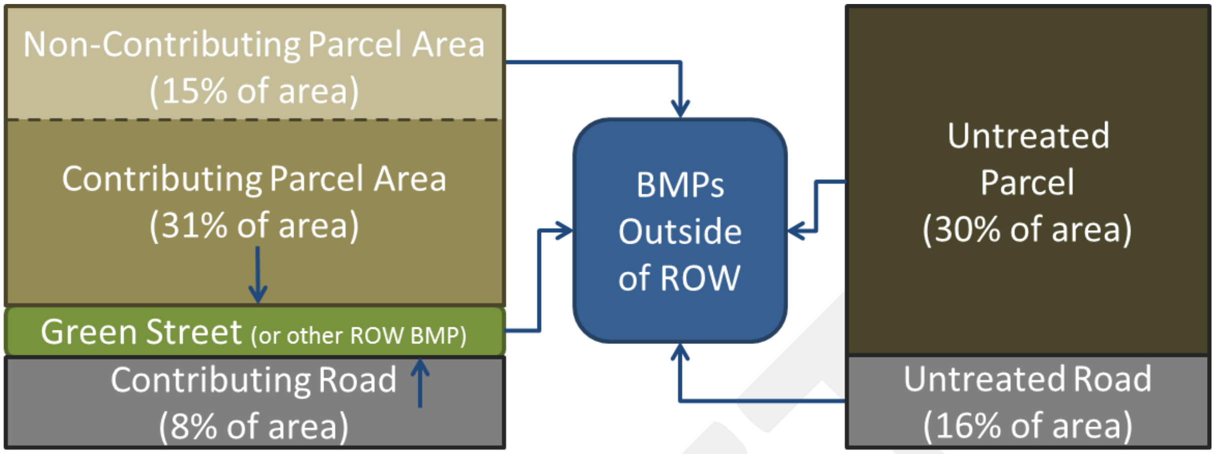

Figure 1-9. Schematic characterizing approximate distribution of routing to BMPs in the ROW for all WMP areas (arrows denote direction of runoff routing; figure not to scale).

BMP Infiltration Rates by Subwatershed

The purpose of performing the subwatershed infiltration rate analysis was to assign an average green street BMP infiltration rate to each subwatershed using soils data. Infiltration rates were assigned at the subwatershed level, which is the finest resolution at which the model performs hydrologic and water quality computations.

Soil data coverage provided through the LACDPW categorized soil unit areas into soil types. Runoff coefficient curves reported in the Hydrology Manual were developed by LACDPW for each soil type using double ring infiltrometer tests performed on areas of homogeneous runoff characteristics (LACDPW 2006). LADPW employed a sprinkling-type infiltrometer to perform the tests in each homogeneous area.

Runoff coefficient curves represent the response of the runoff coefficient (defined as the ratio of runoff to rainfall from a land area) to varying rainfall intensities. Each curve displays an inflection point representing the rainfall intensity at which substantial runoff initiates. According to LADPW (2006), each curve was assigned a minimum runoff coefficient of 0.1, "indicating that there is some runoff even at the smallest rainfall intensities." If it is assumed that substantial runoff initiates when the intensity of rainfall is greater than the soil's inherent infiltration rate, then the infiltration rate can be assumed equal to the rainfall intensity at the inflection point (less the assumed minimum runoff).

As demonstrated conceptually in Figure 1-10, the inflection point, and subsequently calculated infiltration rate, for each unique soil type in the WMP areas were identified using the runoff coefficient curves in Appendix C of the *Hydrology Manual* (LADPW 2006). Subwatershed areas were then intersected with the soil type coverage to calculate an area-weighted infiltration rate. Attachment C shows the distribution of the infiltration rates.

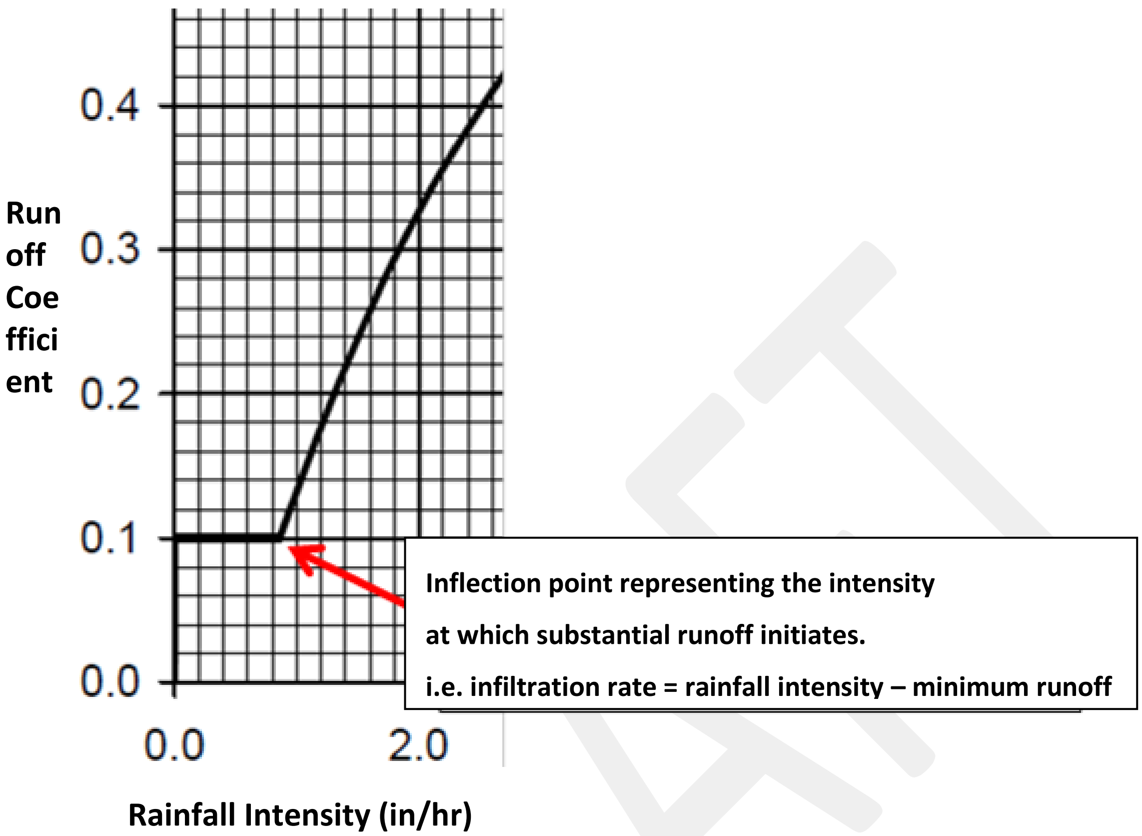

Figure 1-10. Example determination of runoff coefficient inflection point for an arbitrary soil type in Appendix C of LACDPW (2006).

1.3. LID on Public Parcels Assessment

Retrofitting public parcels with LID can be an efficient strategy for reducing stormwater runoff. This method allows municipalities the flexibility to prioritize and schedule stormwater projects to coincide with improvements that are already on the books (such as scheduled parking lot resurfacing, utility work, and public park improvements). Implementing LID on public parcels also allows municipalities the freedom to construct, inspect, and maintain BMPs without the need to purchase private property or to create stormwater easements.

The spatial extent of public parcels in each subwatershed was identified by selecting all parcels labeled as public by their assessors identification number (AIN). A total of 7,052 acres of public land was identified during this process (7% of the total WMP area). Each public parcel was assumed to implement BMPs that would treat the 85th percentile, 24-hour storm. The BMP volume was assumed to equal the 85th percentile, 24-hour storm depth times the impervious area.

LID retrofits are not feasible in all locations due to steep slopes, soil contamination hazards, and other constrains. The total runoff to be retained on public parcels was therefore discounted by 30% in order to provide a more realistic goal; this estimate was made in the lack of more detailed data, based on past LID screening exercises performed in Los Angeles County. The discount factor should be refined as actual public project sites are screened and prioritized.

1.4. Existing, Planned, and Potential BMPs

Existing and planned BMPs throughout the WMP areas were identified by the jurisdictions. These BMPs will provide capacity to reduce the annual storm runoff volume and demonstrate progress towards achieving the target runoff volume reduction.

1.4.1. Modeled Existing/Planned Subwatershed-Scale Regional BMPs

Regional BMPs that treat large portions of, or entire, subwatersheds (i.e. those with drainage areas larger than 50 acres) were modeled to quantify the impact to the upstream jurisdictions. The modeling approach and predicted performance for these specific sites is detailed in the following subsections. It is important to note that modeling was performed at a planning level coincident with the resolution of the subwatershed-scale WMMS model. Limited data were available to represent the sites, so conservative engineering assumptions were applied where appropriate. The calculated equivalent volume reductions from the BMPs can be refined during the adaptive management process once detailed design and monitoring data become available for the sites.

DeForest Wetlands Project

The DeForest Wetlands Project is located along the east bank of the Los Angeles River in the City of Long Beach and is comprised of approximately 34 acres of restored terrestrial and freshwater habitat and recreational amenities. The Project provides both groundwater recharge and surface water quality improvement. Site and modeling details are listed in Table 1-7.

Table 1-7. DeForest Wetlands Project details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	In Development		
Compliance Targets for Contributing Subwatersheds[1]	**248.7**	**ac-ft/yr**	Subwatershed 486066
	247.6	**ac-ft/yr**	Subwatershed 486068
Given Details			
Drainage Area	1490	ac	Delineated in GIS using WMMS subwatershed boundaries
Average Annual Infiltration Volume	15-35	ac-ft/yr	Per Section 3 of the WMP
Average Annual Treated Volume	800-1000	ac-ft/yr	Per Section 3 of the WMP; assumed volume is fully treated by wetland pollutant removal mechanisms prior to discharge; assumed treated volume is in addition to infiltration volume
Annual Runoff Volume Entering Wetland[1]	1589	ac-ft/yr	WMMS output
Annual Zinc Load Entering Wetland[1]	1808	lb Zn/yr	WMMS output
Wetland Zinc Effluent Concentration	20	µg/L	Upper limit of 95% confidence interval for wetland channels, per RAA Guidelines (LARWQCB 2014)
Modeling Results			
Estimated Annual Zinc Load Reduced by Infiltration[1]	17.1	lb Zn/yr	Assumed loading associated with minimum average infiltrated runoff; assumed load sequestered in sediments and/or sorbed to underlying soils
Estimated Annual Zinc Load Reduced by Wetland Functions[1]	535	lb Zn/yr	Reduction associated with treated volume; calculated by subtracting average effluent load associated with minimum treated volume from annual influent loading
Estimated Zinc Load Reduction	30.5%		

Relative to Annual Runoff[1]			
Estimated Zinc Load Reduction Relative to Compliance Target[1]	97.7%		
Estimated Equivalent Annual Volume Reduction[1]	**243.1**	**ac-ft/yr**	Subwatershed 486066
	242.0	**ac-ft/yr**	Subwatershed 486068

[1] Indicated annual volumes are referenced to the critical year

Dominguez Gap Wetlands Project

The Dominguez Gap Wetlands Project consists of two treatment wetlands situated on the east and west banks of the Los Angeles River that features habitat and recreational amenities. The East Basin is a 37-ac facility that is dewatered manually by a pump. The West Basin primarily functions as an infiltration basin and is approximately 15 acres. Table 1-8 and Table 1-10 characterize the site and modeling details of the East and West Basins, respectively.

Table 1-8. Dominguez Gap East Wetlands Project – East Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	Complete		
Compliance Targets for Contributing Subwatersheds[1]	**346.9**	**ac-ft/yr**	Subwatershed 486014
	14.3	**ac-ft/yr**	Subwatershed 446014
Given Details			
Drainage Area	2075	ac	Delineated in GIS using WMMS subwatershed boundaries
Maximum Volume Treated per Storm Event	71	ac-ft	Per Section 3 of the WMP; assumed volume is fully treated by wetland pollutant removal mechanisms prior to discharge
Maximum Annual Volume Treated[1]	526	ac-ft/yr	Based on storm events recorded for critical year; assumed all storm event runoff volume treated up to 71 ac-ft
Annual Runoff Volume Entering Wetland[1]	913	ac-ft/yr	WMMS output
Annual Zinc Load Entering Wetland[1]	934	lb Zn/yr	WMMS output
Wetland Zinc Effluent Concentration	20	µg/L	Upper limit of 95% confidence interval for wetland channels, per RAA Guidelines (LARWQCB 2014)
Modeling Results			
Annual Zinc Load Reduced by Infiltration[1]	unknown	lb Zn/yr	Site soil information or monitored data required
Annual Zinc Load Reduced by Wetland Functions[1]	202	lb Zn/yr	Reduction associated with treated volume; calculated by subtracting average effluent load associated with minimum treated volume from annual influent loading
Zinc Load Reduction Relative to Annual Runoff[1]	22%		
Zinc Load Reduction Relative to Compliance Target[1]	55%		
Equivalent Annual Volume Reduction[1]	**191.7**	**ac-ft/yr**	Subwatershed 486014
	6.4	**ac-ft/yr**	Subwatershed 446014

[1] Indicated annual volumes are referenced to the critical year

Table 1-9. Dominguez Gap Wetlands Project – West Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	Complete		
Compliance Targets for Contributing Subwatersheds[1]	**152.0**	**ac-ft/yr**	Subwatershed 486013 (41% contributes to West Basin)
	7.4	**ac-ft/yr**	Subwatershed 486015
Given Details			
Drainage Area	299	ac	Delineated in GIS using WMMS subwatershed boundaries
Annual Runoff Volume Infiltrated	All	ac-ft/yr	Per Section 3 of the WMP, no connection to Los Angeles River
Modeling Results			
Subwatershed 486013 Annual Runoff Volume Infiltrated[1]	47%		41% of subwatershed area contributes 47% of runoff volume to the basin
Subwatershed 446015Annual Runoff Volume Infiltrated	100%		100% of subwatershed area contributing
Equivalent Annual Volume Reduction[1]	**152.0**	**ac-ft/yr**	Subwatershed 486013 (compliance target is 43% annual reduction, so meets target)
	7.4	**ac-ft/yr**	Subwatershed 446015

[1] Indicated annual volumes are referenced to the critical year

Willow Springs Park

The Willow Springs Park project will convert a public parcel to a 47-acre park. The park will contain bioswales and a water feature integrated into a recreational spaces. Table 1-10 Characterizes the site and modeling details.

Table 1-10. Willow Springs Park details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	In Development		
Compliance Targets for Contributing Subwatersheds[1]	**26.5**	**ac-ft/yr**	Subwatershed 776012
	7.2	**ac-ft/yr**	Subwatershed 486012
Given Details			
Drainage Area	211	ac	Delineated in GIS using WMMS subwatershed boundaries
Total BMP Footprint	11	Ac	Per Section 3 of the WMP; natural channels/bioswales with very high infiltration rates
Underlying soil infiltration rates	0.9	In/hr	WMMS
Subwatershed area contributing	95%		
Modeling Results			
Maximum infiltration rate over footprint of BMP	0.83	ac-ft/hr	Assumed constant infiltration over entire footprint, applied to each time step of model runoff output draining to park – meets compliance target via infiltration
Equivalent Annual Volume Reduction[1]	**26.5**	**ac-ft/yr**	Subwatershed 776012
	7.2	**ac-ft/yr**	Subwatershed 446012

[1] Indicated annual volumes are referenced to the critical year

Discovery Park Infiltration Basin

An existing infiltration basin located at 12400 Columbia Way in the City of Downey treats runoff from approximately 51 acres (5% of the subwatershed in which the site is located). Field observations indicate that the facility has capacity to infiltration runoff at a rate of 2 in/hr (equivalent to approximately 4 ac-ft/day) in addition to detention storage. Table 1-11 reports the simplified modeling assumptions for this BMP – upon further evaluation of as-built conditions, the associated volume reduction can be refined during the adaptive management process.

Table 1-11. Discovery Park Infiltration Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower San Gabriel River		
Location	City of Downey		
Status	Complete		
Compliance Targets for Treated Subwatersheds[1]	**80.6**	**ac-ft/yr**	Subwatershed 245115
Given Details			
Drainage Area	51	ac	
Observed Infiltration Rate	4	ac-ft/day	Per Gerald Green, personal communication, 2014, February 2
Percentage of Subwatershed Contributing to BMP	5%		
Approximate Runoff Volume Draining to BMP[1]	44	ac-ft/yr	WMMS
Modeling Results			
Equivalent Annual Volume Reduction[1]	**24**	**ac-ft/yr**	Assumed constant infiltration over entire footprint, applied to each time step of model runoff output draining to park

[1] Indicated annual volumes are referenced to the critical year

Parque Dos Rios

Parque Dos Rios is located at the confluence of the Los Angeles River and Rio Hondo River. An approximately 30-ac area between the freeway and the Los Angeles River will be converted to an infiltration basin to treat additional upstream area. Currently, the site is self-retaining open space and is characterized in the baseline model as such. No further runoff volume reductions were calculated for this site; as design details are finalized for the infiltration basin improvements, associated volume reductions can be applied towards upstream jurisdictional compliance targets.

1.4.2. Identified Parcel-Scale Regional and Distributed BMPs

The jurisdictions within the WMP areas compiled detailed lists of BMPs intended to treat areas smaller than 50 acres. As with the preceding regional BMPs, these strategies represent progress towards achieving the compliance target in each respective jurisdiction. The distributed BMPs are listed in Attachment D and can be applied towards meeting the compliance targets in each jurisdiction.

The WMP groups have identified additional potential regional BMPs and these are listed in Section 3 for LCC and Section 4 for LLAR and LSGR of the respective WMP.

1.5. Non-MS4 Facility Runoff

Each jurisdiction is the Group's WMP area is subject to stormwater runoff from non-MS4 facilities. In particular, Caltrans roads and facilities regulated by nontraditional or general industrial permits contribute to the runoff volume for each subwatershed. It will be important for these entities to retain their runoff and/or eliminate their cause/contribution to receiving water exceedances. The runoff from these non-MS4 facilities was therefore estimated and subtracted from the treatment target as described below.

1.5.1. Non-MS4 Permitted Areas

Non-MS4 permitted areas were identified based on the address list of permittees on the State Water Resources Control Board (SWRCB) website. Using the address information, corresponding parcel areas were selected using the LA County Assessor Parcel Viewer and the associated GIS Shapefile. The percentage of permitted land use area relative to the total land use area was calculated and the associated non-MS4 permitted area runoff as extracted from the WMMS runoff response output.

1.5.2. Caltrans

The design storm runoff generated by Caltrans facilities was estimated using WMMS land use data. Areas labeled as Transportation consist of freeways and other extensive transportation facilities that tend to fall under Caltrans jurisdiction (versus areas labeled as Secondary Roads, which are managed by local transportation departments); these areas were assumed to be Caltrans facilities. Runoff from Transportation land uses, less runoff from any overlapping non-MS4 permitted areas identified above, was extracted from the WMMS model output for each subwatershed.

1.6. Institutional BMPs and Minimum Control Measures

It is challenging to accurately quantify most institutional BMP and minimum control measure (MCM) benefits in terms of pollutant load reductions because they generally require extensive survey and monitoring information to quantify. In addition, nonstructural BMPs may target pollutants, land uses, or populations, resulting in different load reductions depending on the implementation technique. A number of MCMs are outlined in each WMP, representing an array of practices to most effectively address pollutants at their source or affect their transport. For the purposes of the RAA, a 10% reduction was assumed to represent the cumulative impact of these practices during both wet and dry conditions. Another explicitly modeled nonstructural BMP was a goal to reduce 25% of irrigation of urban vegetation, a goal that can result from a myriad of practices ranging from public education, enforcement, incentive programs, creative water rate structures, etc. The 25% reduction in irrigation was modeled directly in LSPC and is the primary driver for dry weather flow reductions. Pollutant load reductions from these nonstructural BMPs were subtracted from loads simulated in the baseline model to quantify progress towards meeting the watershed numeric goals. Results of both the 10% reduction for collective MCMs, in addition to irrigation reduction, are presented in Section 7 of the main RAA report for both wet and dry conditions.

Attachment B: Detailed Jurisdictional Compliance Tables

Submitted to:

LLAR WMP Group | LCC WMP Group | LSGR WMP Group

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June 6, 2014

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B1. Lower Los Angeles River WMP Detailed Tables

B1.1. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6076	Final	17.0	-	-	1.2	-	1.2
6077	Final	123.0	0.3	11.8	1.2	6.4	19.6
6079	50%	176.4	0.7	1.7	10.1	-	12.5
6082	Final	0.3	-	-	0.0	0.0	0.0
6100	50%	10.7	0.0	0.8	0.0	0.6	1.4
6102	31%	143.8	1.1	12.2	0.7	7.1	21.1
6103	Final	-	0.7	-	-	-	0.7
6104	Final	37.1	0.3	3.2	0.0	0.9	4.5
6106	Final	76.4	0.4	9.1	1.6	-	11.1
6111	Final	69.5	0.3	7.1	0.5	3.3	11.2
6113	Final	0.6	-	0.0	-	0.1	0.1
Grand Total		654.7	3.8	45.9	15.3	18.4	83.4

B1.2. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6014	31%	7.9	-	1.1	0.0	-	1.2
Grand Total		7.9	-	1.1	0.0	-	1.2

B1.3. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6001	Final	-	-	-	-	-	-
6002	50%	378.7	-	23.8	5.2	19.3	48.3
6003	Final	429.9	-	22.4	1.4	32.8	56.5
6004	50%	2.4	-	0.1	-	0.3	0.3
6005	31%	6.6	-	1.0	0.0	-	1.0
6006	Final	35.9	-	0.3	0.1	4.1	4.5
6007	Final	67.0	-	6.4	0.1	4.0	10.6
6008	Final	144.0	-	13.9	2.0	3.5	19.4
6009	Final	159.5	-	11.5	0.7	9.2	21.4
6010	Final	100.8	-	8.2	0.9	4.8	13.9
6011	Final	184.8	-	14.4	0.9	9.6	24.9
6012	31%	-	-	-	-	-	-
6013	50%	-	-	-	-	-	-
6014	Final	155.2	-	15.0	7.9	-	22.9
6015	31%	-	-	-	-	-	-
6016	Final	-	-	-	-	-	-
6017	50%	1.1	-	-	-	0.1	0.1
6018	Final	45.8	-	4.3	-	2.6	6.9
6065	Final	36.7	-	0.4	0.0	4.6	5.0
6066	31%	-	-	-	-	-	-
6067	50%	25.3	-	2.6	0.3	0.5	3.3
6068	31%	-	-	-	-	-	-
6069	50%	42.6	-	0.6	0.0	3.5	4.1
6070	50%	22.2	-	2.7	0.4	-	3.1
6071	50%	94.4	-	10.5	1.6	1.0	13.1
6072	50%	0.3	-	0.0	-	0.0	0.0
7016	Final	473.3	-	16.5	6.9	36.3	59.7
Grand Total		2,406.2	-	154.6	28.3	136.2	319.1

B1.4. City of Lynwood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6023	Final	26.3	-	1.0	0.7	1.6	3.3
6024	Final	10.6	-	0.4	-	1.1	1.4
6028	31%	11.2	-	0.8	-	0.9	1.7
6030	Final	45.2	-	4.0	2.4	-	6.4
6031	31%	133.0	-	9.9	2.0	7.5	19.4
6032	Final	60.5	-	6.0	0.4	3.4	9.8
6033	Final	113.3	-	7.4	0.2	10.7	18.2
6074	50%	134.9	-	12.8	3.8	0.1	16.8
6078	Final	-	-	-	-	-	-
6080	31%	91.7	-	7.7	0.7	4.7	13.2
6081	Final	41.3	-	4.0	0.8	0.5	5.3
6082	Final	-	-	-	-	-	-
Grand Total		667.9	-	53.9	11.1	30.5	95.5

B1.5. City of Paramount

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6069	31%	0.0	-	-	-	-	-
6071	Final	120.7	0.0	4.9	0.9	9.9	15.6
6072	Final	172.9	0.0	7.6	1.1	13.9	22.6
6073	Final	61.4	-	1.9	0.2	4.6	6.6
6075	31%	163.7	-	9.0	1.7	10.2	20.9
6076	50%	65.7	-	7.4	0.8	0.3	8.6
6078	Final	21.7	-	0.5	0.0	1.8	2.3
6080	Final	-	-	-	-	-	-
Grand Total		606.1	0.1	31.2	4.7	40.6	76.6

B1.6. City of Pico Rivera

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6106	31%	44.3	-	5.9	0.5	0.2	6.5
6111	Final	-	-	-	-	-	-
6112	31%	1.4	-	0.0	-	0.1	0.2
6113	31%	229.5	-	5.6	0.0	27.0	32.7
6114	Final	-	-	-	-	-	-
6115	Final	0.0	-	-	-	0.0	0.0
6116	Final	-	-	-	-	-	-
6117	Final	-	-	-	-	-	-
6126	Final	12.0	-	1.3	0.0	0.5	1.8
6129	Final	-	-	-	-	-	-
Grand Total		287.2	-	12.8	0.5	27.9	41.2

B1.7. City of Signal Hill

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6002	50%	105.8	-	7.0	0.9	5.9	13.9
6003	Final	43.7	-	1.9	0.0	4.2	6.0
6007	Final	-	-	-	-	-	-
6009	Final	8.2	0.1	0.3	-	0.7	1.1
6011	31%	6.0	0.1	0.8	-	0.2	1.1
6012	31%	2.5	-	0.0	0.2	-	0.2
Grand Total		166.2	0.2	10.0	1.1	11.0	22.3

B1.8. City of South Gate

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6031	31%	148.6	-	16.9	0.8	5.3	22.9
6033	Final	61.9	-	4.5	0.3	4.8	9.5
6034	Final	416.7	-	30.0	3.8	25.3	59.0
6076	50%	92.5	-	7.5	0.7	5.1	13.2
6078	Final	-	-	-	-	-	-
6079	50%	54.4	-	4.9	0.1	3.4	8.4
6080	31%	48.7	-	5.8	-	2.5	8.3
6082	Final	82.8	0.0	4.3	0.1	9.4	13.8
6083	Final	11.5	-	0.7	-	0.9	1.6
6084	Final	137.8	4.7	8.3	0.8	5.9	19.8
6085	50%	-	-	-	-	-	-
6089	Final	18.3	-	0.8	0.2	1.8	2.7
6090	Final	3.4	-	0.6	-	-	0.6
6096	31%	0.6	-	0.0	0.0	0.0	0.1
6098	31%	0.1	-	-	0.0	-	0.0
6100	50%	51.2	-	2.6	0.0	4.2	6.8
6101	31%	25.0	-	0.5	0.1	2.6	3.3
6102	31%	6.3	-	-	-	0.8	0.8
6104	Final	7.4	-	0.0	0.0	0.9	1.0
6350	Final	-	-	-	-	-	-
6351	Final	7.1	-	0.0	0.0	1.1	1.1
Grand Total		1,174.3	4.7	87.5	6.8	73.8	173.0

B2. Los Cerritos Channel WMP Detailed Tables

B2.1. City of Bellflower

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5507	Final	268.1	-	16.7	1.2	13.2	31.1
5517	Final	137.7	-	9.3	0.8	9.3	19.4
5518	Final	233.5	-	16.8	1.2	10.2	28.2
5519	35%	176.3	-	11.4	0.9	12.1	24.4
	Final	59.5	-	-	-	3.6	3.6
5523	35%	68.0	-	3.7	0.4	4.1	8.2
	Final	32.3	-	-	-	2.0	2.0
5524	Final	14.8	-	0.2	-	1.2	1.4
Grand Total		990.4	-	58.1	4.5	55.6	118.2

B2.2. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5506	Final	0.0	-	-	-	0.0	0.0
5507	35%	9.7	-	1.0	0.0	0.5	1.4
	Final	3.2	-	-	-	0.1	0.1
Grand Total		12.9	-	1.0	0.0	0.6	1.6

B2.3. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5524	35%	57.2	0.1	5.3	0.0	2.7	8.1
	Final	35.8	-	-	-	2.1	2.1
Grand Total		93.0	0.1	5.3	0.0	4.8	10.2

B2.4. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5506	Final	226.5	-	31.4	2.1	5.1	38.5
5507	35%	131.0	-	15.4	2.6	1.5	19.5
	Final	45.2	-	-	-	3.6	3.6
5510	Final	19.9	-	0.4	-	1.5	1.9
5512	Final	138.8	-	7.7	0.2	7.0	14.9
5514	Final	35.3	-	3.7	1.3	0.4	5.4
5515	Final	26.6	-	3.9	0.2	0.5	4.6
5516	Final	31.9	-	4.0	0.4	0.8	5.3
5517	Final	134.4	-	18.6	1.4	2.8	22.9
5519	35%	3.1	-	0.2	-	0.2	0.4
	Final	6.4	-	-	-	0.1	0.1
5520	35%	130.9	-	14.0	2.1	4.4	20.6
	Final	33.5	-	-	-	3.3	3.3
5521	Final	95.2	-	11.6	0.6	2.2	14.3
5522	Final	71.9	-	8.7	0.8	1.6	11.1
5523	35%	17.4	-	1.9	-	0.7	2.6
	Final	4.0	-	-	-	0.3	0.3
Grand Total		1,152.1	-	121.5	11.8	36.2	169.5

B2.5. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5501	35%	0.1	-	0.0	0.0	0.0	0.0
	Final	0.1	-	-	-	0.0	0.0
5502	35%	0.1	-	0.0	0.0	0.0	0.0
	Final	0.2	-	-	-	0.0	0.0
5503	35%	57.7	-	4.2	2.3	2.0	8.5
	Final	20.1	-	-	-	1.7	1.7
5504	35%	196.6	-	10.2	3.3	8.7	22.2
	Final	104.4	-	-	-	5.5	5.5
5505	Final	130.5	-	15.9	1.6	3.2	20.7
5506	Final	8.6	-	0.1	0.2	0.4	0.7
5508	Final	65.6	-	7.7	0.9	1.7	10.3
5509	Final	25.6	-	-	2.2	-	2.2
5510	Final	152.2	-	9.8	0.9	6.1	16.8
5511	Final	48.5	-	6.7	0.2	1.3	8.1
5512	Final	329.5	-	22.2	1.7	16.8	40.7
5513	35%	23.9	-	1.5	0.1	2.1	3.7
	Final	6.6	-	-	-	0.4	0.4
5514	35%	106.0	-	10.9	5.9	-	16.7
	Final	46.8	-	3.7	-	2.8	6.5
5515	Final	91.0	-	10.8	1.7	2.3	14.9
5520	Final	7.4	-	0.8	-	0.3	1.2
5521	Final	49.2	-	6.0	0.1	1.8	7.9
5522	Final	48.6	-	4.2	0.0	3.1	7.3
5523	35%	89.3	-	7.0	0.8	3.5	11.3
	Final	21.4	-	-	-	1.6	1.6
Grand Total		1,629.8	-	121.7	21.8	65.3	208.7

B2.6. City of Paramount

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5519	35%	24.0	-	1.9	0.2	1.4	3.5
	Final	11.4	-	-	-	0.6	0.6
5523	35%	243.0	-	12.4	2.8	15.7	30.9
	Final	89.6	-	-	-	4.1	4.1
5524	Final	157.5	-	8.5	3.5	4.0	16.0
Grand Total		525.5	-	22.8	6.4	25.9	55.1

B2.7. City of Signal Hill

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5510	35%	231.6	0.0	11.2	1.2	14.2	26.6
	Final	52.7	-	-	-	2.0	2.0
Grand Total		284.3	0.0	11.2	1.2	16.2	28.6

B3. Lower San Gabriel River (San Gabriel River) WMP Detailed Tables

B3.1. City of Artesia

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5109	35%	1.1	-	-	0.1	-	0.1
Grand Total		1.1	-	-	0.1	-	0.1

B3.2. City of Bellflower

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5110	Final	0.0	-	-	-	0.0	0.0
5112	Final	0.6	-	0.1	0.0	-	0.1
5113	Final	51.5	-	0.9	3.4	-	4.3
5114	Final	-	-	-	-	-	-
5115	35%	1.3	-	0.2	0.0	-	0.2
5116	Final	0.1	-	-	-	0.0	0.0
5118	Final	3.9	-	0.6	0.3	-	0.9
Grand Total		57.4	-	1.8	3.7	0.0	5.5

B3.3. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5107	Final	-	-	-	-	-	-
5108	Final	-	-	-	-	-	-
5109	Final	-	-	-	-	-	-
5110	Final	2.9	-	0.4	0.0	-	0.4
5111	Final	-	-	-	-	-	-
5112	Final	1.2	-	0.2	0.0	-	0.2
5113	Final	-	-	-	-	-	-
5116	35%	-	-	-	-	-	-
Grand Total		4.1	-	0.6	0.0	-	0.6

B3.4. City of Diamond Bar

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5197	Final	0.0	-	0.0	-	-	0.0
5198	Final	-	-	-	-	-	-
5203	Final	-	-	-	-	-	-
5204	Final	-	-	-	-	-	-
5205	Final	1.0	-	0.2	-	-	0.2
5212	Final	-	-	-	-	-	-
5213	35%	-	-	-	-	-	-
Grand Total		1.1	-	0.2	-	-	0.2

B3.5. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5113	Final	-	1.0	-	-	-	1.0
5114	Final	22.4	0.8	2.1	0.4	-	3.3
5115	Final	-	0.6	-	-	-	0.6
5118	Final	-	0.6	-	-	-	0.6
5119	Final	52.5	3.3	6.4	-	-	9.7
5122	35%	-	0.0	-	-	-	0.0
5124	Final	-	0.0	-	-	-	0.0
5125	Final	2.5	0.4	0.1	-	-	0.5
5126	Final	9.8	0.3	1.4	-	-	1.7
5127	Final	-	0.1	-	-	-	0.1
5128	Final	-	0.0	-	-	-	0.0
Grand Total		87.3	7.1	10.0	0.4	-	17.5

B3.6. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5105	Final	0.8	-	-	0.0	0.1	0.1
5106	35%	-	-	-	-	-	-
5107	Final	-	-	-	-	-	-
5108	Final	1.4	-	0.2	0.0	-	0.2
5110	Final	-	-	-	-	-	-
Grand Total		2.2	-	0.2	0.0	0.1	0.4

B3.7. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5102	Final	-	-	-	-	-	-
5103	35%	26.9	-	1.1	1.3	-	2.4
5104	Final	2.3	-	0.3	-	-	0.3
5105	Final	-	-	-	-	-	-
5106	Final	0.0	-	-	-	0.0	0.0
Grand Total		29.2	-	1.4	1.3	0.0	2.7

B3.8. City of Norwalk

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5109	35%	0.8	-	-	0.1	-	0.1
5116	Final	-	-	-	-	-	-
5117	Final	-	-	-	-	-	-
5118	Final	0.1	-	-	0.0	-	0.0
5120	Final	-	-	-	-	-	-
5121	Final	3.9	-	-	0.3	-	0.3
5122	Final	-	-	-	-	-	-
5124	Final	-	-	-	-	-	-
Grand Total		4.8	-	-	0.3	-	0.3

B3.9. City of Pico Rivera

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5127	Final	0.0	-	-	-	0.0	0.0
5128	Final	6.4	-	1.2	-	-	1.2
5130	Final	6.1	-	1.1	-	-	1.1
5131	Final	11.7	-	2.0	-	-	2.0
5132	Final	0.0	-	-	-	0.0	0.0
5135	Final	4.3	-	0.8	-	-	0.8
5136	Final	7.2	-	1.3	-	-	1.3
5137	35%	0.2	-	0.0	-	-	0.0
5139	Final	7.8	-	1.4	-	-	1.4
5140	Final	-	-	-	-	-	-
5141	Final	4.9	-	0.8	-	-	0.8
5142	Final	-	-	-	-	-	-
5143	Final	8.9	-	1.6	-	-	1.6
5144	Final	-	-	-	-	-	-
5145	Final	1.7	-	0.3	-	-	0.3
5147	Final	-	-	-	-	-	-
5148	Final	0.2	-	0.0	-	-	0.0
5149	Final	0.0	-	-	-	-	-
5150	Final	-	-	-	-	-	-
5151	Final	-	-	-	-	-	-
5153	Final	1.0	-	0.2	-	-	0.2
5154	Final	-	-	-	-	-	-
Grand Total		60.4	-	10.8	-	0.0	10.8

B3.10. City of Santa Fe Springs

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5120	Final	3.1	-	0.2	-	0.3	0.5
5122	Final	-	-	-	-	-	-
5123	Final	23.9	-	3.8	-	-	3.8
5127	35%	-	-	-	-	-	-
5129	Final	-	-	-	-	-	-
5130	Final	-	-	-	-	-	-
5132	Final	-	-	-	-	-	-
5133	Final	-	-	-	-	-	-
5134	Final	3.3	-	0.6	-	-	0.6
5135	Final	0.0	-	0.0	-	0.0	0.0
Grand Total		30.3	-	4.6	-	0.3	4.9

B3.11. City of Whittier

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5138	Final	7.1	-	1.4	-	-	1.4
5142	Final	-	-	-	-	-	-
5146	Final	-	-	-	-	-	-
5147	Final	-	-	-	-	-	-
5148	Final	-	-	-	-	-	-
5153	35%	0.0	-	-	-	0.0	0.0
5173	Final	-	-	-	-	-	-
Grand Total		7.1	-	1.4	-	0.0	1.4

B4. Lower San Gabriel River WMP (Coyote Creek) Detailed Tables

B4.1. City of Artesia

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	Final	-	-	-	-	-	-
5018	35%	15.9	-	-	1.1	-	1.1
Grand Total		15.9	-	-	1.1	-	1.1

B4.2. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	Final	7.7	-	-	0.9	-	0.9
5016	Final	-	-	-	-	-	-
5017	Final	4.3	-	-	0.5	-	0.5
5018	Final	14.9	-	-	1.1	-	1.1
5023	Final	-	-	-	-	-	-
5024	Final	-	-	-	-	-	-
5026	Final	5.8	-	1.0	0.0	-	1.0
5028	Final	-	-	-	-	-	-
5029	Final	4.9	-	0.3	0.2	-	0.6
5030	35%	0.1	-	0.0	-	-	0.0
5035	Final	-	-	-	-	-	-
5036	Final	1.2	-	0.2	0.0	-	0.2
5038	Final	-	-	-	-	-	-
5059	Final	15.1	-	1.6	0.5	-	2.0
5060	Final	-	-	-	-	-	-
5061	Final	2.6	-	-	0.2	-	0.2
Grand Total		56.7	-	3.1	3.4	-	6.4

B4.3. City of Diamond Bar

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5053	Final	-	-	-	-	-	-
5054	35%	1.0	-	0.3	-	-	0.3
5055	Final	8.4	-	1.2	-	0.7	1.9
5056	Final	-	-	-	-	-	-
5057	Final	-	-	-	-	-	-
5058	Final	27.2	-	6.7	-	-	6.7
Grand Total		36.7	-	8.2	-	0.7	8.9

B4.4. City of Hawaiian Gardens

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5004	Final	-	-	-	-	-	-
5007	35%	23.6	-	0.3	1.5	-	1.8
5009	Final	0.1	-	-	-	0.0	0.0
5013	Final	1.3	-	-	0.1	-	0.1
5014	Final	2.1	-	0.2	0.0	-	0.3
Grand Total		27.1	-	0.6	1.6	0.0	2.2

B4.5. City of La Mirada

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5037	Final	-	-	-	-	-	-
5038	Final	-	-	-	-	-	-
5039	Final	-	-	-	-	-	-
5040	Final	-	-	-	-	-	-
5041	Final	-	-	-	-	-	-
5042	Final	-	-	-	-	-	-
5043	Final	19.1	-	1.9	0.6	-	2.5
5044	Final	-	-	-	-	-	-
5045	35%	-	-	-	-	-	-
5059	Final	1.4	-	0.3	-	-	0.3
5060	Final	-	-	-	-	-	-
5062	Final	20.5	-	1.0	1.1	-	2.1
5063	Final	37.0	-	-	3.0	-	3.0
5064	Final	-	-	-	-	-	-
5067	Final	-	-	-	-	-	-
5069	Final	40.3	-	5.3	0.9	-	6.2
5070	Final	-	-	-	-	-	-
5073	Final	5.7	-	1.0	-	-	1.0
5074	Final	0.8	-	0.1	-	-	0.1
5080	Final	-	-	-	-	-	-
Grand Total		124.9	-	9.6	5.6	-	15.2

B4.6. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5004	Final	-	-	-	-	-	-
5007	35%	17.5	-	0.9	0.7	-	1.6
5008	Final	2.3	-	-	0.3	-	0.3
5014	Final	-	-	-	-	-	-
5015	Final	-	-	-	-	-	-
5016	Final	-	-	-	-	-	-
5017	Final	-	-	-	-	-	-
Grand Total		19.7	-	0.9	0.9	-	1.9

B4.7. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5003	Final	-	-	-	-	-	-
5004	35%	-	-	-	-	-	-
5005	Final	-	-	-	-	-	-
5007	Final	-	-	-	-	-	-
5009	Final	-	-	-	-	-	-
5013	Final	0.0	-	-	0.0	-	0.0
Grand Total		0.0	-	-	0.0	-	0.0

B4.8. City of Norwalk

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	35%	1.6	-	-	0.2	-	0.2
5018	Final	2.0	-	-	0.2	-	0.2
5019	Final	24.3	-	-	1.8	-	1.8
5020	Final	-	-	-	-	-	-
5021	Final	16.9	-	-	1.3	-	1.3
5022	Final	7.7	-	1.4	-	-	1.4
5024	Final	-	-	-	-	-	-
5025	Final	-	-	-	-	-	-
5060	Final	-	-	-	-	-	-
5068	Final	-	-	-	-	-	-
5071	Final	-	-	-	-	-	-
5073	Final	-	-	-	-	-	-
Grand Total		52.5	-	1.4	3.4	-	4.7

B4.9. City of Santa Fe Springs

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5019	Final	0.0	-	-	-	0.0	0.0
5020	Final	-	-	-	-	-	-
5022	Final	-	-	-	-	-	-
5024	Final	-	-	-	-	-	-
5025	Final	-	-	-	-	-	-
5060	Final	-	-	-	-	-	-
5061	Final	-	-	-	-	-	-
5062	Final	-	-	-	-	-	-
5067	Final	-	-	-	-	-	-
5068	Final	-	-	-	-	-	-
5069	Final	-	-	-	-	-	-
5071	Final	-	-	-	-	-	-
5072	Final	2.6	-	0.3	-	0.1	0.4
5073	Final	-	-	-	-	-	-
5084	Final	1.4	-	0.2	-	-	0.2
5089	Final	-	-	-	-	-	-
5092	Final	1.1	-	0.1	-	0.2	0.2
5093	Final	-	-	-	-	-	-
5094	Final	7.4	-	0.4	-	0.9	1.2
5095	35%	-	-	-	-	-	-
Grand Total		12.6	-	1.0	-	1.1	2.1

B4.10. City of Whittier

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5045	Final	0.0	-	-	-	0.0	0.0
5064	Final	-	-	-	-	-	-
5065	Final	3.7	-	0.8	-	-	0.8
5070	Final	0.0	-	-	-	0.0	0.0
5079	Final	11.7	-	2.5	-	-	2.5
5080	Final	26.0	-	5.5	-	-	5.5
5081	35%	-	-	-	-	-	-
5082	Final	0.2	-	0.0	-	-	0.0
5083	Final	-	-	-	-	-	-
5086	Final	-	-	-	-	-	-
5087	Final	20.8	-	4.1	-	-	4.1
5088	Final	24.7	-	5.4	-	-	5.4
5089	Final	0.5	-	0.1	-	-	0.1
5090	Final	0.8	-	0.2	-	-	0.2
5091	Final	5.7	-	1.1	-	-	1.1
5092	Final	8.9	-	1.7	-	-	1.7
5093	Final	0.0	-	-	-	0.0	0.0
5094	Final	0.6	-	0.1	-	0.0	0.1
5095	Final	21.1	-	3.9	-	-	3.9
5096	Final	3.8	-	0.7	-	-	0.7
5097	Final	5.2	-	1.0	-	-	1.0
5098	Final	47.9	-	8.7	-	-	8.7
5099	Final	10.6	-	1.9	-	-	1.9
5100	Final	7.3	-	1.4	-	-	1.4
5101	Final	0.6	-	0.1	-	-	0.1
Grand Total		200.1	-	39.0	-	0.0	39.1

Attachment C: Supporting Figures for Watershed Control Measures

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

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9444 Balboa Ave., Suite 215
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June 6, 2014

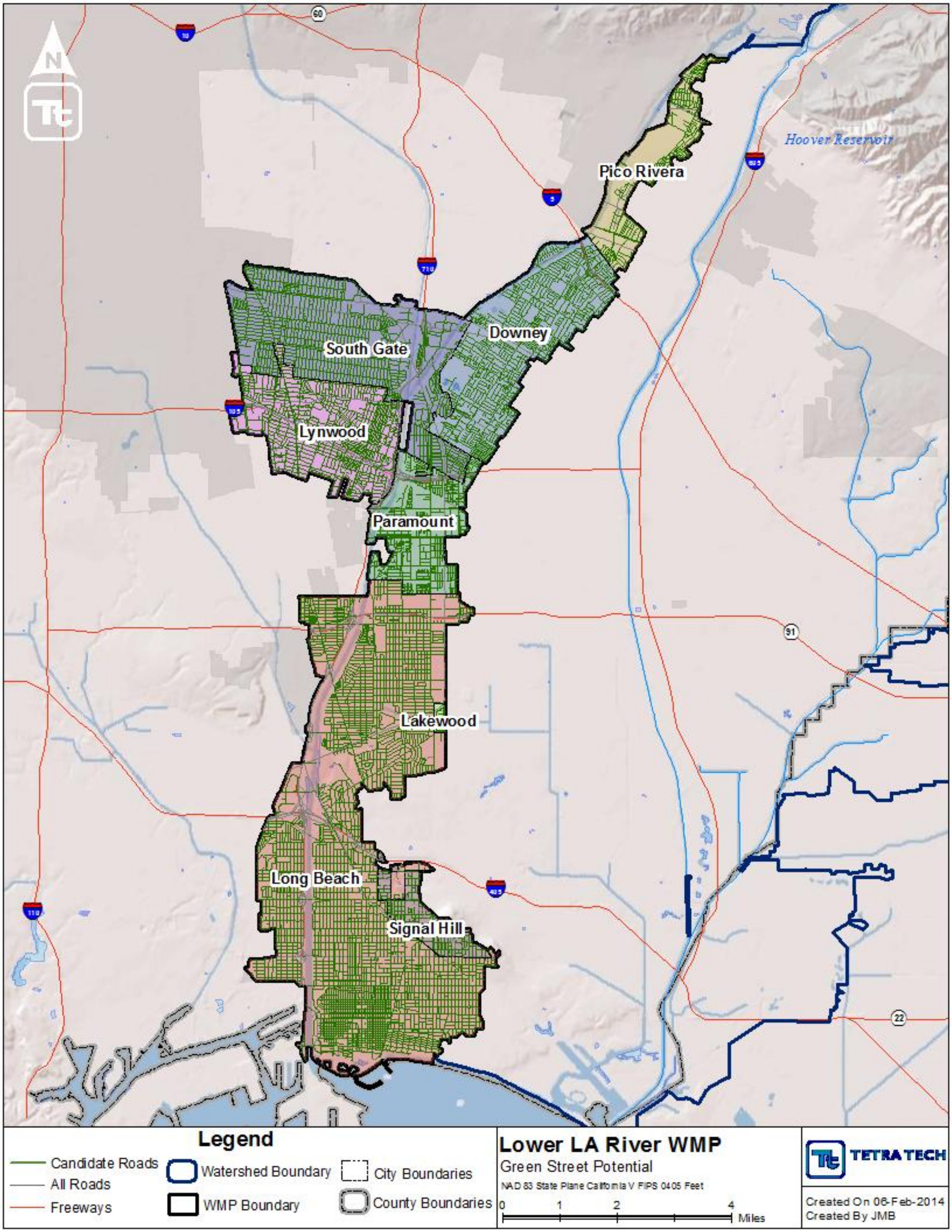

Figure 1. LLAR ROW BMP Potential Opportunities

RB-AR13790

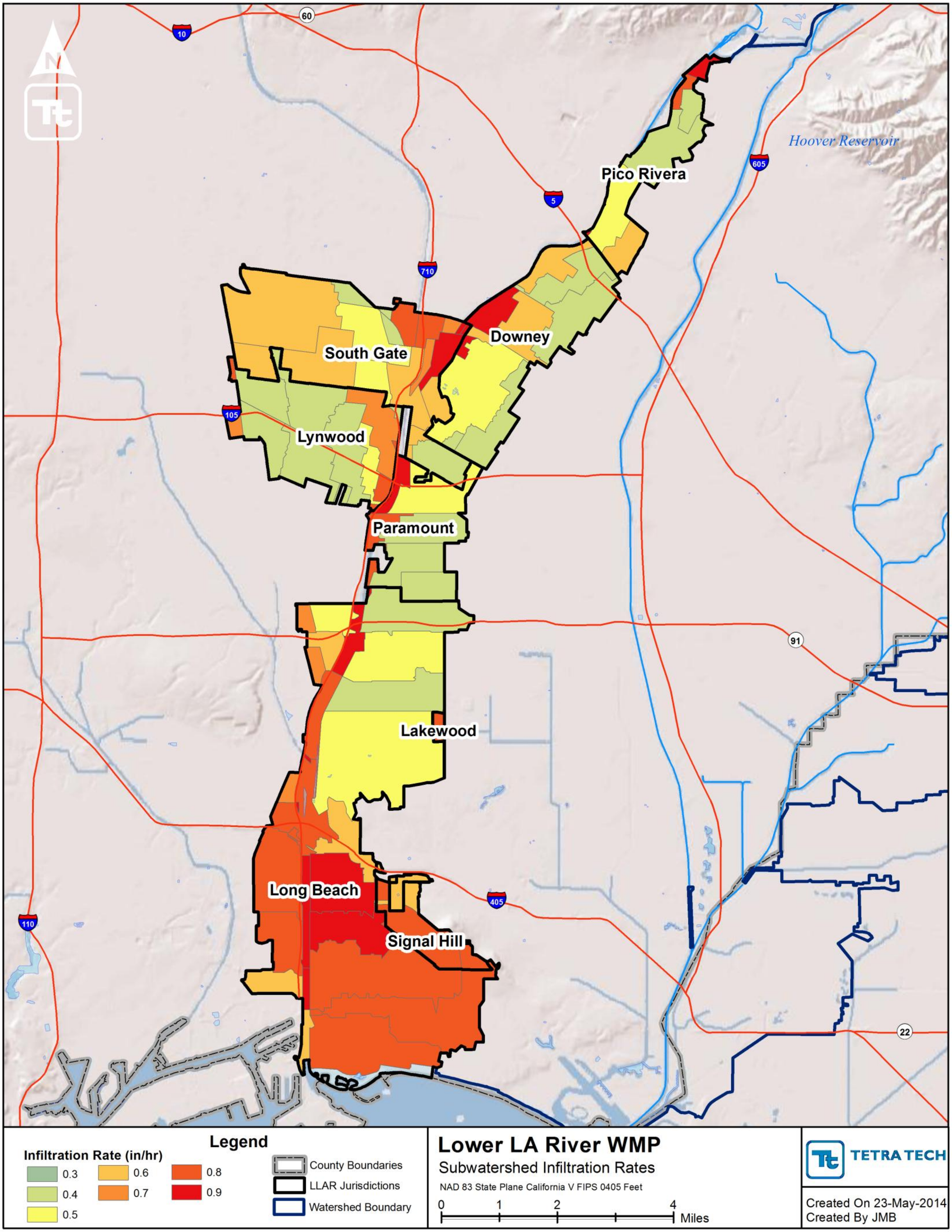

Figure 2. LLAR Subwatershed Infiltration Rates

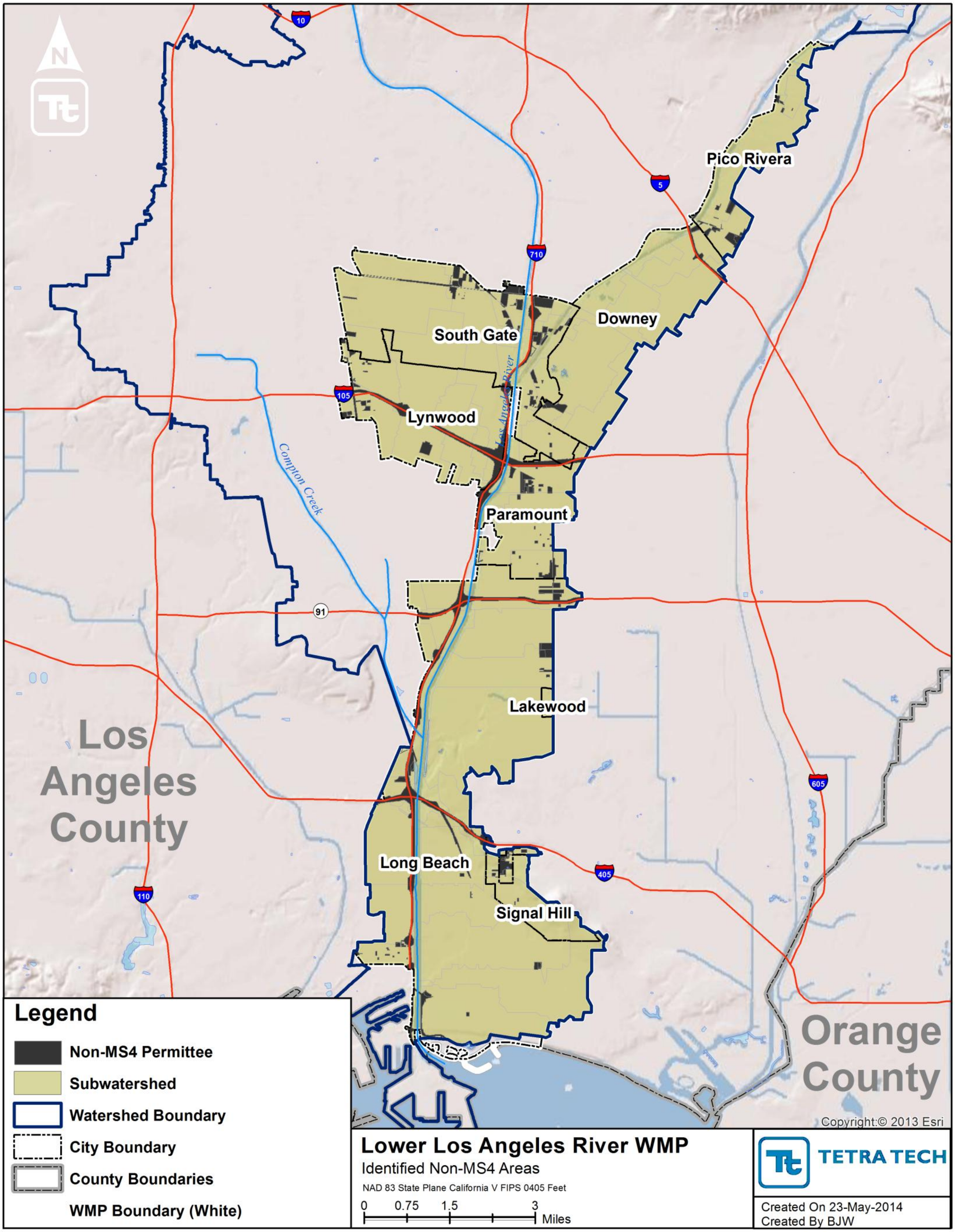

Figure 3. LLAR Non-MS4 Permittees

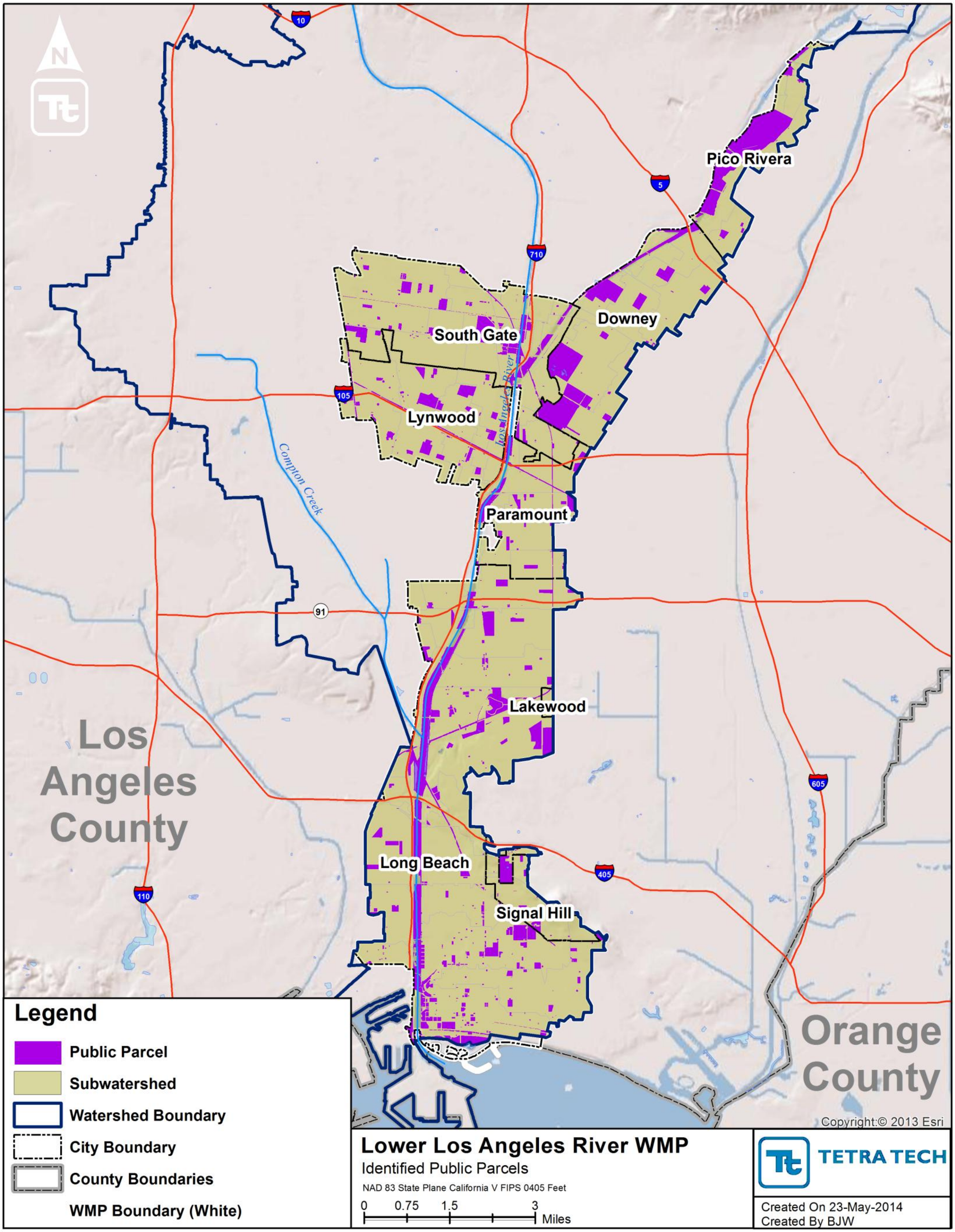

Figure 4. LLAR identified public parcels

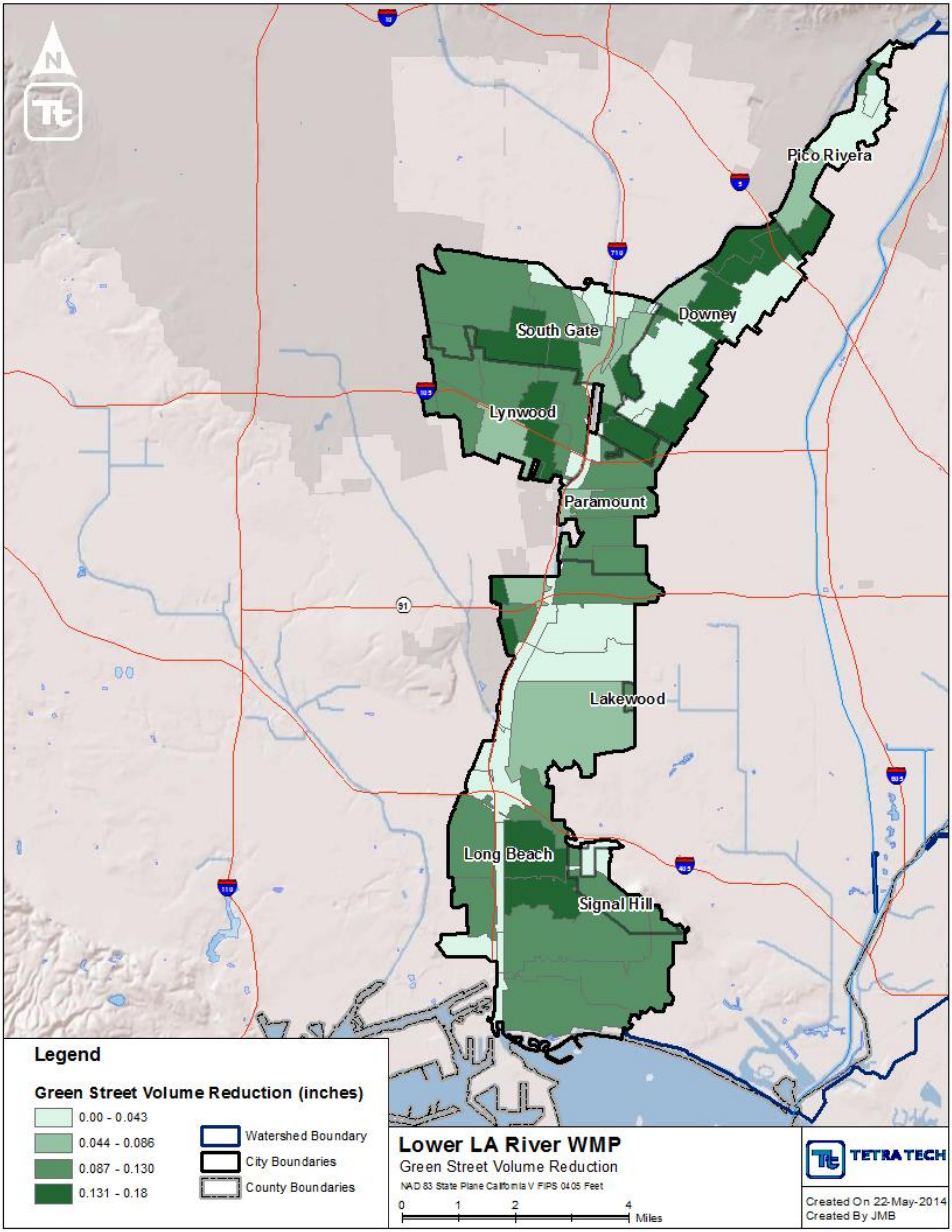

Figure 5. LLAR ROW BMP Volume Reduction

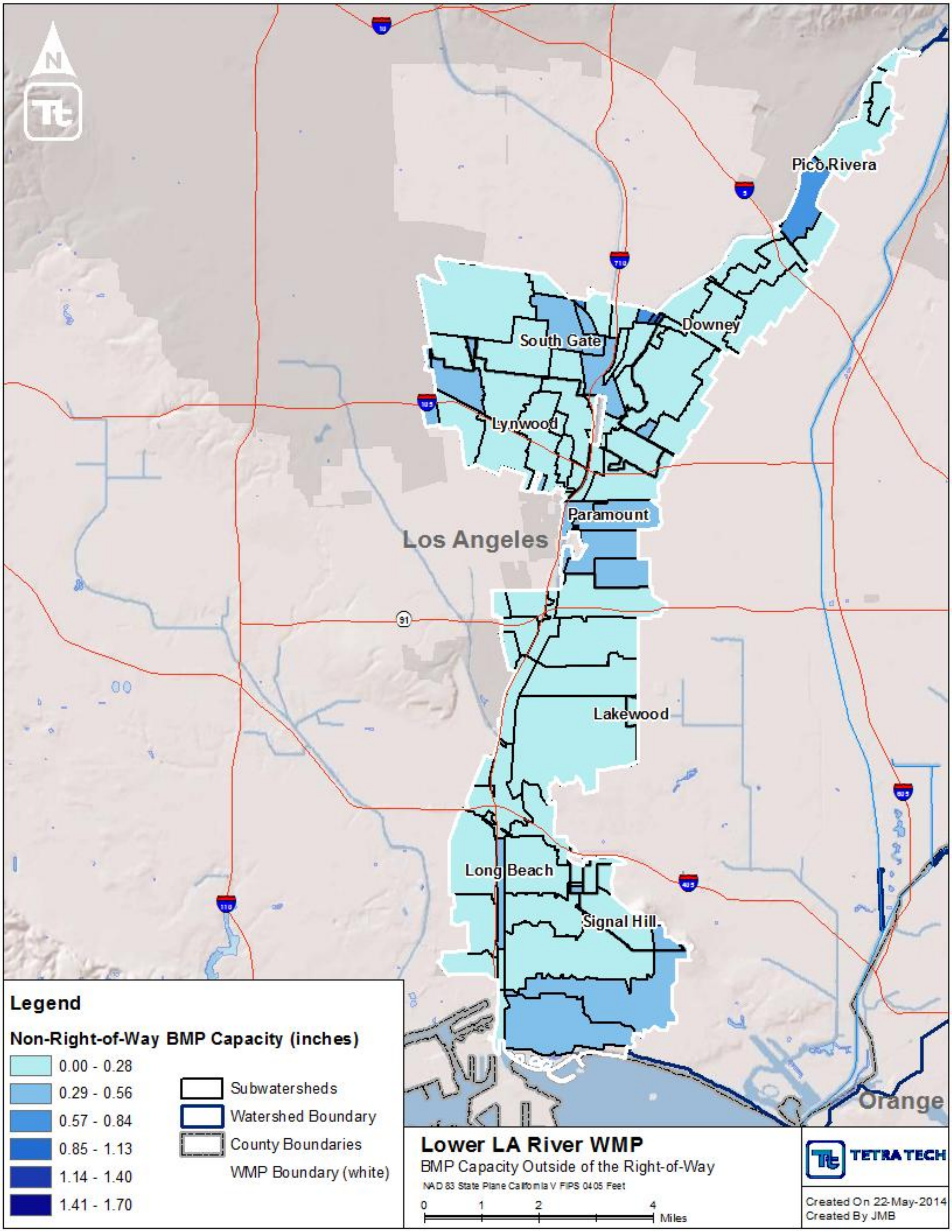

Figure 6. LLAR BMP capacity outside of the right-of-way

RB-AR13795

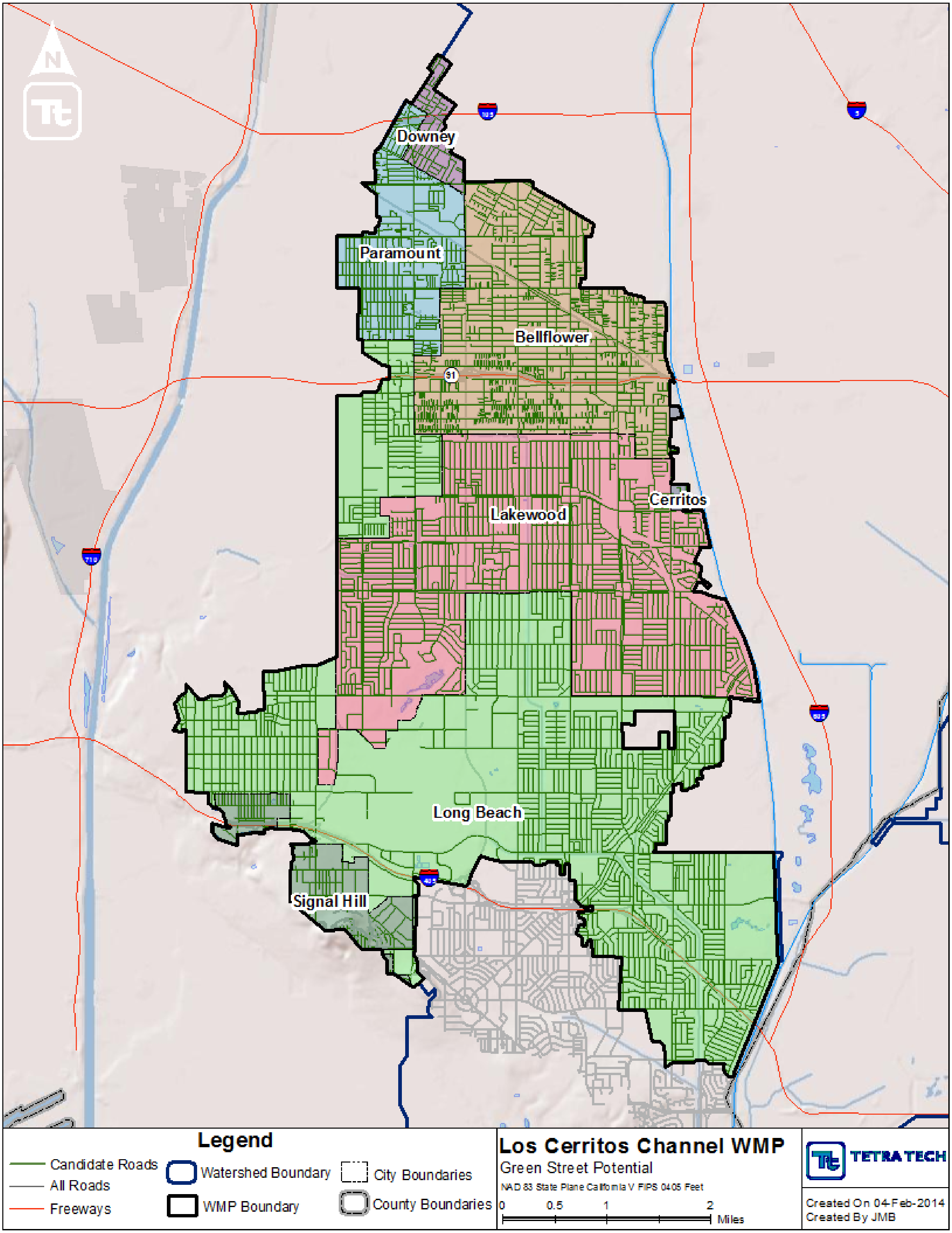

Figure 7. LCC ROW BMP Potential Opportunities

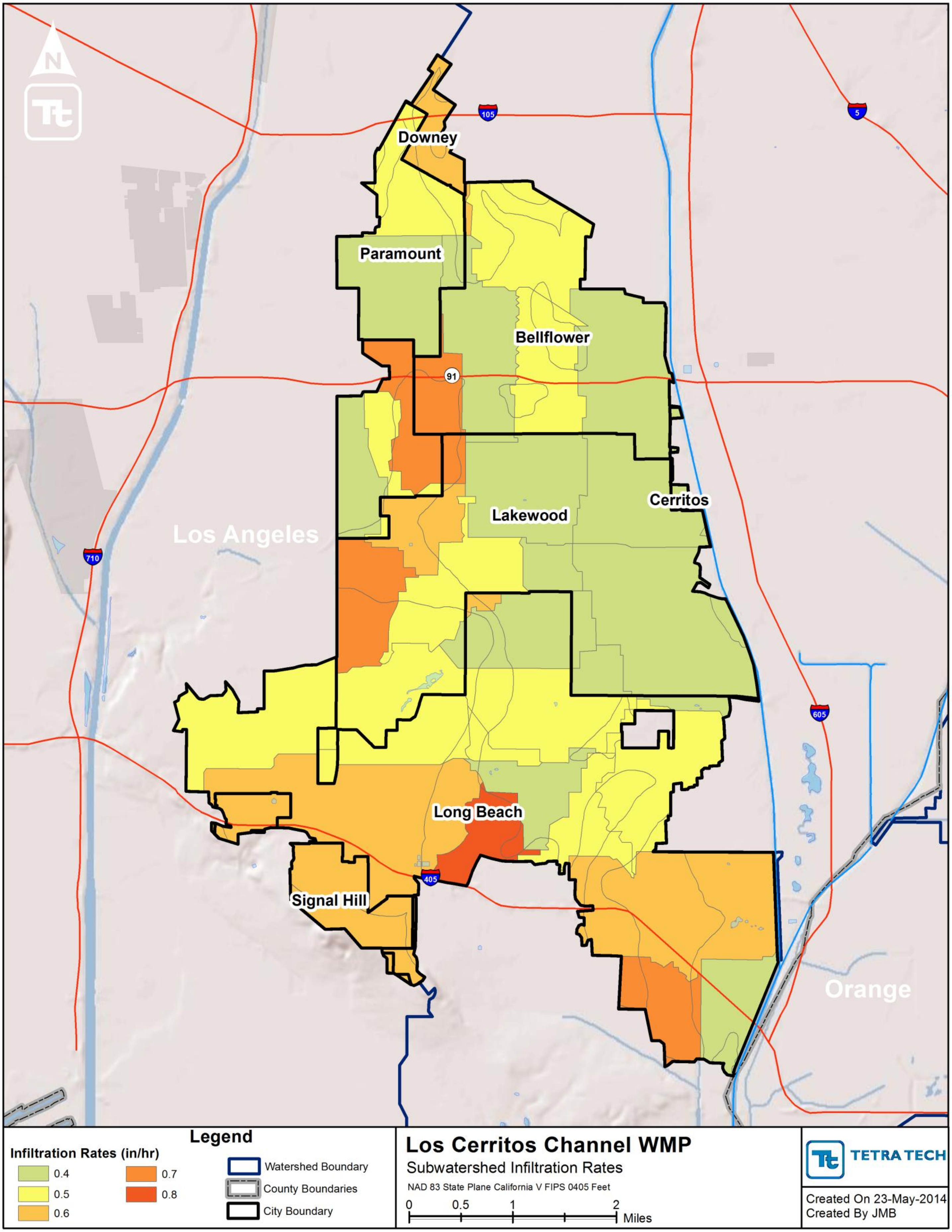

Figure 8. LCC Subwatershed Infiltration Rates

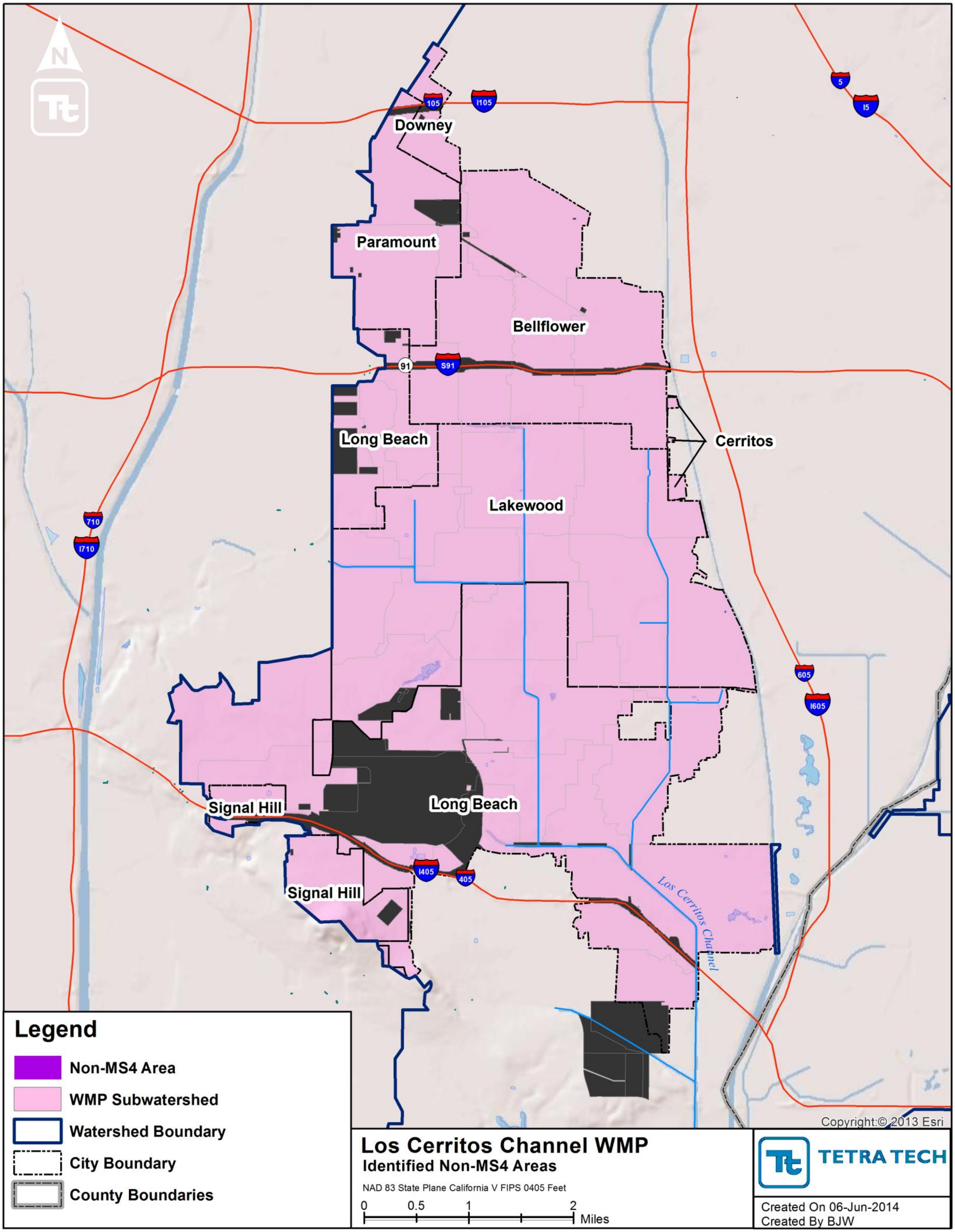

Figure 9. LCC Non-MS4 Permittees

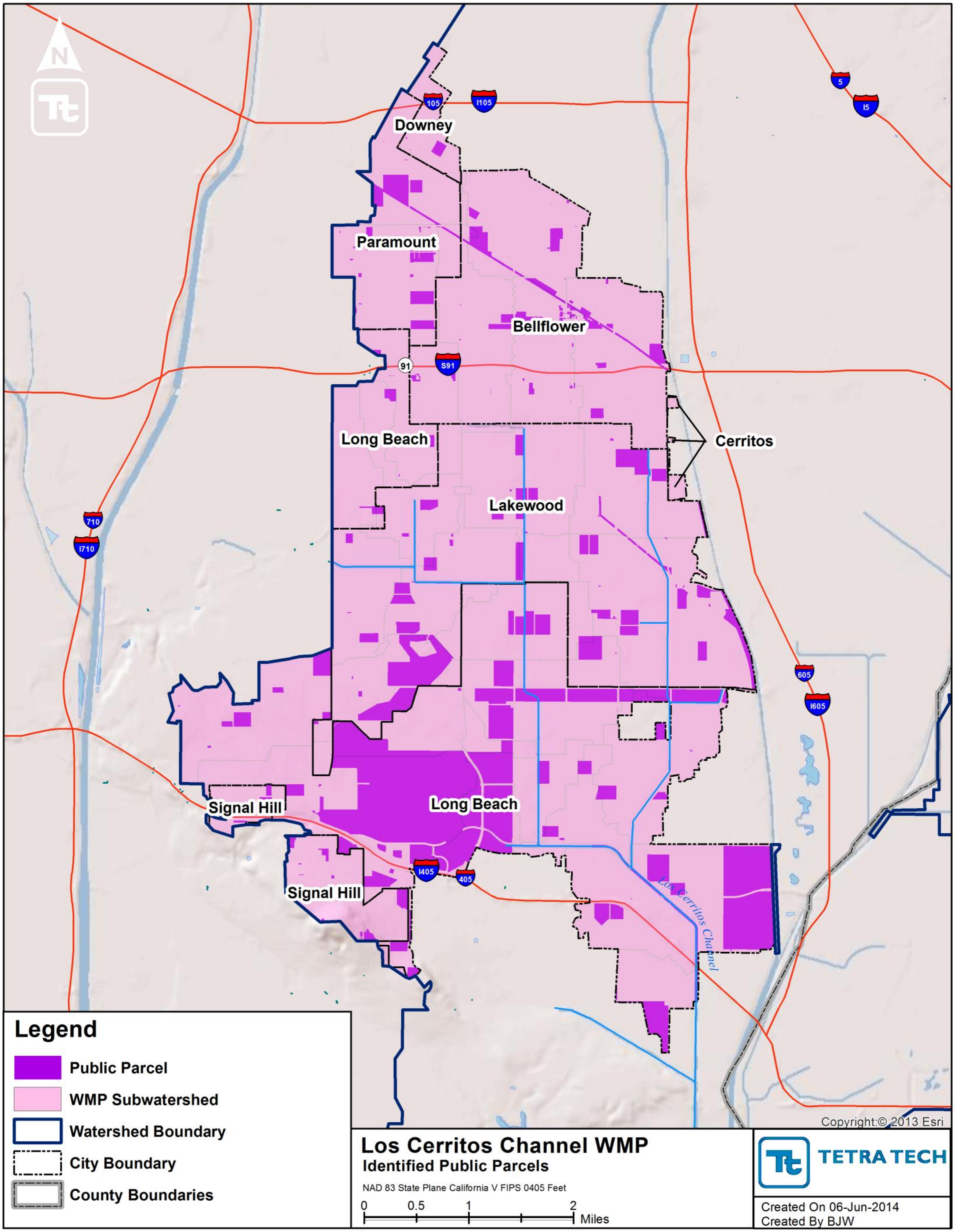

Figure 10. LCC identified public parcels

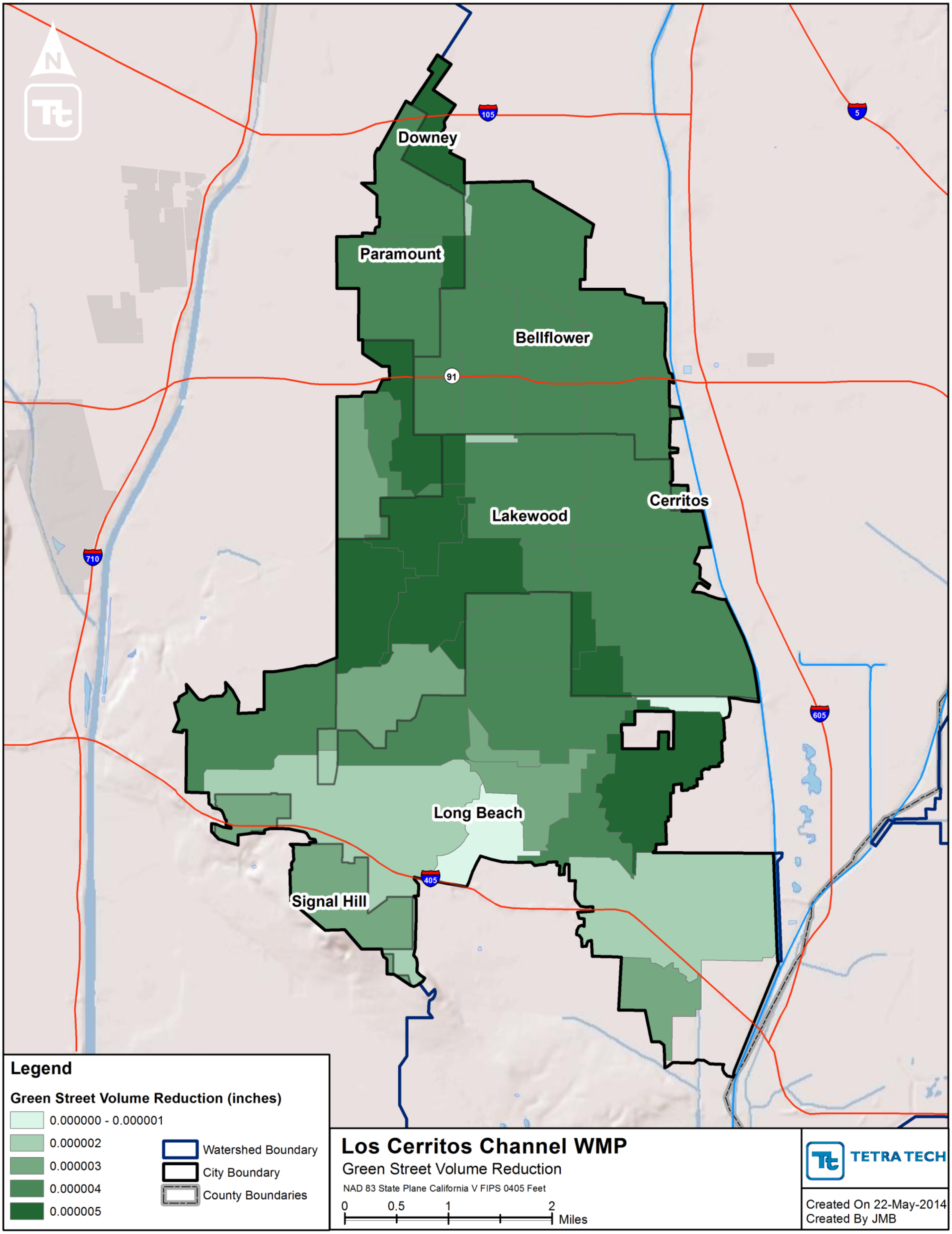

Figure 11. LCC ROW BMP Volume Reduction

RB-AR13800

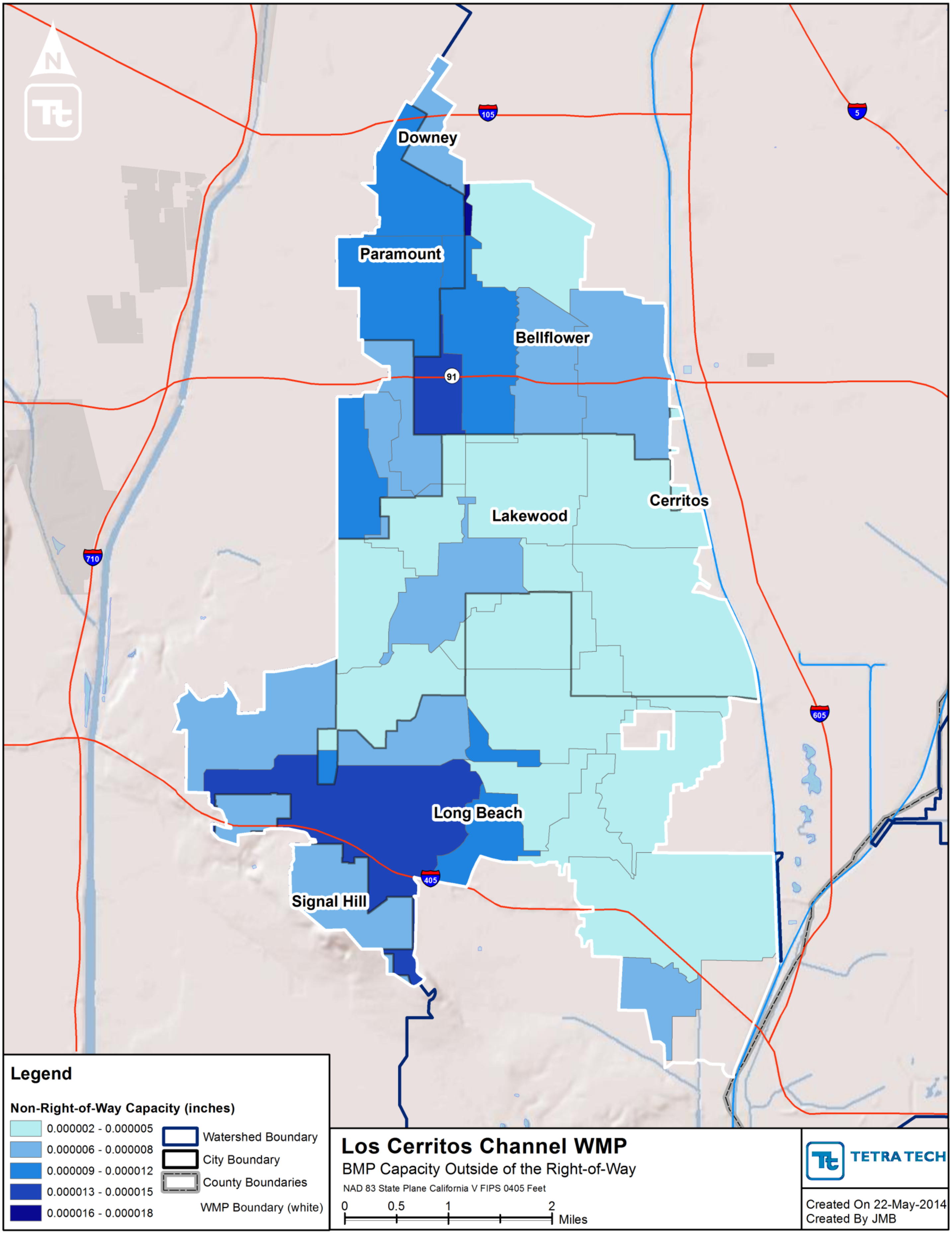

Figure 12. LCC BMP capacity outside of the right-of-way

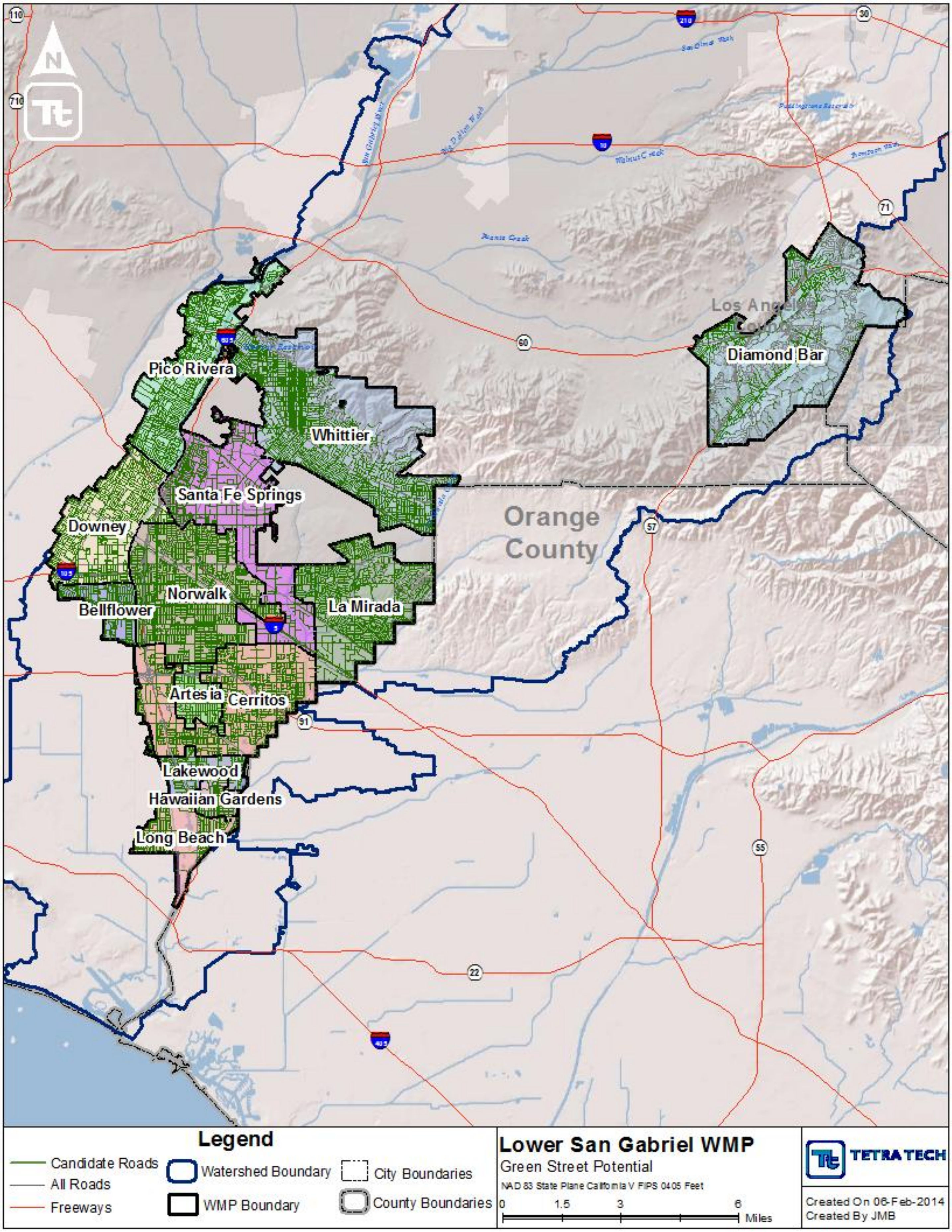

Figure 13. LSGR ROW BMP Potential Opportunities

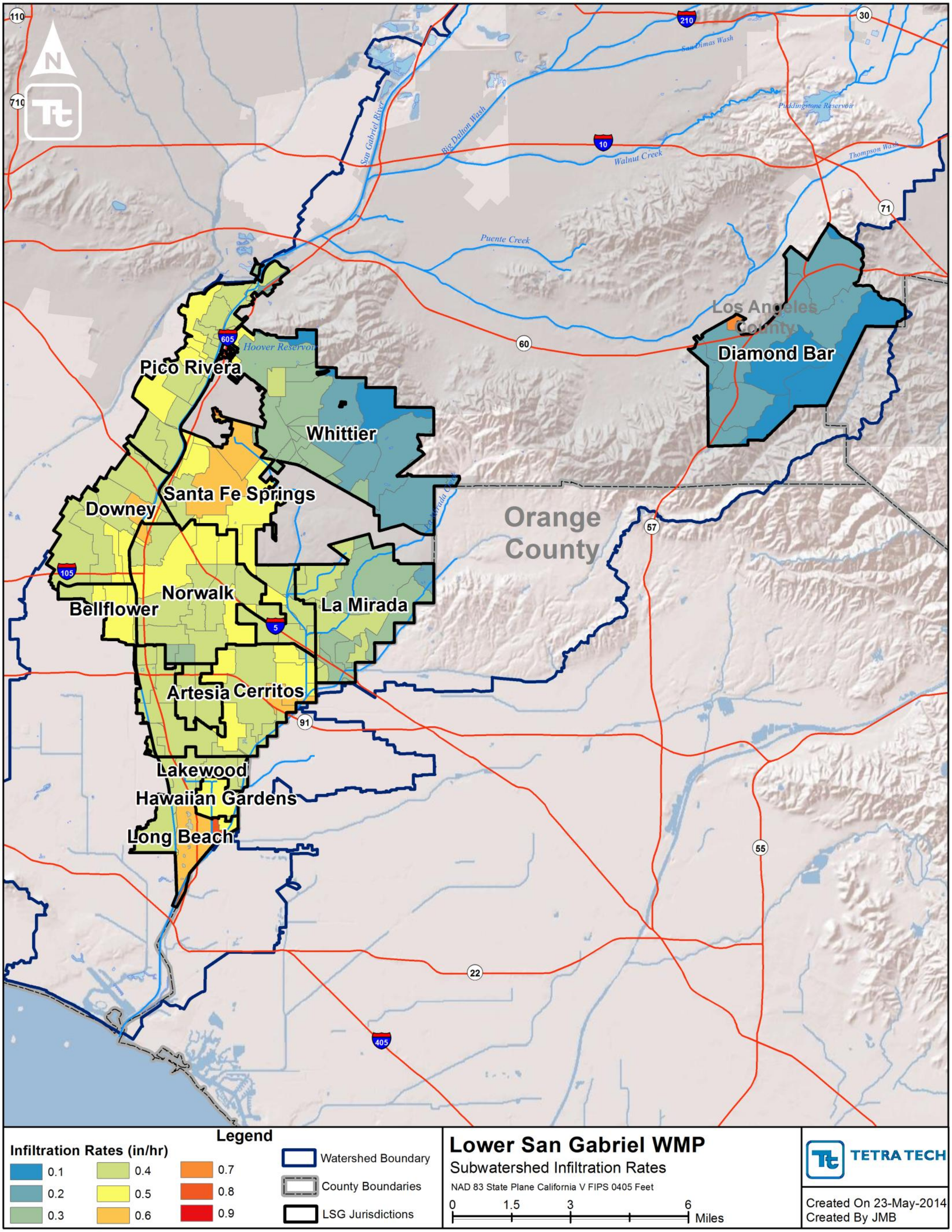

Figure 14. LSGR Subwatershed Infiltration Rates

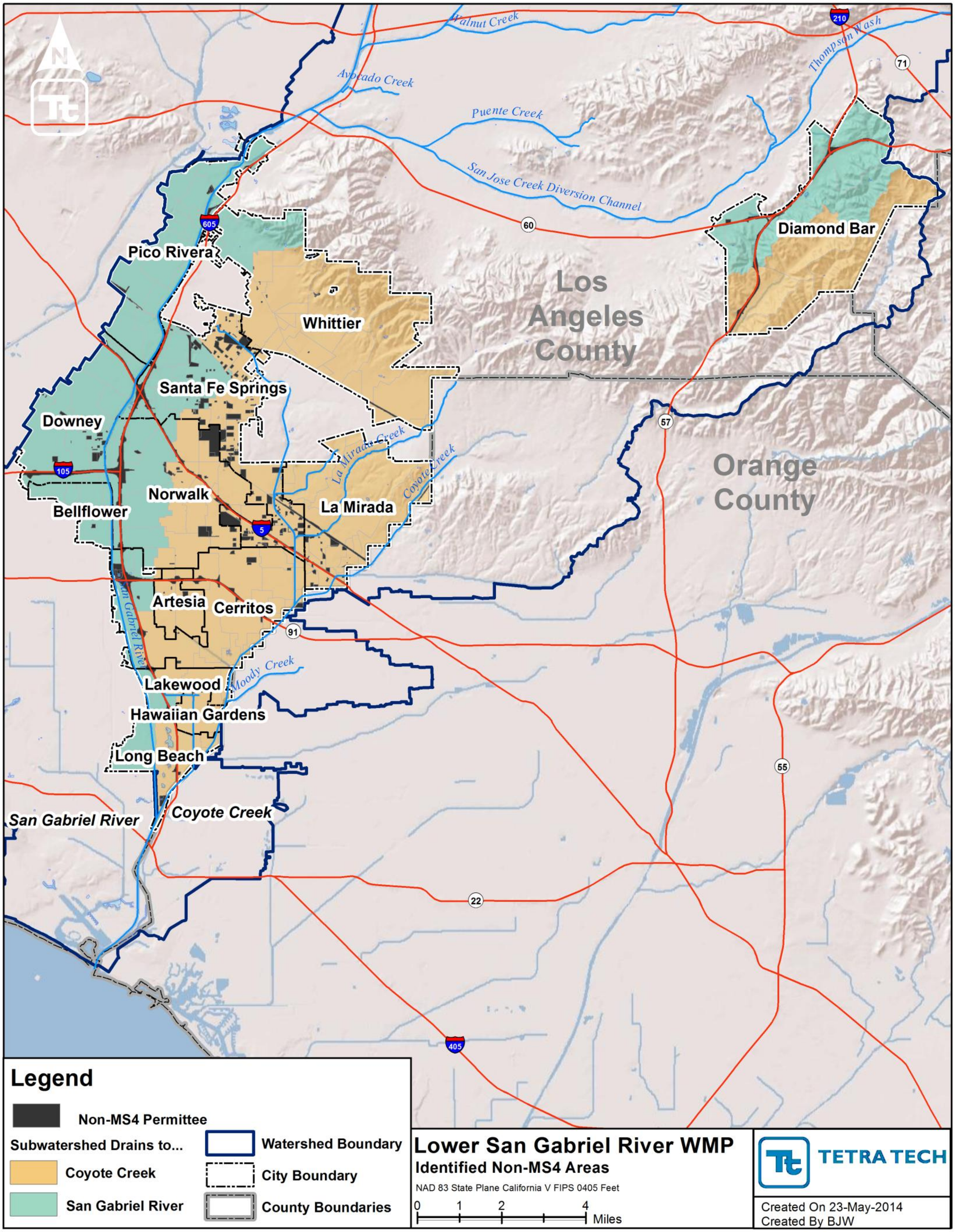

Figure 15. LSGR Non-MS4 Permittees

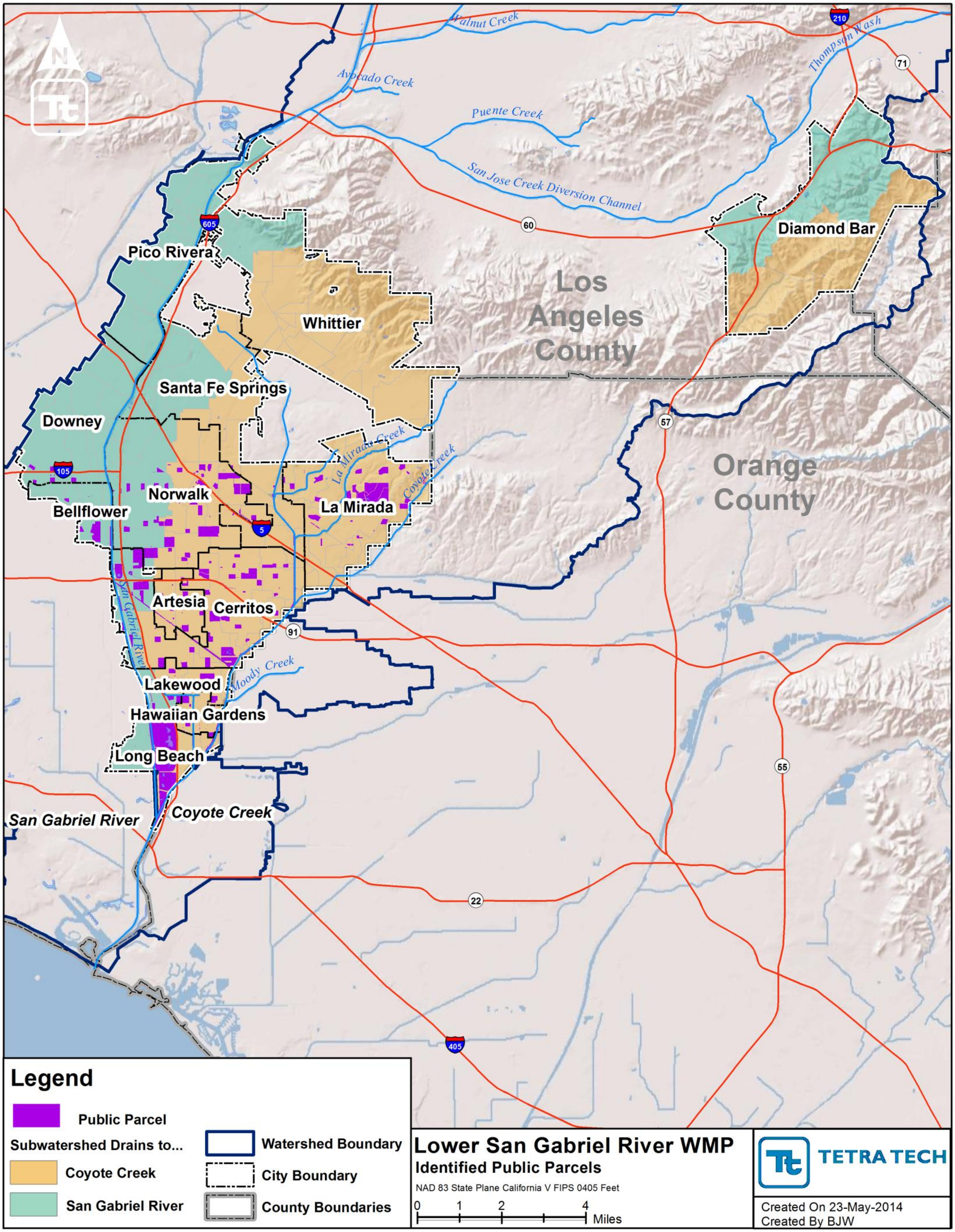

Figure 16. LSGR identified public parcels

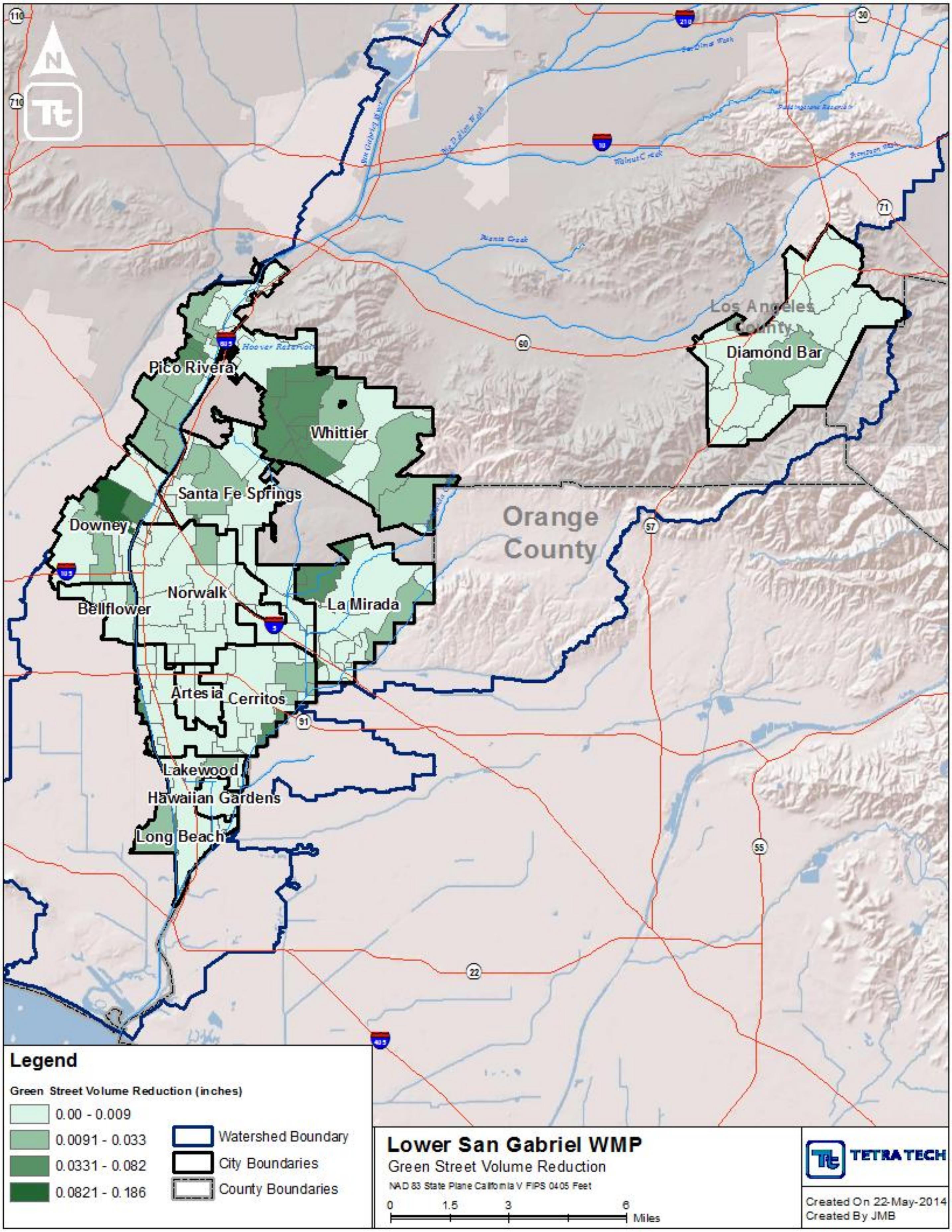

Figure 17. LSGR ROW BMP Volume Reduction

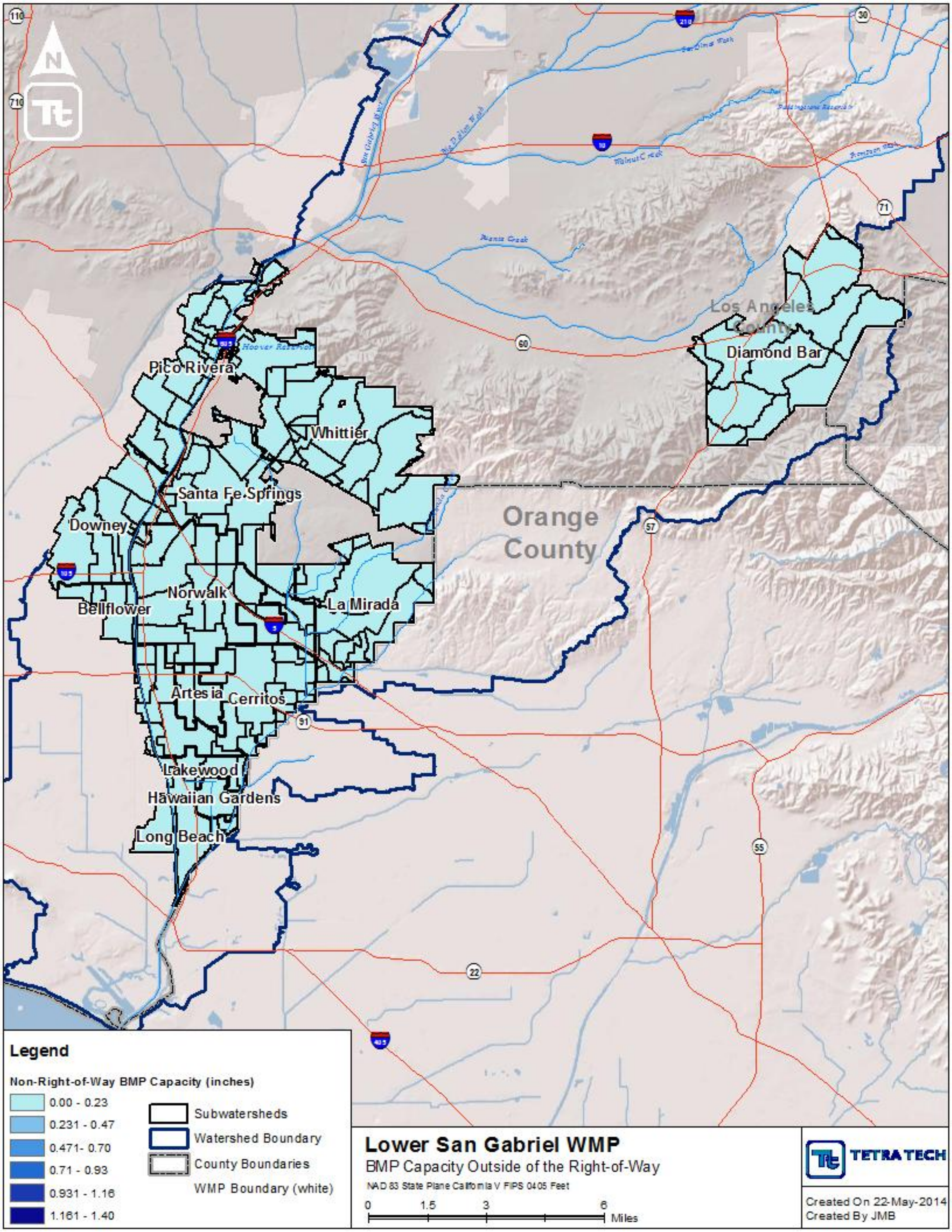

Figure 18. LSGR BMP capacity outside of the right-of-way

Attachment D: Existing and Planned BMPs

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

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June 6, 2014

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D1. Existing and Planned BMPs

The following tables summarize existing and planned BMPs in each jurisdiction.

D1.1. City of Bellflower

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration	Existing	Riverview Park Infiltration Trenches	2012	10500 Somerset Blvd.	33.896662	-118.11016	105113	16	ac		
Bioretention / Biofiltration	Existing	Riverview Park Infiltration Trenches	2012	10500 Somerset Blvd.	33.896662	-118.11016	105113	16	ac		
Flow-Through Treatment BMP	Existing	Commercial Gas Station and mart	2008	14300 Bellflower Blvd	33.901581	-118.124915	105114	0.42	ac		
Flow-Through Treatment BMP	Existing	Commercial Storage	2005	10526 Rosecrans	33.902009	-118.108102	575118	19.5	ac		
Infiltration BMPs	Existing	St George Church	2012	15725 Cornuta	33.890539	-118.120735	105113	1.36	ac		
Infiltration BMPs	Existing	Autozone	2012	10239 Rosecrans	33.902265	-118.114834	105113	0.78	ac		

D1.2. City of Downey

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow Through Treatment BMP	Existing	8314 SECOND ST	2/14/2014		33.9409	-118.13243	245114	1322	sf	0.153	cfs
Flow Through Treatment BMP	Existing	10030 LAKEWOOD	8/17/2007		33.9477	-118.11664	245125	24560	sf	0.17	cfs
Infiltration BMP	Existing	12327 WOODRUFF AV	2/14/2014		33.91989	-118.11706	245113	6894.4	sf	430.9	cf
Infiltration BMP	Existing	12145 WOODRUFF	7/8/2008		33.92338	-118.11805	245113	3200	sf	200	cf
Infiltration BMP	Existing	9500 WASHBURN	2/14/2014		33.92366	-118.1172	245113	342000	sf	9500	cf
Infiltration BMP	Existing	9236 HALL	4/17/2007		33.92972	-118.12155	245113	411840	sf	25740	cf
Infiltration BMP	Existing	9737 IMPERIAL	6/22/2010		33.91761	-118.11961	245114	5600	sf	350	cf
Infiltration BMP	Existing	12254 BELLFLOWER	9/13/2003		33.9214	-118.1239	245114	57600	sf	3600	cf
Infiltration BMP	Existing	11904 BELLFLOWER	2/14/2014		33.92607	-118.12515	245114	5400	sf	300	cf
Infiltration BMP	Existing	11610 LAKEWOOD	9/28/2007		33.93101	-118.12594	245114	91520	sf	5720	cf
Infiltration BMP	Existing	8329 DAVIS	6/15/2010		33.9366	-118.13379	245114	12608	sf	788	cf
Infiltration BMP	Existing	8522 FIRESTONE	2/16/2005		33.93678	-118.12978	245114	105456	sf	6591	cf
Infiltration BMP	Existing	8320 FIRESTONE BLVD	1/1/2010		33.9387	-118.13176	245114	90660	sf	525	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9060 IMPERIAL	4/15/2005		33.91646	-118.13532	245115	7056	sf	441	cf
Infiltration BMP	Existing	8141 DE PALMAQ	6/30/2003		33.93618	-118.1402	245115	443008	sf	27688	cf
Infiltration BMP	Existing	8317 DAVIS ST	2/14/2014		33.93683	-118.13441	245115	13920	sf	870	cf
Infiltration BMP	Existing	8333 IOWA	10/11/2001		33.93756	-118.13356	245115	9808	sf	613	cf
Infiltration BMP	Existing	8100 PHLOX	5/20/2004		33.93956	-118.13854	245115	14400	sf	900	cf
Infiltration BMP	Existing	11040 BROOKSHIRE	1/1/2014		33.93932	-118.12496	245119	1923616	sf	120226	cf
Infiltration BMP	Existing	11136 DOLLISON	6/22/2010		33.93448	-118.09613	245122	13824	sf	864	cf
Infiltration BMP	Existing	10239 PICO VISTA	4/7/2003		33.939	-118.10316	245126	2176	sf	136	cf
Infiltration BMP	Existing	10233 PICO VISTA	4/7/2003		33.93914	-118.10305	245126	2176	sf	136	cf
Infiltration BMP	Existing	10228 PICO VISTA	4/7/2003		33.93919	-118.10235	245126	5856	sf	366	cf
Infiltration BMP	Existing	10229 PICO VISTA	4/7/2003		33.93928	-118.10295	245126	2176	sf	136	cf
Infiltration BMP	Existing	10223 PICO VISTA	4/7/2003		33.93946	-118.10289	245126	2048	sf	128	cf
Infiltration BMP	Existing	10218 PICO VISTA	4/7/2003		33.93947	-118.10223	245126	5952	sf	372	cf
Infiltration BMP	Existing	10215 PICO VISTA	4/7/2003		33.93962	-118.10237	245126	2112	sf	132	cf
Infiltration BMP	Existing	10211 PICO VISTA	4/7/2003		33.93969	-118.10255	245126	2304	sf	144	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10219 PICO VISTA	4/7/2003		33.93975	-118.10273	245126	2304	sf	144	cf
Infiltration BMP	Existing	12800 PARAMOUNT	9/16/2008		33.92108	-118.15383	246077	3168	sf	198	cf
Infiltration BMP	Existing	7930 STEWARD & GRAY	11/18/2004		33.93539	-118.14527	246077	1600	sf	100	cf
Infiltration BMP	Existing	12229 JULIUS	1/1/2006		33.93343	-118.1561	246079	944	sf	59	cf
Infiltration BMP	Existing	7845 BENARES ST	6/14/2001		33.93839	-118.14549	246079	3568	sf	223	cf
Infiltration BMP	Existing	7841 BENARES ST	6/14/2001		33.93851	-118.14537	246079	1760	sf	110	cf
Infiltration BMP	Existing	7837 BENARES ST	6/14/2001		33.93863	-118.14528	246079	1760	sf	110	cf
Infiltration BMP	Existing	7848 BENARES ST	6/14/2001		33.93863	-118.14598	246079	10640	sf	665	cf
Infiltration BMP	Existing	7833 BENARES ST	6/14/2001		33.93875	-118.14518	246079	1760	sf	110	cf
Infiltration BMP	Existing	7844 BENARES ST	6/14/2001		33.93876	-118.14591	246079	2000	sf	125	cf
Infiltration BMP	Existing	7840 BENARES ST	6/14/2001		33.93886	-118.14578	246079	2000	sf	125	cf
Infiltration BMP	Existing	11706 RIVES	6/14/2001		33.93888	-118.14506	246079	1760	sf	110	cf
Infiltration BMP	Existing	7816 BENARES ST	6/14/2001		33.93896	-118.14553	246079	9600	sf	600	cf
Infiltration BMP	Existing	7812 BENARES ST	6/14/2001		33.93904	-118.14568	246079	1760	sf	110	cf
Infiltration BMP	Existing	11726 RIVES	6/14/2001		33.93904	-118.14614	246079	1920	sf	120	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7808 BENARES ST	6/14/2001		33.93911	-118.14583	246079	1760	sf	110	cf
Infiltration BMP	Existing	7808 BENARES ST	6/14/2001		33.93919	-118.14598	246079	1760	sf	110	cf
Infiltration BMP	Existing	7821 BENARES ST	6/14/2001		33.93921	-118.14506	246079	1872	sf	117	cf
Infiltration BMP	Existing	7804 BENARES ST	6/14/2001		33.93926	-118.14613	246079	9760	sf	610	cf
Infiltration BMP	Existing	7817 BENARES ST	6/14/2001		33.93931	-118.14525	246079	1760	sf	110	cf
Infiltration BMP	Existing	7813 BENARES ST	6/14/2001		33.93938	-118.14542	246079	1760	sf	110	cf
Infiltration BMP	Existing	7809 BENARES ST	6/14/2001		33.93945	-118.14557	246079	1760	sf	110	cf
Infiltration BMP	Existing	7805 BENARES ST	6/14/2001		33.93953	-118.14572	246079	1760	sf	110	cf
Infiltration BMP	Existing	7801 BENARES ST	6/14/2001		33.93961	-118.14587	246079	9600	sf	600	cf
Infiltration BMP	Existing	7140 FIRESTONE	10/3/2005		33.94707	-118.15469	246079	24048	sf	1503	cf
Infiltration BMP	Existing	8233 FIRESTONE	6/21/2010		33.94076	-118.13358	246102	91648	sf	5728	cf
Infiltration BMP	Existing	7814 FIRESTONE	2/14/2014		33.94418	-118.14232	246102	3000	sf	125	cf
Infiltration BMP	Existing	7676 FIRESTONE	2/26/2004		33.94527	-118.144	246102	213824	sf	13364	cf
Infiltration BMP	Existing	7201 FIRESTONE	4/19/2007		33.94821	-118.15273	246102	34352	sf	2147	cf
Infiltration BMP	Existing	7360 FLORENCE	6/21/2010		33.95872	-118.141	246102	14496	sf	906	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8129 FLORENCE	6/23/2010		33.95231	-118.12677	246103	8880	sf	555	cf
Infiltration BMP	Existing	8605 GALLATIN ROAD	2/14/2014		33.95768	-118.11432	246103	85792	sf	5362	cf
Infiltration BMP	Existing	9276 DOWNEY	1/4/2007		33.95901	-118.11926	246103	6400	sf	400	cf
Infiltration BMP	Existing	8801 LAKEWOOD	7/14/2006		33.96317	-118.11498	246106	18352	sf	1147	cf
Infiltration BMP	Existing	7880 TELEGRAPH	11/14/2004		33.97112	-118.12113	246111	123104	sf	7694	cf
Permeable Pavement	Existing	9449 IMPERIAL	6/22/2010		33.91809	-118.12656	245115	32160	sf	2010	cf
Permeable Pavement	Existing	9565 FIRESTONE	6/3/2008		33.93043	-118.11175	245119	18928	sf	1183	cf
Permeable Pavement	Existing	12628 PARAMOUNT	2/14/2014		33.92329	-118.15283	246077	15000	sf	284	cf
Permeable Pavement	Existing	11555 PARAMOUNT	2/14/2014		33.94116	-118.14067	246077	8125	sf	400	cf
Permeable Pavement	Existing	8043 SECOND ST	1/1/2009		33.94254	-118.13737	246102	105023	sf	6787	cf
Permeable Pavement	Existing	9250 LAKEWOOD	2/14/2014		33.95768	-118.1153	246103	24662	sf	939	cf
Regional Detention Facility	Existing	9341 IMPERIAL	5/6/2004		33.91918	-118.12898	245115	664624	sf	41539	cf
Regional Infiltration Facility	Existing	12074 LAKEWOOD	5/22/2005		33.9257	-118.13203	245115	960800	sf	60050	cf
Regional Infiltration Facility	Existing	12002 LAKEWOOD	5/22/2005		33.9261	-118.13169	245115	605264	sf	37829	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8764 FIRESTONE	8/14/2008	6523923.595890	6523923.595890	1798908.496460	245119	20064	sf	1254	cf
Infiltration BMP	Existing	9915 DOWNEY	9/27/2005	6523909.682530	6523909.682530	1805554.600030	246103	2265	sf	142	cf
Infiltration BMP	Existing	7602 RUNDELL	1/27/2006	6514863.657960	6514863.657960	1798182.489930	246079	2265	sf	142	cf
Infiltration BMP	Existing	10403 SAMOLINE	10/3/2005	6521224.982130	6521224.982130	1804890.047210	246102	2265	sf	142	cf
Infiltration BMP	Existing	12516 DOLAN	11/18/2005	6518146.741440	6518146.741440	1794105.551200	245115	1698	sf	106	cf
Infiltration BMP	Existing	7845 QUILL	3/28/2006	6515351.811960	6515351.811960	1796427.555720	246079	1698	sf	106	cf
Infiltration BMP	Existing	10435 BIRCHDALE	5/19/2005	6524444.362750	6524444.362750	1802478.415410	245119	1132	sf	71	cf
Infiltration BMP	Existing	8538 ALBIA	9/23/2005	6520089.101510	6520089.101510	1795567.094110	245115	566	sf	35	cf
Infiltration BMP	Existing	12159 CORNUTA	9/16/2005	6525392.928460	6525392.928460	1794233.560240	245114	566	sf	35	cf
Infiltration BMP	Existing	8064 DACOSTA	7/7/2005	6523365.354910	6523365.354910	1805913.806160	246103	566	sf	35	cf
Infiltration BMP	Existing	8551 DALEN	10/6/2005	6518205.327280	6518205.327280	1792517.271110	245115	566	sf	35	cf
Infiltration BMP	Existing	8318 DINSDALE	6/15/2006	6523907.628300	6523907.628300	1804895.972630	246103	566	sf	35	cf
Infiltration BMP	Existing	12641 DOLAN	9/2/2005	6517370.498610	6517370.498610	1793094.154440	245115	566	sf	35	cf
Infiltration BMP	Existing	12837 DOWNEY	6/13/2008	6516221.544620	6516221.544620	1792552.216840	246077	566	sf	35	cf
Infiltration BMP	Existing	12608 DUNROBIN	1/1/2007	6525044.715110	6525044.715110	1792041.222140	245114	566	sf	35	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7715 GAINFORD	5/9/2006	6521302.031220	6521302.031220	1807578.393730	246106	566	sf	35	cf
Infiltration BMP	Existing	12337 HORLEY	6/20/2007	6514828.837130	6514828.837130	1797233.894880	246079	566	sf	35	cf
Infiltration BMP	Existing	12619 IBBETSON	4/7/2008	6525826.717640	6525826.717640	1791950.694670	245114	566	sf	35	cf
Infiltration BMP	Existing	12142 MARBEL	5/5/2008	6521265.537710	6521265.537710	1794924.230550	245115	566	sf	35	cf
Infiltration BMP	Existing	12228 NORLAIN	6/24/2005	6513924.473210	6513924.473210	1798288.206130	246079	566	sf	35	cf
Infiltration BMP	Existing	11733 PATTON	12/9/2005	6521629.388810	6521629.388810	1797656.681610	245114	566	sf	35	cf
Infiltration BMP	Existing	11712 PRUESS	3/29/2006	6518005.349510	6518005.349510	1799785.098800	246077	566	sf	35	cf
Infiltration BMP	Existing	8605 SAMOLINE	10/23/2006	6525562.919850	6525562.919850	1810382.622670	246106	566	sf	35	cf
Infiltration BMP	Existing	7814 SPRINGER	7/20/2005	6515325.745000	6515325.745000	1796943.250000	246079	566	sf	35	cf
Infiltration BMP	Existing	7406 THIRD	9/23/2005	6517102.209740	6517102.209740	1803992.224080	246102	566	sf	35	cf
Infiltration BMP	Existing	8836 TWEEDY	8/21/2006	6524333.205540	6524333.205540	1809897.996880	246106	566	sf	35	cf
Infiltration BMP	Existing	9702 TWEEDY	8/30/2005	6522704.033740	6522704.033740	1807211.824630	246103	566	sf	35	cf
Infiltration BMP	Existing	11414 PARAMOUNT	11/17/2006	6519592.558830	6519592.558830	1800943.348310	245115	37135	sf	2321	cf
Infiltration BMP	Existing	8077 FLORENCE AV	1/1/2009	6523000.000000	6523000.000000	1805200.000000	246103	31872	sf	1992	cf
Infiltration BMP	Existing	8351 FLORENCE	11/29/2005	6524092.726100	6524092.726100	1804613.455750	246103	8252	sf	516	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11003 LAKEWOOD	1/1/2006	6524400.000000	6524400.000000	1799800.000000	245119	8252	sf	516	cf
Infiltration BMP	Existing	9288 LUBEC	6/21/2010	6528705.843900	6528705.843900	1803218.787040	245125	8252	sf	516	cf
Infiltration BMP	Existing	13240 BARLIN	6/24/2005	6517118.017720	6517118.017720	1789361.126310	245524	6189	sf	387	cf
Infiltration BMP	Existing	9802 BROOKSHIRE	4/24/2007	6525737.765210	6525737.765210	1805415.750650	246103	6189	sf	387	cf
Infiltration BMP	Existing	9026 SUVA	10/5/2006	6527186.692380	6527186.692380	1804858.393970	245125	6189	sf	387	cf
Infiltration BMP	Existing	7325 IRWINGROVE	4/27/2005	6518419.969630	6518419.969630	1807291.337240	246102	5158	sf	322	cf
Infiltration BMP	Existing	10064 PANGBORN	8/16/2005	6529846.676910	6529846.676910	1801177.429270	245125	5158	sf	322	cf
Infiltration BMP	Existing	8102 THIRD	3/4/2009	6520617.238210	6520617.238210	1801805.039980	246103	7616	sf	476	cf
Infiltration BMP	Existing	12200 BELLFLOWER	11/4/2008	6524061.916580	6524061.916580	1794195.827920	245114	4126	sf	258	cf
Infiltration BMP	Existing	9818 BIRCHDALE	12/28/2005	6526194.448530	6526194.448530	1804634.814020	245125	4126	sf	258	cf
Infiltration BMP	Existing	10419 BROOKSHIRE	7/30/2007	6523842.460000	6523842.460000	1803179.994160	245119	4126	sf	258	cf
Infiltration BMP	Existing	10432 BROOKSHIRE	2/14/2007	6523911.001360	6523911.001360	1803018.354450	245119	4126	sf	258	cf
Infiltration BMP	Existing	10329 CASANES	1/1/2006	6528565.218740	6528565.218740	1800358.453120	245126	4126	sf	258	cf
Infiltration BMP	Existing	13221 CORRIGAN	3/9/2006	6523120.117490	6523120.117490	1789965.324450	245114	4126	sf	258	cf
Infiltration BMP	Existing	8816 ELSTON	12/28/2005	6526840.850650	6526840.850650	1808666.263650	246103	4126	sf	258	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9278 GAINFORD	6/15/2005	6528421.969980	6528421.969980	1803000.469050	245125	4126	sf	258	cf
Infiltration BMP	Existing	7340 IRWINGROVE	12/6/2005	6518415.507880	6518415.507880	1806990.616650	246102	4126	sf	258	cf
Infiltration BMP	Existing	9055 IRWINGROVE	10/17/2006	6526414.238800	6526414.238800	1802422.724820	245119	4126	sf	258	cf
Infiltration BMP	Existing	9005 KRISTIN	1/1/2006	6524171.005660	6524171.005660	1809376.398810	246106	4126	sf	258	cf
Infiltration BMP	Existing	9015 KRISTIN	1/1/2006	6524137.396040	6524137.396040	1809320.713720	246106	4126	sf	258	cf
Infiltration BMP	Existing	10014 LA REINA	11/3/2005	6523603.973220	6523603.973220	1805275.605180	246103	4126	sf	258	cf
Infiltration BMP	Existing	8334 LEXINGTON	3/20/2006	6523900.000000	6523900.000000	1804200.000000	246103	4126	sf	258	cf
Infiltration BMP	Existing	7114 LUXOR	7/27/2005	6513446.571340	6513446.571340	1802395.175860	246100	4126	sf	258	cf
Infiltration BMP	Existing	10348 PANGBORN	10/12/2006	6529020.867850	6529020.867850	1800144.106260	245126	4126	sf	258	cf
Infiltration BMP	Existing	7268 PELLET	12/8/2005	6516203.991240	6516203.991240	1804244.566160	246104	4126	sf	258	cf
Infiltration BMP	Existing	9821 RIVES	9/12/2005	6521261.613640	6521261.613640	1807221.725140	246106	4126	sf	258	cf
Infiltration BMP	Existing	10427 STAMPS	2/27/2006	6523141.588150	6523141.588150	1803526.008280	246103	4126	sf	258	cf
Infiltration BMP	Existing	8325 TEXAS	8/30/2007	6520789.744350	6520789.744350	1799109.948610	245114	4126	sf	258	cf
Infiltration BMP	Existing	9211 ARRINGTON	6/21/2010	6527822.609270	6527822.609270	1805896.813180	245125	3095	sf	193	cf
Infiltration BMP	Existing	10372 BIRCHDALE	1/17/2006	6524786.108330	6524786.108330	1802711.833690	245119	2660	sf	166	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9509 BROCK	10/6/2005	6524084.133490	6524084.133490	1807438.122200	246103	3095	sf	193	cf
Infiltration BMP	Existing	9600 CORD	5/12/2008	6529842.639410	6529842.639410	1803668.379590	245125	3095	sf	193	cf
Infiltration BMP	Existing	10943 CORD	3/13/2007	6526539.555830	6526539.555830	1798046.595190	245119	3095	sf	193	cf
Infiltration BMP	Existing	12569 DOLAN	9/27/2006	6517675.526540	6517675.526540	1793796.546690	245115	3095	sf	193	cf
Infiltration BMP	Existing	9252A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9252B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9622 HALEDON	3/16/2006	6528283.868130	6528283.868130	1804260.791520	245125	3095	sf	193	cf
Infiltration BMP	Existing	11442 JULIUS	7/26/2007	6517126.240320	6517126.240320	1802109.297720	246079	3095	sf	193	cf
Infiltration BMP	Existing	10026 MATTOCK	1/1/2006	6530326.462180	6530326.462180	1801330.602850	245125	3095	sf	193	cf
Infiltration BMP	Existing	9303 PARAMOUNT	3/14/2006	6523934.101920	6523934.101920	1808355.150660	246106	3095	sf	193	cf
Infiltration BMP	Existing	8739 PARKCLIFF	1/23/2006	6516653.896010	6516653.896010	1788072.265990	245524	2063	sf	129	cf
Infiltration BMP	Existing	9303 PARROT	1/4/2007	6524270.384450	6524270.384450	1808221.036420	246106	3095	sf	193	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7313 PELLET	6/22/2010	6516478.702600	6516478.702600	1804386.841100	246104	3095	sf	193	cf
Infiltration BMP	Existing	10473 PICO VISTA	1/21/2009	6529579.260180	6529579.260180	1798825.132300	245126	3095	sf	193	cf
Infiltration BMP	Existing	7840 THIRD	8/29/2007	6519254.945150	6519254.945150	1802616.251380	246102	3095	sf	193	cf
Infiltration BMP	Existing	8347 VISTA DEL ROSA	7/26/2007	6527061.884710	6527061.884710	1808864.927170	246106	3095	sf	193	cf
Infiltration BMP	Existing	11632 ADENMOOR	6/15/2005	6524141.212380	6524141.212380	1797138.142940	245114	2063	sf	129	cf
Infiltration BMP	Existing	7124 ADWEN	12/20/2007	6513937.816490	6513937.816490	1803059.644840	246100	2063	sf	129	cf
Infiltration BMP	Existing	7258 ADWEN	1/3/2008	6515068.905460	6515068.905460	1802384.347520	246079	2063	sf	129	cf
Infiltration BMP	Existing	7646 ADWEN	10/6/2005	6517037.957040	6517037.957040	1801170.785850	246079	2063	sf	129	cf
Infiltration BMP	Existing	7702 ADWEN	5/11/2006	6517121.727310	6517121.727310	1801116.179360	246079	2063	sf	129	cf
Infiltration BMP	Existing	13032 AIRPOINT	5/14/2007	6517972.459000	6517972.459000	1790335.341940	245115	2063	sf	129	cf
Infiltration BMP	Existing	8455 ALAMEDA	8/7/2008	6519558.018350	6519558.018350	1795721.453060	245115	2063	sf	129	cf
Infiltration BMP	Existing	8632 ALAMEDA	11/2/2006	6520500.318510	6520500.318510	1795019.322380	245115	2063	sf	129	cf
Infiltration BMP	Existing	7945 ALBIA	10/11/2005	6516993.544600	6516993.544600	1797608.073070	246079	2063	sf	129	cf
Infiltration BMP	Existing	8704 ALBIA	5/28/2008	6520928.243910	6520928.243910	1795073.644330	245115	2063	sf	129	cf
Infiltration BMP	Existing	7845 ARNETT	6/18/2010	6518353.322440	6518353.322440	1801165.354440	246079	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9217 ARRINGTON	3/27/2006	6527795.727670	6527795.727670	1805838.303240	245125	2063	sf	129	cf
Infiltration BMP	Existing	7870 BAYSINGER	2/8/2008	6521311.922790	6521311.922790	1805484.679070	246102	2063	sf	129	cf
Infiltration BMP	Existing	9964 BELCHER	5/16/2007	6525622.979960	6525622.979960	1789815.793090	245113	2063	sf	129	cf
Infiltration BMP	Existing	12556 BELLDER	8/17/2007	6518567.857140	6518567.857140	1793310.793680	245115	2063	sf	129	cf
Infiltration BMP	Existing	11614 BELLFLOWER	11/7/2008	6523771.271210	6523771.271210	1797348.312220	245114	2063	sf	129	cf
Infiltration BMP	Existing	11802 BELLMAN	3/9/2007	6521898.080850	6521898.080850	1797268.375540	245114	2063	sf	129	cf
Infiltration BMP	Existing	7502 BENARES	1/30/2009	6515952.395710	6515952.395710	1801162.932420	246079	2063	sf	129	cf
Infiltration BMP	Existing	7824 BORSON	5/24/2007	6514090.231790	6514090.231790	1794571.039330	246077	2063	sf	129	cf
Infiltration BMP	Existing	7442 BROOKMILL	2/6/2006	6515991.568850	6515991.568850	1801492.813950	246079	2063	sf	129	cf
Infiltration BMP	Existing	9202 BUELL	7/21/2008	6526325.599230	6526325.599230	1799668.061170	245119	2063	sf	129	cf
Infiltration BMP	Existing	9340 BUELL	8/9/2006	6527287.659290	6527287.659290	1799162.594770	245126	2063	sf	129	cf
Infiltration BMP	Existing	8707 BYERS	3/15/2006	6521183.641890	6521183.641890	1796053.567730	245115	2063	sf	129	cf
Infiltration BMP	Existing	10446 CASANES	10/26/2006	6528470.793910	6528470.793910	1799828.787480	245126	2063	sf	129	cf
Infiltration BMP	Existing	10932 CASANES	11/17/2005	6527225.467210	6527225.467210	1797760.272650	245119	2063	sf	129	cf
Infiltration BMP	Existing	13341 CASTANA	10/28/2005	6517576.502130	6517576.502130	1788949.477410	245524	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7408 CECILIA	10/27/2005	6517829.130300	6517829.13 0300	1804625.8274 60	246102	2063	sf	129	cf
Infiltration BMP	Existing	7604 CECILIA	5/14/2007	6518455.494160	6518455.49 4160	1804215.7945 90	246102	2063	sf	129	cf
Infiltration BMP	Existing	9116 CHANEY	12/19/2005	6529189.877980	6529189.87 7980	1805493.8171 50	245125	2063	sf	129	cf
Infiltration BMP	Existing	8210 CHEYENNE	3/18/2008	6515440.785260	6515440.78 5260	1792057.3068 90	246077	2063	sf	129	cf
Infiltration BMP	Existing	9663 CLANCEY	8/17/2005	6527712.819630	6527712.81 9630	1804149.9083 20	245125	2063	sf	129	cf
Infiltration BMP	Existing	10708 CLANCEY	12/9/2005	6525546.299290	6525546.29 9290	1800088.7469 00	245119	2063	sf	129	cf
Infiltration BMP	Existing	8336 CLETA	5/8/2006	6520552.025180	6520552.02 5180	1798452.2387 60	245114	2063	sf	129	cf
Infiltration BMP	Existing	8557 CLETA	7/24/2006	6521804.225790	6521804.22 5790	1798033.5152 10	245114	2063	sf	129	cf
Infiltration BMP	Existing	8532 COLE	11/7/2005	6521000.000000	6521000.00 0000	1796400.0000 00	245115	2063	sf	129	cf
Infiltration BMP	Existing	9003 CORD	6/23/2010	6530731.156250	6530731.15 6250	1805583.4098 40	245127	2063	sf	129	cf
Infiltration BMP	Existing	9203 CORD	11/14/2008	6530209.591170	6530209.59 1170	1804419.1699 00	245125	2063	sf	129	cf
Infiltration BMP	Existing	13029 CORNUTA	5/17/2007	6525511.407030	6525511.40 7030	1790564.4409 90	245113	2063	sf	129	cf
Infiltration BMP	Existing	13102 CORNUTA	8/2/2007	6525701.503660	6525701.50 3660	1790504.9149 50	245113	2063	sf	129	cf
Infiltration BMP	Existing	13130 CORNUTA	6/25/2007	6525701.486250	6525701.48 6250	1790230.2513 10	245113	2063	sf	129	cf
Infiltration BMP	Existing	9245 DALEWOOD	9/23/2005	6532196.615620	6532196.61 5620	1804345.9457 60	245127	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13440 DEMPSTER	10/26/2006	6516234.168650	6516234.168650	1789111.153470	245524	2063	sf	129	cf
Infiltration BMP	Existing	13448 DEMPSTER	5/10/2007	6516184.596670	6516184.596670	1789023.378330	245524	2063	sf	129	cf
Infiltration BMP	Existing	8125 DINSDALE	12/20/2005	6523223.693140	6523223.693140	1805447.514320	246103	2063	sf	129	cf
Infiltration BMP	Existing	10343 DOLAN	3/7/2007	6523688.489440	6523688.489440	1803733.392340	246103	2063	sf	129	cf
Infiltration BMP	Existing	10616 DOLAN	12/8/2005	6523091.688370	6523091.688370	1802186.196180	246103	2063	sf	129	cf
Infiltration BMP	Existing	8451 DONOVAN	10/20/2006	6518824.326830	6518824.326830	1794831.678890	245115	2063	sf	129	cf
Infiltration BMP	Existing	11915 DOWNEY	9/26/2007	6519404.158310	6519404.158310	1797577.606330	245115	2063	sf	129	cf
Infiltration BMP	Existing	12269 DOWNEY	3/16/2006	6518129.427940	6518129.427940	1795616.200900	246077	2063	sf	129	cf
Infiltration BMP	Existing	12631 DUNROBIN	1/14/2009	6524865.692630	6524865.692630	1791809.740080	245114	2063	sf	129	cf
Infiltration BMP	Existing	12644 DUNROBIN	12/27/2006	6525045.107610	6525045.107610	1791670.201830	245114	2063	sf	129	cf
Infiltration BMP	Existing	13212 DUNROBIN	3/6/2008	6525046.199690	6525046.199690	1790094.955960	245114	2063	sf	129	cf
Infiltration BMP	Existing	9018 EGLISE	6/18/2010	6530595.364130	6530595.364130	1805560.296250	245127	2063	sf	129	cf
Infiltration BMP	Existing	9252C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9252D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9252E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9254A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9258D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9258E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	8902 ELSTON	6/22/2010	6526760.905110	6526760.905110	1808606.155990	246103	2063	sf	129	cf
Infiltration BMP	Existing	8420 EUCALYPTUS	11/1/2007	6518268.185230	6518268.185230	1794519.531140	245115	2063	sf	129	cf
Infiltration BMP	Existing	8543 FARM	7/14/2008	6524366.648200	6524366.648200	1802748.102990	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7963 FIFTH	4/13/2007	6520492.297340	6520492.297340	1803181.748460	246103	2063	sf	129	cf
Infiltration BMP	Existing	7606 FINEVALE	7/23/2007	6522317.087820	6522317.087820	1809781.757910	246111	2063	sf	129	cf
Infiltration BMP	Existing	8740 FIRESTONE	2/5/2008	6523707.154590	6523707.154590	1799037.579000	245119	2063	sf	129	cf
Infiltration BMP	Existing	8663 FONTANA	8/11/2005	6522041.808010	6522041.808010	1796935.622550	245114	2063	sf	129	cf
Infiltration BMP	Existing	7435 FOSTORIA	8/30/2005	6517713.795360	6517713.795360	1804555.032870	246102	2063	sf	129	cf
Infiltration BMP	Existing	7611 FOSTORIA	7/5/2007	6518456.715640	6518456.715640	1804071.041810	246102	2063	sf	129	cf
Infiltration BMP	Existing	8029 FOURTH	6/15/2006	6520786.200710	6520786.200710	1802533.409070	246103	2063	sf	129	cf
Infiltration BMP	Existing	8524 GAINFORD	6/27/2008	6525485.453790	6525485.453790	1804820.431910	245125	2063	sf	129	cf
Infiltration BMP	Existing	9332 GAINFORD	7/20/2006	6528750.550820	6528750.550820	1802746.272930	245125	2063	sf	129	cf
Infiltration BMP	Existing	9330 GALLATIN	8/2/2007	6529116.628720	6529116.628720	1804180.197000	245125	2063	sf	129	cf
Infiltration BMP	Existing	12271 GLYNN	10/18/2005	6518435.603700	6518435.603700	1795389.616520	245115	2063	sf	129	cf
Infiltration BMP	Existing	9123 HALEDON	1/23/2006	6528738.408770	6528738.408770	1805747.051990	245125	2063	sf	129	cf
Infiltration BMP	Existing	7915 HARPER	2/7/2006	6520609.146350	6520609.146350	1804298.454990	246102	2063	sf	129	cf
Infiltration BMP	Existing	9108 HASTY	8/23/2006	6531133.870830	6531133.870830	1805211.202040	245127	2063	sf	129	cf
Infiltration BMP	Existing	10840 HASTY	1/16/2008	6527245.272860	6527245.272860	1798387.513250	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7468 HONDO	12/31/2008	6513888.485770	6513888.485770	1797503.008930	246079	2063	sf	129	cf
Infiltration BMP	Existing	7838 HONDO	2/26/2008	6515366.533450	6515366.533450	1796561.911100	246079	2063	sf	129	cf
Infiltration BMP	Existing	7926 HONDO	7/25/2006	6515828.269550	6515828.269550	1796282.236280	246079	2063	sf	129	cf
Infiltration BMP	Existing	12023 HORTON	10/5/2005	6515547.066470	6515547.066470	1799512.855270	246079	1032	sf	64	cf
Infiltration BMP	Existing	10234 JULIUS	11/5/2009	6519723.348540	6519723.348540	1806551.787860	246102	2063	sf	129	cf
Infiltration BMP	Existing	11828 JULIUS	1/3/2008	6515976.382140	6515976.382140	1800524.752810	246079	2063	sf	129	cf
Infiltration BMP	Existing	9256 KLINEDALE	12/4/2007	6531745.367500	6531745.367500	1804500.031620	245127	2063	sf	129	cf
Infiltration BMP	Existing	9452 KLINEDALE	4/24/2008	6531257.497660	6531257.497660	1803653.019950	245127	2063	sf	129	cf
Infiltration BMP	Existing	9031 LEMORAN	1/30/2009	6529792.995960	6529792.995960	1806045.812140	245125	2063	sf	129	cf
Infiltration BMP	Existing	9910 LESTERFORD	8/3/2005	6531140.582200	6531140.582200	1801442.142180	245125	2063	sf	129	cf
Infiltration BMP	Existing	8533 LOWMAN	1/3/2008	6525796.079270	6525796.079270	1810845.309540	246106	2063	sf	129	cf
Infiltration BMP	Existing	8349 LUBEC	12/27/2006	6524776.248350	6524776.248350	1805794.753990	246103	2063	sf	129	cf
Infiltration BMP	Existing	7630 LUXOR	6/27/2005	6516552.896900	6516552.896900	1800452.817120	246079	2063	sf	129	cf
Infiltration BMP	Existing	12342 MARBEL	3/23/2006	6520586.635090	6520586.635090	1793799.804370	245115	2063	sf	129	cf
Infiltration BMP	Existing	9045 MARGARET ST	1/1/2006	6524143.176440	6524143.176440	1798109.987740	245114	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10410 MATTOCK	10/2/2007	6529164.649420	6529164.649420	1799820.803610	245126	2063	sf	129	cf
Infiltration BMP	Existing	10615 MATTOCK	2/22/2006	6528479.681880	6528479.681880	1798952.207590	245126	2063	sf	129	cf
Infiltration BMP	Existing	9136 MELDAR	3/1/2007	6526738.891530	6526738.891530	1807241.651780	246103	2063	sf	129	cf
Infiltration BMP	Existing	7437 MULLER	10/3/2005	6518230.115820	6518230.115820	1805283.479580	246102	1032	sf	64	cf
Infiltration BMP	Existing	7452 MULLER	10/3/2005	6518271.461030	6518271.461030	1805049.518080	246102	2063	sf	129	cf
Infiltration BMP	Existing	10715 NEW	8/9/2007	6521988.945450	6521988.945450	1802370.638520	246103	2063	sf	129	cf
Infiltration BMP	Existing	10715 NEW	7/14/2008	6521988.945450	6521988.945450	1802370.638520	246103	2063	sf	129	cf
Infiltration BMP	Existing	10261 NEWVILLE	10/30/2007	6529641.666020	6529641.666020	1800383.942770	245126	2063	sf	129	cf
Infiltration BMP	Existing	10311 NEWVILLE	1/29/2009	6529538.574620	6529538.574620	1800214.882210	245126	2063	sf	129	cf
Infiltration BMP	Existing	10420 NEWVILLE	4/11/2008	6529346.061190	6529346.061190	1799529.176420	245126	2063	sf	129	cf
Infiltration BMP	Existing	10524 NEWVILLE	6/11/2007	6529062.272820	6529062.272820	1798916.257500	245126	2063	sf	129	cf
Infiltration BMP	Existing	9842 NORLAIN	3/9/2007	6519878.070320	6519878.070320	1807987.575840	246111	2063	sf	129	cf
Infiltration BMP	Existing	10403 PANGBORN	9/16/2005	6528806.561730	6528806.561730	1800136.574080	245126	2063	sf	129	cf
Infiltration BMP	Existing	10421 PANGBORN	6/5/2006	6528710.057740	6528710.057740	1799977.600600	245126	2063	sf	129	cf
Infiltration BMP	Existing	10903 PANGBORN	5/12/2008	6527497.056040	6527497.056040	1797964.159830	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9508 PARAMOUNT	7/23/2007	6523724.334180	6523724.334180	1807653.518330	246106	2063	sf	129	cf
Infiltration BMP	Existing	9709 PARROT	6/20/2008	6523336.123150	6523336.123150	1806770.831150	246103	2063	sf	129	cf
Infiltration BMP	Existing	7107 PELLET	10/26/2005	6515228.221140	6515228.221140	1805197.090730	246104	2063	sf	129	cf
Infiltration BMP	Existing	10316 PICO VISTA	6/22/2010	6530326.941520	6530326.941520	1799752.739480	245126	2063	sf	129	cf
Infiltration BMP	Existing	10459 PICO VISTA	8/20/2008	6529643.308750	6529643.308750	1798930.291180	245126	2063	sf	129	cf
Infiltration BMP	Existing	11809 POMERING	1/25/2008	6515588.727520	6515588.727520	1800891.851040	246079	2063	sf	129	cf
Infiltration BMP	Existing	11821 POMERING	11/20/2008	6515535.205010	6515535.205010	1800794.072400	246079	2063	sf	129	cf
Infiltration BMP	Existing	9050 PRISCILLA	2/21/2007	6519218.937330	6519218.937330	1790014.532510	245115	2063	sf	129	cf
Infiltration BMP	Existing	8230 PURITAN	7/12/2007	6515756.650110	6515756.650110	1792196.388750	246077	2063	sf	129	cf
Infiltration BMP	Existing	8107 RAVILLER	6/22/2010	6524405.759790	6524405.759790	1808219.110840	246106	2063	sf	129	cf
Infiltration BMP	Existing	9940 RICHEON	12/26/2007	6520640.158150	6520640.158150	1807053.597690	246106	2063	sf	129	cf
Infiltration BMP	Existing	12015 RICHEON	6/21/2010	6515852.443580	6515852.443580	1799404.256870	246079	2063	sf	129	cf
Infiltration BMP	Existing	7336 RIO HONDO PL	12/26/2007	6516915.991390	6516915.991390	1804928.334260	246104	2063	sf	129	cf
Infiltration BMP	Existing	8418 RIVES	9/30/2005	6525367.917230	6525367.917230	1811575.863460	246106	1032	sf	64	cf
Infiltration BMP	Existing	11638 RIVES	11/2/2006	6517541.202300	6517541.202300	1800577.741160	246079	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11706 RIVES	10/16/2006	6517702.333530	6517702.333530	1800238.435400	246079	2063	sf	129	cf
Infiltration BMP	Existing	12436 ROSE	11/6/2006	6520776.455000	6520776.455000	1793075.765000	245115	2063	sf	129	cf
Infiltration BMP	Existing	12033 SAMOLINE	2/22/2008	6517025.771360	6517025.771360	1798249.691900	246079	2063	sf	129	cf
Infiltration BMP	Existing	12051 SAMOLINE	9/3/2008	6516919.542440	6516919.542440	1798077.846870	246079	2063	sf	129	cf
Infiltration BMP	Existing	12302 SAMOLINE	6/22/2010	6516399.204110	6516399.204110	1796321.463670	246077	2063	sf	129	cf
Infiltration BMP	Existing	7921 SECOND	2/15/2006	6519427.915180	6519427.915180	1802349.970040	246102	2063	sf	129	cf
Infiltration BMP	Existing	9700 SHELLEYFIELD	7/17/2008	6527622.312900	6527622.312900	1804250.399390	245125	2063	sf	129	cf
Infiltration BMP	Existing	10553 SHELLEYFIELD	6/11/2008	6525493.222190	6525493.222190	1800845.190450	245119	2063	sf	129	cf
Infiltration BMP	Existing	8732 SMALLWOOD	2/16/2006	6524307.398160	6524307.398160	1810444.440300	246106	2063	sf	129	cf
Infiltration BMP	Existing	8816 SMALLWOOD	10/11/2005	6524123.348010	6524123.348010	1810138.117570	246106	2063	sf	129	cf
Infiltration BMP	Existing	9127 SONGFEST	12/1/2005	6531508.595900	6531508.595900	1805094.820630	245127	2063	sf	129	cf
Infiltration BMP	Existing	9143 STEWART & GRAY	11/30/2005	6523803.019500	6523803.019500	1796254.085000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9211 STEWART & GRAY	11/27/2006	6524190.537790	6524190.537790	1796254.765000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9112 STOAKES	8/23/2006	6526782.391540	6526782.391540	1807626.036510	246103	2063	sf	129	cf
Infiltration BMP	Existing	9533 SUVA	6/27/2006	6530409.847860	6530409.847860	1802701.771860	245125	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9729 TRISTAN	10/18/2005	6526617.474570	6526617.474570	1804798.283870	245125	2063	sf	129	cf
Infiltration BMP	Existing	9216 TWEEDY	12/9/2005	6523630.155980	6523630.155980	1808715.397490	246106	2063	sf	129	cf
Infiltration BMP	Existing	13602 VERDURA	6/28/2007	6516296.473820	6516296.473820	1788728.235150	245524	2063	sf	129	cf
Infiltration BMP	Existing	10305 VULTEE	10/9/2006	6525949.622700	6525949.622700	1802510.250780	245119	2063	sf	129	cf
Infiltration BMP	Existing	10017 WILEY BURKE	6/22/2010	6520091.056520	6520091.056520	1807145.868160	246106	2063	sf	129	cf
Infiltration BMP	Existing	8538 ADOREE	9/26/2007	6517768.216360	6517768.216360	1792006.503470	245115	1032	sf	64	cf
Infiltration BMP	Existing	9407 ADOREE	1/1/2006	6522413.313750	6522413.313750	1791106.017430	245115	1032	sf	64	cf
Infiltration BMP	Existing	7134 ADWEN	1/1/2005	6514021.670500	6514021.670500	1803005.164870	246100	1032	sf	64	cf
Infiltration BMP	Existing	7343 ADWEN	9/4/2007	6515521.914470	6515521.914470	1802266.858280	246079	1032	sf	64	cf
Infiltration BMP	Existing	7743 ADWEN	12/5/2006	6517543.195590	6517543.195590	1801041.561520	246079	1032	sf	64	cf
Infiltration BMP	Existing	7802 ADWEN	10/18/2005	6517699.212930	6517699.212930	1800872.280990	246079	1032	sf	64	cf
Infiltration BMP	Existing	7828 ADWEN	8/4/2005	6517918.117250	6517918.117250	1800738.511970	246079	1032	sf	64	cf
Infiltration BMP	Existing	7852 ADWEN	1/9/2009	6518131.432520	6518131.432520	1800607.974520	246079	1032	sf	64	cf
Infiltration BMP	Existing	7855 ADWEN	11/23/2005	6518235.708380	6518235.708380	1800774.963010	246079	1032	sf	64	cf
Infiltration BMP	Existing	12823 AIRPOINT	6/29/2007	6518348.749200	6518348.749200	1791281.430170	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8441 ALAMEDA	10/31/2005	6519442.769190	6519442.769190	1795780.926380	245115	1032	sf	64	cf
Infiltration BMP	Existing	8549 ALAMEDA	6/23/2010	6520129.148230	6520129.148230	1795426.542360	245115	1032	sf	64	cf
Infiltration BMP	Existing	8448 ALBIA	1/1/2007	6519556.734390	6519556.734390	1795840.452920	245115	1032	sf	64	cf
Infiltration BMP	Existing	8528 ALBIA	2/27/2007	6520000.245000	6520000.245000	1795612.955000	245115	1032	sf	64	cf
Infiltration BMP	Existing	9718 ALIWIN	8/2/2005	6532030.038780	6532030.038780	1804115.104340	245127	1032	sf	64	cf
Infiltration BMP	Existing	7936 ALLENGROVE	1/22/2007	6524421.678930	6524421.678930	1809567.173140	246106	1032	sf	64	cf
Infiltration BMP	Existing	8116 ALLENGROVE	12/5/2005	6525137.825210	6525137.825210	1808747.451430	246106	1032	sf	64	cf
Infiltration BMP	Existing	9166 ANGELL	9/2/2008	6520625.089300	6520625.089300	1790394.866750	245115	1032	sf	64	cf
Infiltration BMP	Existing	9351 APPLEBY	1/3/2008	6529580.566170	6529580.566170	1804445.997380	245125	1032	sf	64	cf
Infiltration BMP	Existing	9520 ARDINE	10/6/2005	6527613.323800	6527613.323800	1797533.903060	245119	1032	sf	64	cf
Infiltration BMP	Existing	7814 ARNETT	6/22/2010	6517981.553910	6517981.553910	1801095.347060	246079	1032	sf	64	cf
Infiltration BMP	Existing	7815 ARNETT	6/22/2010	6518066.490340	6518066.490340	1801237.713920	246079	1032	sf	64	cf
Infiltration BMP	Existing	7832 ARNETT	1/11/2007	6518132.684800	6518132.684800	1801021.243050	246079	1032	sf	64	cf
Infiltration BMP	Existing	8241 ARNETT	11/29/2006	6520442.071210	6520442.071210	1799867.842140	245115	1032	sf	64	cf
Infiltration BMP	Existing	7743 BAIRNSDALE	5/16/2006	6523474.546480	6523474.546480	1810551.323320	246106	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12904 BARLIN	1/15/2009	6518150.890370	6518150.890370	1791163.941140	245115	1032	sf	64	cf
Infiltration BMP	Existing	13247 BARLIN	5/5/2005	6516868.829160	6516868.829160	1789428.146200	245524	1032	sf	64	cf
Infiltration BMP	Existing	7871 BAYSINGER	1/10/2007	6521422.493960	6521422.493960	1805635.813480	246102	1032	sf	64	cf
Infiltration BMP	Existing	8607 BAYSINGER	1/1/2005	6525304.240800	6525304.240800	1803291.716200	245119	1032	sf	64	cf
Infiltration BMP	Existing	9131 BAYSINGER	9/10/2008	6526918.982970	6526918.982970	1802474.767100	245119	1032	sf	64	cf
Infiltration BMP	Existing	9411 BAYSINGER	9/24/2007	6528736.042510	6528736.042510	1801262.782730	245126	1032	sf	64	cf
Infiltration BMP	Existing	9320 BELCHER	4/10/2007	6520600.361450	6520600.361450	1789754.109890	245115	1032	sf	64	cf
Infiltration BMP	Existing	9969 BELCHER	7/29/2009	6525669.288070	6525669.288070	1789992.480470	245113	1032	sf	64	cf
Infiltration BMP	Existing	10375 BELDER	6/22/2010	6522812.240000	6522812.240000	1803043.757460	246103	1032	sf	64	cf
Infiltration BMP	Existing	7441 BENARES	10/25/2005	6515921.019300	6515921.019300	1801396.174500	246079	1032	sf	64	cf
Infiltration BMP	Existing	7503 BENARES	1/16/2008	6516046.045620	6516046.045620	1801313.189720	246079	1032	sf	64	cf
Infiltration BMP	Existing	11014 BENFIELD	12/19/2005	6531918.630750	6531918.630750	1797937.959120	245122	1032	sf	64	cf
Infiltration BMP	Existing	8555 BIGBY	8/22/2005	6524606.668030	6524606.668030	1802914.545010	245119	1032	sf	64	cf
Infiltration BMP	Existing	9308 BIGBY	12/18/2008	6527591.908660	6527591.908660	1800839.109380	245126	1032	sf	64	cf
Infiltration BMP	Existing	9345 BIGBY	5/16/2006	6527999.312020	6527999.312020	1800803.102000	245126	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9389 BIGBY	9/20/2007	6528361.925530	6528361.925530	1800582.426270	245126	1032	sf	64	cf
Infiltration BMP	Existing	8246 BIRCHCREST	11/28/2005	6526713.325530	6526713.325530	1809350.628180	246106	1032	sf	64	cf
Infiltration BMP	Existing	10434 BIRCHDALE	12/2/2008	6524586.579650	6524586.579650	1802390.820140	245119	1032	sf	64	cf
Infiltration BMP	Existing	8812 BIRCHLEAF	5/3/2007	6527457.897210	6527457.897210	1808468.377860	246103	1032	sf	64	cf
Infiltration BMP	Existing	8912 BIRCHLEAF	10/9/2007	6527209.329660	6527209.329660	1808281.543500	246103	1032	sf	64	cf
Infiltration BMP	Existing	13330 BIXLER	3/21/2007	6516259.886220	6516259.886220	1789972.109000	245524	1032	sf	64	cf
Infiltration BMP	Existing	13411 BIXLER	9/30/2008	6515914.285010	6515914.285010	1789635.314360	245524	1032	sf	64	cf
Infiltration BMP	Existing	13425 BIXLER	8/17/2005	6515841.147610	6515841.147610	1789505.869380	245524	1032	sf	64	cf
Infiltration BMP	Existing	13454 BIXLER	5/10/2007	6515808.905200	6515808.905200	1789174.120800	245524	1032	sf	64	cf
Infiltration BMP	Existing	8220 BLANDWOOD	6/22/2010	6526086.691350	6526086.691350	1808873.058080	246103	1032	sf	64	cf
Infiltration BMP	Existing	12809 BLODGETT	1/1/2006	6518629.647540	6518629.647540	1791208.759970	245115	1032	sf	64	cf
Infiltration BMP	Existing	13026 BLODGETT	1/1/2005	6518225.401930	6518225.401930	1790248.943990	245115	1032	sf	64	cf
Infiltration BMP	Existing	13045 BLODGETT	10/6/2005	6517990.284020	6517990.284020	1790176.483690	245115	1032	sf	64	cf
Infiltration BMP	Existing	13114 BLODGETT	10/6/2005	6517888.613290	6517888.613290	1789931.616790	245115	1032	sf	64	cf
Infiltration BMP	Existing	7931 BORSON	9/6/2006	6514752.824370	6514752.824370	1794266.718830	246077	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8202 BORSON	6/5/2006	6516202.097710	6516202.097710	1793267.543860	246077	1032	sf	64	cf
Infiltration BMP	Existing	8428 BORSON	11/21/2008	6517449.915190	6517449.915190	1792528.167220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8515 BORSON	3/14/2005	6517771.929480	6517771.929480	1792500.505870	245115	1032	sf	64	cf
Infiltration BMP	Existing	8345 BOYNE	6/18/2010	6519344.143470	6519344.143470	1796446.421390	245115	1032	sf	64	cf
Infiltration BMP	Existing	8402 BOYNE	1/1/2005	6519302.113240	6519302.113240	1796279.573520	245115	1032	sf	64	cf
Infiltration BMP	Existing	8525 BOYNE	7/20/2006	6520189.715440	6520189.715440	1796009.699660	245115	1032	sf	64	cf
Infiltration BMP	Existing	8528 BOYNE	2/22/2007	6520138.661540	6520138.661540	1795848.718800	245115	1032	sf	64	cf
Infiltration BMP	Existing	8613 BOYSON	1/1/2006	6520167.899980	6520167.899980	1794794.451220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8647 BOYSON	7/29/2008	6520447.155570	6520447.155570	1794619.557270	245115	1032	sf	64	cf
Infiltration BMP	Existing	10216 BRANSCOMB	2/21/2007	6526794.108720	6526794.108720	1790310.156040	245113	1032	sf	64	cf
Infiltration BMP	Existing	10291 BRANSCOMB	7/25/2006	6527529.378260	6527529.378260	1790458.207730	245118	1032	sf	64	cf
Infiltration BMP	Existing	9624 BROCK	4/22/2005	6523849.153810	6523849.153810	1806723.688440	246103	1032	sf	64	cf
Infiltration BMP	Existing	12351 BROCK	9/3/2008	6516676.858850	6516676.858850	1795612.256100	246077	1032	sf	64	cf
Infiltration BMP	Existing	12608 BROCK	2/11/2005	6516008.590090	6516008.590090	1794308.259250	246077	1032	sf	64	cf
Infiltration BMP	Existing	8269 BROOKGREEN	1/1/2006	6526709.836510	6526709.836510	1808858.860970	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7847 BROOKMILL	6/21/2010	6518005.266020	6518005.266020	1800484.266850	246079	1032	sf	64	cf
Infiltration BMP	Existing	8025 BROOKPARK	1/1/2005	6525207.617130	6525207.617130	1809814.105880	246106	1032	sf	64	cf
Infiltration BMP	Existing	9707 BROOKSHIRE	3/14/2005	6525762.512240	6525762.512240	1805795.982660	246103	1032	sf	64	cf
Infiltration BMP	Existing	10429 BROOKSHIRE	1/19/2005	6523911.001360	6523911.001360	1803018.354450	245119	1032	sf	64	cf
Infiltration BMP	Existing	12404 BROOKSHIRE	6/25/2007	6518808.785660	6518808.785660	1794169.944640	245115	1032	sf	64	cf
Infiltration BMP	Existing	7622 BRUNACHE	10/31/2007	6515665.309920	6515665.309920	1799097.073030	246079	1032	sf	64	cf
Infiltration BMP	Existing	8216 BRUNACHE	11/6/2007	6518414.904440	6518414.904440	1797242.748270	245115	1032	sf	64	cf
Infiltration BMP	Existing	9033 BUCKLES	6/21/2010	6523179.898540	6523179.898540	1796909.863810	245114	1032	sf	64	cf
Infiltration BMP	Existing	7540 BUELL	1/1/2004	6518499.698980	6518499.698980	1804545.470300	246102	1032	sf	64	cf
Infiltration BMP	Existing	9330 BUELL	2/15/2006	6527195.126160	6527195.126160	1799219.087810	245126	1032	sf	64	cf
Infiltration BMP	Existing	9351 BUELL	6/21/2010	6527484.251630	6527484.251630	1799288.621620	245126	1032	sf	64	cf
Infiltration BMP	Existing	9634 BUELL	3/16/2006	6528774.281270	6528774.281270	1798139.573770	245126	1032	sf	64	cf
Infiltration BMP	Existing	9067 BUHMAN	11/20/2007	6530056.595350	6530056.595350	1805336.923900	245125	1032	sf	64	cf
Infiltration BMP	Existing	9208 BUHMAN	6/16/2008	6529799.831660	6529799.831660	1804544.819190	245125	1032	sf	64	cf
Infiltration BMP	Existing	10237 CASANES	3/23/2006	6528975.248660	6528975.248660	1801017.460740	245126	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10321 CASANES	1/1/2007	6528597.524650	6528597.524650	1800411.412530	245126	1032	sf	64	cf
Infiltration BMP	Existing	10403 CASANES	12/21/2005	6528532.829940	6528532.829940	1800305.536240	245126	1032	sf	64	cf
Infiltration BMP	Existing	10408 CASANES	1/1/2005	6528665.671960	6528665.671960	1800149.799930	245126	1032	sf	64	cf
Infiltration BMP	Existing	10812 CASANES	3/14/2005	6527610.698650	6527610.698650	1798391.295520	245119	1032	sf	64	cf
Infiltration BMP	Existing	10835 CASANES	4/1/2008	6527345.484730	6527345.484730	1798305.683780	245119	1032	sf	64	cf
Infiltration BMP	Existing	10944 CASANES	1/1/2006	6527151.352860	6527151.352860	1797710.972890	245119	1032	sf	64	cf
Infiltration BMP	Existing	8457 CAVEL	9/24/2007	6519984.576530	6519984.576530	1796420.555450	245115	1032	sf	64	cf
Infiltration BMP	Existing	9502 CECILIA	10/11/2007	6527927.079440	6527927.079440	1798327.652080	245126	1032	sf	64	cf
Infiltration BMP	Existing	9531 CECILIA	8/23/2006	6528208.236430	6528208.236430	1798317.933420	245126	1032	sf	64	cf
Infiltration BMP	Existing	9435 CEDARTREE	6/22/2010	6530636.457520	6530636.457520	1805866.234670	245127	1032	sf	64	cf
Infiltration BMP	Existing	9010 CHANEY	11/30/2005	6529789.693370	6529789.693370	1806340.793150	245125	1032	sf	64	cf
Infiltration BMP	Existing	9011 CHANEY	1/31/2006	6529640.900410	6529640.900410	1806424.653160	245125	1032	sf	64	cf
Infiltration BMP	Existing	9134 CHANEY	1/1/2005	6529119.825860	6529119.825860	1805332.958450	245125	1032	sf	64	cf
Infiltration BMP	Existing	10252 CHANEY	1/1/2006	6527373.631100	6527373.631100	1801932.130180	245119	1032	sf	64	cf
Infiltration BMP	Existing	10530 CHANEY	6/3/2008	6526461.472620	6526461.472620	1800532.795270	245119	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8355 CHARLOMA	9/16/2005	6524931.861530	6524931.861530	1806017.636180	246103	1032	sf	64	cf
Infiltration BMP	Existing	9037 CHARLOMA	9/25/2007	6527230.271760	6527230.271760	1804669.291940	245125	1032	sf	64	cf
Infiltration BMP	Existing	8565 CHEROKEE	2/14/2008	6524386.530150	6524386.530150	1802386.701010	245119	1032	sf	64	cf
Infiltration BMP	Existing	8030 CHEYENNE	1/1/2005	6514573.751210	6514573.751210	1792580.925090	246077	1032	sf	64	cf
Infiltration BMP	Existing	8117 CHEYENNE	4/10/2006	6515045.470000	6515045.470000	1792480.065000	246077	1032	sf	64	cf
Infiltration BMP	Existing	8418 CHEYENNE	1/1/2006	6516589.334020	6516589.334020	1791278.419980	245524	1032	sf	64	cf
Infiltration BMP	Existing	9303 CLANCEY	4/3/2006	6528228.489510	6528228.489510	1805319.961840	245125	1032	sf	64	cf
Infiltration BMP	Existing	10518 CLANCEY	3/9/2007	6526045.670270	6526045.670270	1800904.969960	245119	1032	sf	64	cf
Infiltration BMP	Existing	8316 CLETA	4/3/2007	6520383.826830	6520383.826830	1798544.940710	245114	1032	sf	64	cf
Infiltration BMP	Existing	8529 CLETA	1/1/2004	6521562.602410	6521562.602410	1798134.090240	245114	1032	sf	64	cf
Infiltration BMP	Existing	13113 COLDBROOK	6/13/2007	6524340.025750	6524340.025750	1790440.866070	245114	3095	sf	193	cf
Infiltration BMP	Existing	13227 COLDBROOK	2/22/2008	6524428.823880	6524428.823880	1789883.562480	245114	1032	sf	64	cf
Infiltration BMP	Existing	8554 COMOLETTE	6/21/2010	6517765.395020	6517765.395020	1791693.915800	245115	1032	sf	64	cf
Infiltration BMP	Existing	8417 CONKLIN	1/1/2006	6516931.143420	6516931.143420	1791819.671020	245524	1032	sf	64	cf
Infiltration BMP	Existing	7219 COOLGROVE	4/25/2006	6521787.460350	6521787.460350	1811479.001950	246111	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7605 COOLGROVE	6/22/2010	6522636.872680	6522636.87 2680	1810413.8458 50	246111	1032	sf	64	cf
Infiltration BMP	Existing	10210 CORD	2/12/2009	6528662.670970	6528662.67 0970	1801499.0649 30	245126	1032	sf	64	cf
Infiltration BMP	Existing	7706 COREY	6/22/2010	6515304.522120	6515304.52 2120	1798247.3253 80	246079	1032	sf	64	cf
Infiltration BMP	Existing	11708 CORRIGAN	5/30/2006	6523410.919990	6523410.91 9990	1796690.7219 00	245114	1032	sf	64	cf
Infiltration BMP	Existing	13227 CORRIGAN	4/11/2006	6523118.258510	6523118.25 8510	1789898.5741 20	245114	1032	sf	64	cf
Infiltration BMP	Existing	10809 CROSSDALE	1/30/2006	6532012.269030	6532012.26 9030	1798722.4368 70	245122	1032	sf	64	cf
Infiltration BMP	Existing	7803 DACOSTA	1/1/2006	6521705.534400	6521705.53 4400	1807011.9281 90	246106	1032	sf	64	cf
Infiltration BMP	Existing	7808 DACOSTA	3/29/2007	6521675.640660	6521675.64 0660	1806840.3322 10	246106	1032	sf	64	cf
Infiltration BMP	Existing	7826 DACOSTA	3/23/2007	6521825.889640	6521825.88 9640	1806744.3015 50	246106	1032	sf	64	cf
Infiltration BMP	Existing	8064 DACOSTA	1/6/2009	6523365.354910	6523365.35 4910	1805913.8061 60	246103	1032	sf	64	cf
Infiltration BMP	Existing	9242 DALEWOOD	5/17/2007	6532339.520890	6532339.52 0890	1804239.8300 10	245127	1032	sf	64	cf
Infiltration BMP	Existing	7044 DE PALMA	1/30/2006	6513058.006240	6513058.00 6240	1802286.1020 90	246100	1032	sf	64	cf
Infiltration BMP	Existing	7956 DE PALMA	7/28/2005	6517915.235930	6517915.23 5930	1799223.1396 50	246077	1032	sf	64	cf
Infiltration BMP	Existing	8232 DE PALMA	12/10/2008	6519342.730110	6519342.73 0110	1798392.4244 10	245115	1032	sf	64	cf
Infiltration BMP	Existing	13134 DEMING	2/6/2007	6518053.947000	6518053.94 7000	1789691.9930 30	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13240 DEMING	8/12/2005	6518068.820530	6518068.820530	1789032.682680	245115	1032	sf	64	cf
Infiltration BMP	Existing	13415 DEMPSTER	1/1/2007	6516194.546390	6516194.546390	1789419.790430	245524	1032	sf	64	cf
Infiltration BMP	Existing	13434 DEMPSTER	1/12/2006	6516258.965410	6516258.965410	1789155.039770	245524	1032	sf	64	cf
Infiltration BMP	Existing	13452 DEMPSTER	9/20/2005	6516159.819690	6516159.819690	1788979.483200	245524	1032	sf	64	cf
Infiltration BMP	Existing	7324 DINSDALE	6/21/2010	6518936.024560	6518936.024560	1807958.155410	246106	1032	sf	64	cf
Infiltration BMP	Existing	8352 DINSDALE	12/19/2005	6524191.795240	6524191.795240	1804722.231880	246103	1032	sf	64	cf
Infiltration BMP	Existing	9325 DINSDALE	7/3/2007	6528635.640220	6528635.640220	1802187.000380	245125	1032	sf	64	cf
Infiltration BMP	Existing	9812 DOLAN	1/10/2007	6524918.033470	6524918.033470	1805427.859430	246103	1032	sf	64	cf
Infiltration BMP	Existing	10410 DOLAN	9/19/2007	6523686.660150	6523686.660150	1803351.652190	245119	1032	sf	64	cf
Infiltration BMP	Existing	12522 DOLAN	12/9/2005	6518109.498100	6518109.498100	1794046.260040	245115	1032	sf	64	cf
Infiltration BMP	Existing	12634 DOLAN	4/11/2006	6517527.198260	6517527.198260	1793053.966010	245115	1032	sf	64	cf
Infiltration BMP	Existing	12712 DOLAN	4/27/2005	6517393.756980	6517393.756980	1792842.640770	245115	1032	sf	64	cf
Infiltration BMP	Existing	8740 DONOVAN	11/2/2006	6520467.711390	6520467.711390	1793463.175520	245115	1032	sf	64	cf
Infiltration BMP	Existing	6408 DOS RIOS	3/7/2007	6523246.583700	6523246.583700	1811462.058000	246111	1032	sf	64	cf
Infiltration BMP	Existing	6420 DOS RIOS	7/14/2008	6523082.430580	6523082.430580	1811381.024700	246111	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	6449 DOS RIOS	8/23/2005	6522675.424950	6522675.424950	1811505.638050	246111	1032	sf	64	cf
Infiltration BMP	Existing	6481 DOS RIOS	8/8/2007	6522296.417970	6522296.417970	1811546.494500	246111	1032	sf	64	cf
Infiltration BMP	Existing	9532 DOWNEY	9/21/2007	6524828.225510	6524828.225510	1806555.186060	246103	1032	sf	64	cf
Infiltration BMP	Existing	12115 DOWNEY	8/12/2005	6518801.058860	6518801.058860	1796628.276370	245115	1032	sf	64	cf
Infiltration BMP	Existing	12116 DOWNEY	7/24/2008	6518985.048760	6518985.048760	1796501.621880	245115	1032	sf	64	cf
Infiltration BMP	Existing	12545 DOWNEY	7/7/2005	6517126.997680	6517126.997680	1794204.833310	246077	1032	sf	64	cf
Infiltration BMP	Existing	13620 DOWNEY	10/24/2007	6515777.167020	6515777.167020	1788934.803130	245524	1032	sf	64	cf
Infiltration BMP	Existing	9756 DOWNEY SANFORD BRIDGE	11/6/2008	6530232.905320	6530232.905320	1802732.275270	245125	1032	sf	64	cf
Infiltration BMP	Existing	12109 DUNROBIN	5/27/2008	6524849.554990	6524849.554990	1794742.565720	245114	1032	sf	64	cf
Infiltration BMP	Existing	12602 DUNROBIN	4/21/2008	6525045.021790	6525045.021790	1792096.938130	245114	1032	sf	64	cf
Infiltration BMP	Existing	13118 DUNROBIN	8/1/2008	6525045.611060	6525045.611060	1790357.500340	245114	1032	sf	64	cf
Infiltration BMP	Existing	13447 EARNSHAW	3/4/2005	6516486.580000	6516486.580000	1788881.960000	245524	1032	sf	64	cf
Infiltration BMP	Existing	12246 EASTBROOK	7/3/2007	6525290.855020	6525290.855020	1793729.113600	245114	1032	sf	64	cf
Infiltration BMP	Existing	13102 EASTBROOK	5/30/2006	6525376.065000	6525376.065000	1790509.718450	245114	1032	sf	64	cf
Infiltration BMP	Existing	13207 EASTBROOK	1/1/2006	6525181.215010	6525181.215010	1790147.343800	245114	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9010 EGLISE	6/22/2010	6530616.481070	6530616.481070	1805612.930940	245127	1032	sf	64	cf
Infiltration BMP	Existing	9124 EGLISE	1/1/2006	6530099.347460	6530099.347460	1804464.036140	245125	1032	sf	64	cf
Infiltration BMP	Existing	10228 EGLISE	6/16/2008	6528317.527320	6528317.527320	1801552.496190	245126	1032	sf	64	cf
Infiltration BMP	Existing	8432 EUCALYPTUS	6/21/2010	6518375.883890	6518375.883890	1794450.252220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8451 EUCALYPTUS	11/5/2008	6518648.903650	6518648.903650	1794509.449160	245115	1032	sf	64	cf
Infiltration BMP	Existing	8449 EVEREST	9/20/2006	6518402.636450	6518402.636450	1794253.840980	245115	1032	sf	64	cf
Infiltration BMP	Existing	9036 FARM	1/1/2005	6525791.032450	6525791.032450	1801568.335890	245119	1032	sf	64	cf
Infiltration BMP	Existing	9068 FARM	1/1/2005	6526062.157630	6526062.157630	1801402.977290	245119	1032	sf	64	cf
Infiltration BMP	Existing	8334 FIFTH	6/24/2005	6522409.331110	6522409.331110	1801742.536430	245114	1032	sf	64	cf
Infiltration BMP	Existing	8540 FIFTH	1/1/2005	6523591.182480	6523591.182480	1801021.450470	245114	1032	sf	64	cf
Infiltration BMP	Existing	7238 FLORENCE	11/14/2005	6518231.298960	6518231.298960	1807648.949310	246104	1032	sf	64	cf
Infiltration BMP	Existing	8324 FONTANA	1/1/2006	6519936.868340	6519936.868340	1797701.691440	245115	1032	sf	64	cf
Infiltration BMP	Existing	7322 FOSTER BRIDGE	6/18/2010	6520302.817760	6520302.817760	1810322.849060	246111	1032	sf	64	cf
Infiltration BMP	Existing	7441 FOSTORIA	10/25/2005	6517764.674110	6517764.674110	1804520.953030	246102	1032	sf	64	cf
Infiltration BMP	Existing	7520 FOSTORIA	1/20/2006	6517974.460950	6517974.460950	1804167.759820	246102	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7639 FOSTORIA	7/27/2007	6518691.469740	6518691.469740	1803918.676960	246102	1032	sf	64	cf
Infiltration BMP	Existing	7915 FOURTH	5/29/2007	6519890.537430	6519890.537430	1803170.158590	246102	1032	sf	64	cf
Infiltration BMP	Existing	7922 FOURTH	1/1/2005	6519878.319950	6519878.319950	1802959.531390	246102	1032	sf	64	cf
Infiltration BMP	Existing	7411 FOURTH PL	9/10/2007	6517375.746060	6517375.746060	1804408.156270	246102	1032	sf	64	cf
Infiltration BMP	Existing	7519 FOURTH PL	6/23/2005	6517868.488420	6517868.488420	1804088.501010	246102	1032	sf	64	cf
Infiltration BMP	Existing	7329 GAINFORD	9/20/2007	6519599.973200	6519599.973200	1808409.397520	246111	1032	sf	64	cf
Infiltration BMP	Existing	7725 GAINFORD	6/21/2010	6521357.607460	6521357.607460	1807543.814610	246106	1032	sf	64	cf
Infiltration BMP	Existing	7735 GAINFORD	12/15/2006	6521461.236080	6521461.236080	1807480.220630	246106	1032	sf	64	cf
Infiltration BMP	Existing	7771 GAINFORD	12/3/2007	6521758.954890	6521758.954890	1807297.289390	246106	1032	sf	64	cf
Infiltration BMP	Existing	8353 GAINFORD	1/4/2007	6524689.963810	6524689.963810	1805534.024270	246103	1032	sf	64	cf
Infiltration BMP	Existing	8553 GAINFORD	4/7/2008	6525875.670020	6525875.670020	1804802.065800	245125	1032	sf	64	cf
Infiltration BMP	Existing	9114 GAINFORD	6/23/2010	6527375.967240	6527375.967240	1803418.253090	245125	1032	sf	64	cf
Infiltration BMP	Existing	8319 GALLATIN	6/23/2010	6525634.222480	6525634.222480	1807445.394810	246103	1032	sf	64	cf
Infiltration BMP	Existing	9069 GALLATIN	3/1/2005	6527846.830170	6527846.830170	1805432.059660	245125	1032	sf	64	cf
Infiltration BMP	Existing	9243 GALLATIN	6/19/2006	6528915.102070	6528915.102070	1804595.777040	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8408 GALT	6/18/2010	6520848.594160	6520848.594160	1798562.646220	245114	1032	sf	64	cf
Infiltration BMP	Existing	8435 GALT	12/27/2005	6521154.530230	6521154.530230	1798569.782020	245114	1032	sf	64	cf
Infiltration BMP	Existing	9119 GARNISH	6/22/2010	6529517.516530	6529517.516530	1805110.082900	245125	1032	sf	64	cf
Infiltration BMP	Existing	9136 GARNISH	2/5/2007	6529607.954040	6529607.954040	1804869.027300	245125	1032	sf	64	cf
Infiltration BMP	Existing	9024 GAYMONT	8/28/2007	6523451.624790	6523451.624790	1809501.434890	246111	1032	sf	64	cf
Infiltration BMP	Existing	12636 GLYNN	10/25/2005	6517337.921050	6517337.921050	1793251.757000	245524	1032	sf	64	cf
Infiltration BMP	Existing	12751 GLYNN	1/1/2005	6516780.406550	6516780.406550	1792749.927780	245524	1032	sf	64	cf
Infiltration BMP	Existing	12755 GLYNN	6/18/2010	6516753.778610	6516753.778610	1792707.557200	245524	1032	sf	64	cf
Infiltration BMP	Existing	12912 GLYNN	1/1/2005	6516567.905690	6516567.905690	1791996.175300	245524	1032	sf	64	cf
Infiltration BMP	Existing	8731 GUATEMALA	10/30/2008	6523507.693960	6523507.693960	1811098.218950	246106	1032	sf	64	cf
Infiltration BMP	Existing	9203 GUATEMALA	3/23/2006	6521893.308510	6521893.308510	1810154.570390	246111	1032	sf	64	cf
Infiltration BMP	Existing	9959 GUATEMALA	6/23/2010	6518699.649950	6518699.649950	1808234.818150	246111	1032	sf	64	cf
Infiltration BMP	Existing	13537 GUNDERSON	3/3/2008	6517350.406160	6517350.406160	1787757.556610	245524	1032	sf	64	cf
Infiltration BMP	Existing	13547 GUNDERSON	6/19/2006	6517298.502270	6517298.502270	1787667.099660	245524	1032	sf	64	cf
Infiltration BMP	Existing	11538 GURLEY	5/3/2005	6520211.328840	6520211.328840	1799382.602480	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11935 GURLEY	6/18/2010	6519051.777570	6519051.777570	1797582.114550	245115	1032	sf	64	cf
Infiltration BMP	Existing	12019 GURLEY	6/18/2010	6518869.145640	6518869.145640	1797295.091770	245115	1032	sf	64	cf
Infiltration BMP	Existing	12052 GURLEY	1/10/2006	6518841.793230	6518841.793230	1796925.916150	245115	1032	sf	64	cf
Infiltration BMP	Existing	12117 GURLEY	1/1/2007	6518497.250390	6518497.250390	1796711.283370	245115	1032	sf	64	cf
Infiltration BMP	Existing	9117 HALEDON	7/31/2006	6528761.573350	6528761.573350	1805801.190120	245125	1032	sf	64	cf
Infiltration BMP	Existing	10341 HALEDON	5/1/2006	6526657.457480	6526657.457480	1801653.926760	245119	1032	sf	64	cf
Infiltration BMP	Existing	10349 HALEDON	2/8/2005	6526618.690140	6526618.690140	1801591.635520	245119	1032	sf	64	cf
Infiltration BMP	Existing	10425 HALEDON	4/14/2005	6526424.760130	6526424.760130	1801280.406410	245119	1032	sf	64	cf
Infiltration BMP	Existing	10439 HALEDON	9/30/2005	6526346.747570	6526346.747570	1801155.573630	245119	1032	sf	64	cf
Infiltration BMP	Existing	10525 HALEDON	1/28/2005	6526113.410380	6526113.410380	1800804.505840	245119	1032	sf	64	cf
Infiltration BMP	Existing	10550 HALEDON	12/19/2005	6526112.578950	6526112.578950	1800485.376650	245119	1032	sf	64	cf
Infiltration BMP	Existing	9049 HALL ROAD	4/30/2008	6523684.587500	6523684.587500	1797586.831540	245114	1032	sf	64	cf
Infiltration BMP	Existing	7215 HANNON	12/19/2008	6521498.261440	6521498.261440	1811442.204100	246111	1032	sf	64	cf
Infiltration BMP	Existing	13005 HANWELL	2/11/2009	6519590.457150	6519590.457150	1789492.134120	245115	1032	sf	64	cf
Infiltration BMP	Existing	9022 HASTY	10/13/2005	6531232.650260	6531232.650260	1805433.916070	245127	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9205 HASTY	6/22/2010	6530848.690890	6530848.690890	1804978.371330	245127	1032	sf	64	cf
Infiltration BMP	Existing	9206 HASTY	1/1/2005	6531000.691980	6531000.691980	1804885.411940	245127	1032	sf	64	cf
Infiltration BMP	Existing	9241 HASTY	1/1/2006	6530719.487200	6530719.487200	1804649.180550	245127	1032	sf	64	cf
Infiltration BMP	Existing	7736 HONDO	2/8/2005	6514830.078530	6514830.078530	1796886.774430	246079	1032	sf	64	cf
Infiltration BMP	Existing	7753 HONDO	1/24/2007	6515005.269000	6515005.269000	1796951.957630	246079	1032	sf	64	cf
Infiltration BMP	Existing	7803 HONDO	10/11/2005	6515156.509020	6515156.509020	1796903.351830	246079	1032	sf	64	cf
Infiltration BMP	Existing	7808 HONDO	6/22/2010	6515109.805390	6515109.805390	1796717.393590	246079	1032	sf	64	cf
Infiltration BMP	Existing	7814 HONDO	7/25/2008	6515161.093050	6515161.093050	1796686.379320	246079	1032	sf	64	cf
Infiltration BMP	Existing	7920 HONDO	8/21/2006	6515777.018460	6515777.018460	1796313.217950	246079	1032	sf	64	cf
Infiltration BMP	Existing	7932 HONDO	1/1/2006	6515879.568480	6515879.568480	1796251.099580	246079	1032	sf	64	cf
Infiltration BMP	Existing	9008 HORLEY	7/19/2007	6523080.991430	6523080.991430	1809910.740800	246111	1032	sf	64	cf
Infiltration BMP	Existing	9838 HORLEY	7/3/2008	6521155.061500	6521155.061500	1807271.870840	246106	1032	sf	64	cf
Infiltration BMP	Existing	12307 HORLEY	1/1/2005	6514989.782150	6514989.782150	1797487.116040	246079	1032	sf	64	cf
Infiltration BMP	Existing	11427 HORTON	11/23/2005	6517266.456490	6517266.456490	1802136.009270	246079	1032	sf	64	cf
Infiltration BMP	Existing	11553 HORTON	4/21/2005	6516872.120940	6516872.120940	1801498.085040	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11708 HORTON	10/25/2005	6516455.941870	6516455.941870	1800783.417100	246079	1032	sf	64	cf
Infiltration BMP	Existing	12646 IBBETSON	5/6/2005	6526008.756240	6526008.756240	1791650.535870	245114	1032	sf	64	cf
Infiltration BMP	Existing	8217 IMPERIAL	1/5/2009	6516889.628840	6516889.628840	1794092.786860	246077	1032	sf	64	cf
Infiltration BMP	Existing	7320 IRWINGROVE	1/1/2006	6518255.802480	6518255.802480	1807084.876440	246102	1032	sf	64	cf
Infiltration BMP	Existing	7710 IRWINGROVE	12/11/2007	6520151.425540	6520151.425540	1805902.138310	246102	1032	sf	64	cf
Infiltration BMP	Existing	12208 IZETTA	1/1/2006	6524718.745010	6524718.745010	1794118.344290	245114	1032	sf	64	cf
Infiltration BMP	Existing	12252 IZETTA	7/10/2008	6524718.900100	6524718.900100	1793666.382200	245114	1032	sf	64	cf
Infiltration BMP	Existing	12631 IZETTA	8/28/2007	6524602.625920	6524602.625920	1791809.267080	245114	1032	sf	64	cf
Infiltration BMP	Existing	10228 JULIUS	5/20/2008	6519748.327880	6519748.327880	1806603.074440	246102	1032	sf	64	cf
Infiltration BMP	Existing	10234 JULIUS	6/22/2010	6519723.348540	6519723.348540	1806551.787860	246102	1032	sf	64	cf
Infiltration BMP	Existing	11848 JULIUS	6/23/2010	6515875.825190	6515875.825190	1800351.825190	246079	1032	sf	64	cf
Infiltration BMP	Existing	11859 JULIUS	8/23/2005	6515676.490910	6515676.490910	1800355.137490	246079	1032	sf	64	cf
Infiltration BMP	Existing	11865 JULIUS	11/13/2006	6515650.173870	6515650.173870	1800309.916770	246079	1032	sf	64	cf
Infiltration BMP	Existing	12129 JULIUS	9/29/2005	6514728.334670	6514728.334670	1798846.683770	246079	1032	sf	64	cf
Infiltration BMP	Existing	9263 KLINEDALE	6/21/2010	6531573.525950	6531573.525950	1804517.918460	245127	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9205 LA REINA	11/27/2006	6525690.537020	6525690.537020	1808255.600740	246103	1032	sf	64	cf
Infiltration BMP	Existing	9251 LA REINA	8/10/2007	6525325.121400	6525325.121400	1807968.316200	246103	1032	sf	64	cf
Infiltration BMP	Existing	9260 LA REINA	6/14/2007	6525343.506110	6525343.506110	1807785.350080	246103	1032	sf	64	cf
Infiltration BMP	Existing	9633 LA REINA	9/24/2007	6524180.010720	6524180.010720	1806496.849820	246103	1032	sf	64	cf
Infiltration BMP	Existing	10026 LA REINA	1/1/2005	6523542.730590	6523542.730590	1805175.247470	246103	1032	sf	64	cf
Infiltration BMP	Existing	10219 LA REINA	5/25/2006	6522978.941790	6522978.941790	1804778.433210	246103	1032	sf	64	cf
Infiltration BMP	Existing	8346 LA VILLA	8/29/2005	6522426.709000	6522426.709000	1801414.465390	245114	1032	sf	64	cf
Infiltration BMP	Existing	9524 LA VILLA	9/27/2005	6527942.492070	6527942.492070	1797972.664540	245119	1032	sf	64	cf
Infiltration BMP	Existing	14305 LAKEWOOD	1/1/2006	6518183.322800	6518183.322800	1787270.059950	245524	1032	sf	64	cf
Infiltration BMP	Existing	8218 LANKIN	3/28/2006	6516908.705740	6516908.705740	1794755.893760	246077	1032	sf	64	cf
Infiltration BMP	Existing	13407 LAURELDALE	10/25/2005	6516128.982330	6516128.982330	1789557.891060	245524	1032	sf	64	cf
Infiltration BMP	Existing	11034 LE FLOSS	3/21/2008	6531318.633350	6531318.633350	1797718.334360	245124	1032	sf	64	cf
Infiltration BMP	Existing	9013 LEMORAN	3/16/2006	6529860.990680	6529860.990680	1806212.694780	245125	1032	sf	64	cf
Infiltration BMP	Existing	10036 LESTERFORD	1/11/2006	6530911.516090	6530911.516090	1801094.347740	245125	1032	sf	64	cf
Infiltration BMP	Existing	8355 LEXINGTON	6/15/2005	6523932.891700	6523932.891700	1804236.927600	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7432 LUBEC	7/8/2005	6519806.105180	6519806.105180	1808430.037290	246111	1032	sf	64	cf
Infiltration BMP	Existing	9318 LUBEC	1/1/2006	6528946.832250	6528946.832250	1803071.454980	245125	1032	sf	64	cf
Infiltration BMP	Existing	7341 LUXOR	9/30/2005	6515165.173860	6515165.173860	1801559.243950	246079	1032	sf	64	cf
Infiltration BMP	Existing	7743 LUXOR	8/18/2006	6517197.964320	6517197.964320	1800308.569440	246079	1032	sf	64	cf
Infiltration BMP	Existing	7809 LUXOR	1/1/2006	6517239.593210	6517239.593210	1799986.863830	246079	1032	sf	64	cf
Infiltration BMP	Existing	7982 LUXOR	7/3/2007	6518306.219270	6518306.219270	1799333.376300	246077	1032	sf	64	cf
Infiltration BMP	Existing	8509 LUXOR	12/31/2008	6521183.510000	6521183.510000	1797885.775000	245114	1032	sf	64	cf
Infiltration BMP	Existing	11505 MAC GOVERN	5/1/2006	6519990.708800	6519990.708800	1799977.759420	245115	1032	sf	64	cf
Infiltration BMP	Existing	11527 MAC GOVERN	11/19/2007	6519889.562820	6519889.562820	1799806.361750	245115	1032	sf	64	cf
Infiltration BMP	Existing	8518 MANATEE	4/27/2005	6521541.591450	6521541.591450	1798287.495050	245114	1032	sf	64	cf
Infiltration BMP	Existing	12306 MARBEL	12/29/2005	6520780.434840	6520780.434840	1794110.003960	245115	1032	sf	64	cf
Infiltration BMP	Existing	12322 MARBEL	8/24/2005	6520697.258530	6520697.258530	1793976.926170	245115	1032	sf	64	cf
Infiltration BMP	Existing	10423 MATTOCK	11/21/2008	6528946.576280	6528946.576280	1799798.739650	245126	1032	sf	64	cf
Infiltration BMP	Existing	10527 MATTOCK	1/11/2007	6528618.163260	6528618.163260	1799183.483330	245126	1032	sf	64	cf
Infiltration BMP	Existing	8602 MEADOW	2/28/2008	6519007.155950	6519007.155950	1793158.643900	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8606 MEADOW	10/26/2006	6519050.372960	6519050.372960	1793129.529230	245115	1032	sf	64	cf
Infiltration BMP	Existing	8739 MEADOW	12/17/2007	6520051.313480	6520051.313480	1792689.390880	245115	1032	sf	64	cf
Infiltration BMP	Existing	9106 MELDAR	4/23/2007	6526980.004600	6526980.004600	1807421.893550	246103	1032	sf	64	cf
Infiltration BMP	Existing	7819 MELVA	1/1/2005	6515811.952890	6515811.952890	1797638.263460	246079	1032	sf	64	cf
Infiltration BMP	Existing	8609 MELVA	4/6/2007	6520260.479750	6520260.479750	1795043.474460	245115	1032	sf	64	cf
Infiltration BMP	Existing	9558 METRO	4/3/2008	6531485.802060	6531485.802060	1804114.777900	245127	1032	sf	64	cf
Infiltration BMP	Existing	11711 MITLA	7/13/2005	6513453.724060	6513453.724060	1802912.278240	246100	1032	sf	64	cf
Infiltration BMP	Existing	11819 MORNING	6/21/2010	6517496.555960	6517496.555960	1799723.226450	246077	1032	sf	64	cf
Infiltration BMP	Existing	12070 MORNING	9/13/2006	6516788.931410	6516788.931410	1797957.975300	246079	1032	sf	64	cf
Infiltration BMP	Existing	8637 MORY	1/1/2005	6520217.929830	6520217.929830	1794453.857040	245115	1032	sf	64	cf
Infiltration BMP	Existing	10903 MYRTLE	10/25/2005	6520809.999180	6520809.999180	1802308.735020	246103	1032	sf	64	cf
Infiltration BMP	Existing	8208 NADA	6/29/2005	6518679.653960	6518679.653960	1797804.552950	245115	1032	sf	64	cf
Infiltration BMP	Existing	8249 NADA	2/12/2008	6519111.183860	6519111.183860	1797730.010570	245115	1032	sf	64	cf
Infiltration BMP	Existing	9458 NANCE	6/20/2005	6526752.832360	6526752.832360	1796717.105850	245119	1032	sf	64	cf
Infiltration BMP	Existing	10609 NEDRA	6/3/2005	6522752.614640	6522752.614640	1802538.434710	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10850 NEWVILLE	7/3/2007	6528159.933410	6528159.933410	1797635.549950	245119	1032	sf	64	cf
Infiltration BMP	Existing	7510 NOREN	5/23/2006	6520838.348300	6520838.348300	1809064.222230	246111	1032	sf	64	cf
Infiltration BMP	Existing	11720 NORLAIN	9/22/2006	6515696.110230	6515696.110230	1801264.632180	246079	1032	sf	64	cf
Infiltration BMP	Existing	12336 NORLAIN	8/1/2007	6513658.838460	6513658.838460	1797875.767390	246079	1032	sf	64	cf
Infiltration BMP	Existing	11628 OLD RIVER SCHOOL	1/1/2006	6515797.838400	6515797.838400	1801876.521840	246079	1032	sf	64	cf
Infiltration BMP	Existing	8521 ORANGE	3/9/2007	6519427.831130	6519427.831130	1794911.101980	245115	1032	sf	64	cf
Infiltration BMP	Existing	9255 ORIZABA	2/15/2006	6525108.451310	6525108.451310	1808168.208600	246103	1032	sf	64	cf
Infiltration BMP	Existing	9719 ORIZABA	8/8/2007	6523780.810110	6523780.810110	1806377.528150	246103	1032	sf	64	cf
Infiltration BMP	Existing	12615 ORIZABA	1/27/2006	6516062.877730	6516062.877730	1794206.618320	246077	1032	sf	64	cf
Infiltration BMP	Existing	8511 OTTO	4/12/2005	6525130.700850	6525130.700850	1804530.864040	245125	1032	sf	64	cf
Infiltration BMP	Existing	9933 PANGBORN	6/29/2006	6530067.434760	6530067.434760	1801915.181390	245125	1032	sf	64	cf
Infiltration BMP	Existing	10202 PANGBORN	1/1/2006	6529571.236640	6529571.236640	1801045.668670	245125	1032	sf	64	cf
Infiltration BMP	Existing	11009 PANGBORN	1/31/2007	6527339.080190	6527339.080190	1797691.116980	245119	1032	sf	64	cf
Infiltration BMP	Existing	9530 PARAMOUNT	7/14/2005	6523601.663290	6523601.663290	1807461.311510	246103	1032	sf	64	cf
Infiltration BMP	Existing	9624 PARAMOUNT	5/9/2005	6523328.526550	6523328.526550	1807031.980170	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8603 PARROT	3/14/2006	6526080.240790	6526080.240790	1809719.746830	246106	1032	sf	64	cf
Infiltration BMP	Existing	9625 PARROT	1/1/2005	6523451.735380	6523451.735380	1806960.011690	246103	1032	sf	64	cf
Infiltration BMP	Existing	9708 PARROT	6/29/2006	6523491.321500	6523491.321500	1806678.668660	246103	1032	sf	64	cf
Infiltration BMP	Existing	12045 PARROT	6/22/2010	6517861.439330	6517861.439330	1797868.798060	246077	1032	sf	64	cf
Infiltration BMP	Existing	12751 PARROT	12/14/2006	6515222.728500	6515222.728500	1793830.999240	246077	1032	sf	64	cf
Infiltration BMP	Existing	7130 PELLET	1/27/2005	6515276.387650	6515276.387650	1804845.311440	246104	1032	sf	64	cf
Infiltration BMP	Existing	7323 PELLET	1/1/2005	6516571.171210	6516571.171210	1804327.110650	246104	1032	sf	64	cf
Infiltration BMP	Existing	7354 PELLET	1/1/2006	6516665.448760	6516665.448760	1803945.359790	246102	1032	sf	64	cf
Infiltration BMP	Existing	7861 PHLOX	9/17/2007	6518688.116640	6518688.116640	1801430.417420	246079	1032	sf	64	cf
Infiltration BMP	Existing	10620 PICO VISTA	3/7/2007	6529428.403390	6529428.403390	1798283.402620	245126	1032	sf	64	cf
Infiltration BMP	Existing	10635 PICO VISTA	8/28/2007	6529197.816790	6529197.816790	1798270.093070	245126	1032	sf	64	cf
Infiltration BMP	Existing	7530 PIVOT	11/23/2005	6516899.016370	6516899.016370	1802660.318910	246079	1032	sf	64	cf
Infiltration BMP	Existing	7709 PIVOT	10/11/2005	6517859.569570	6517859.569570	1802212.124870	246079	1032	sf	64	cf
Infiltration BMP	Existing	7753 PIVOT	6/14/2005	6518241.212950	6518241.212950	1801966.921690	246079	1032	sf	64	cf
Infiltration BMP	Existing	11974 POMERING	6/18/2010	6515116.938670	6515116.938670	1799645.797070	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8732 PRICHARD ST	1/12/2009	6516786.371080	6516786.371080	1788406.289900	245524	1032	sf	64	cf
Infiltration BMP	Existing	8734 PRICHARD ST	1/12/2009	6516831.574810	6516831.574810	1788380.860770	245524	1032	sf	64	cf
Infiltration BMP	Existing	8738 PRICHARD ST	1/12/2009	6516876.454020	6516876.454020	1788355.597890	245524	1032	sf	64	cf
Infiltration BMP	Existing	8740 PRICHARD ST	1/12/2009	6516921.333860	6516921.333860	1788330.343610	245524	1032	sf	64	cf
Infiltration BMP	Existing	8240 PRISCILLA	9/13/2007	6515555.844810	6515555.844810	1791697.292180	246077	1032	sf	64	cf
Infiltration BMP	Existing	9044 PRISCILLA	8/18/2005	6519169.042140	6519169.042140	1790017.667840	245115	1032	sf	64	cf
Infiltration BMP	Existing	9060 PRISCILLA	6/21/2010	6519318.719160	6519318.719160	1790008.270400	245115	1032	sf	64	cf
Infiltration BMP	Existing	11448 PRUESS	1/1/2006	6518742.114860	6518742.114860	1801046.878700	246077	1032	sf	64	cf
Infiltration BMP	Existing	11609 PRUESS	11/16/2006	6518299.675980	6518299.675980	1800455.121300	246077	1032	sf	64	cf
Infiltration BMP	Existing	11619 PRUESS	6/10/2005	6518270.484730	6518270.484730	1800355.677990	246077	1032	sf	64	cf
Infiltration BMP	Existing	11708 PRUESS	1/18/2005	6518033.994760	6518033.994760	1799832.073440	246077	1032	sf	64	cf
Infiltration BMP	Existing	8121 PURITAN	6/5/2006	6515245.448070	6515245.448070	1792698.037730	246077	1032	sf	64	cf
Infiltration BMP	Existing	7707 QUILL	6/1/2007	6514508.683200	6514508.683200	1796937.770200	246079	1032	sf	64	cf
Infiltration BMP	Existing	8108 QUOIT	6/5/2008	6516594.034560	6516594.034560	1795288.918170	246077	1032	sf	64	cf
Infiltration BMP	Existing	9109 RAVILLER	2/6/2007	6527953.464140	6527953.464140	1804924.402110	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9367 RAVILLER	1/1/2006	6529435.914270	6529435.914270	1803746.913820	245125	1032	sf	64	cf
Infiltration BMP	Existing	9728 RICHEON	6/18/2010	6521201.804800	6521201.804800	1807962.626360	246106	1032	sf	64	cf
Infiltration BMP	Existing	12217 RICHEON	1/1/2005	6514937.033870	6514937.033870	1797986.477150	246079	1032	sf	64	cf
Infiltration BMP	Existing	12336 RICHEON	1/10/2007	6514721.816510	6514721.816510	1797298.695230	246079	1032	sf	64	cf
Infiltration BMP	Existing	12342 RICHEON	1/1/2005	6514694.932100	6514694.932100	1797256.523880	246079	1032	sf	64	cf
Infiltration BMP	Existing	12352 RICHEON	10/30/2008	6514641.834370	6514641.834370	1797172.034360	246079	1032	sf	64	cf
Infiltration BMP	Existing	11010 RIO HONDO	2/6/2006	6514511.989690	6514511.989690	1805412.886430	246104	1032	sf	64	cf
Infiltration BMP	Existing	8515 RIVES	2/6/2006	6524958.575190	6524958.575190	1811619.081610	246111	1032	sf	64	cf
Infiltration BMP	Existing	8546 RIVES	6/14/2010	6524726.063490	6524726.063490	1811337.492550	246106	1032	sf	64	cf
Infiltration BMP	Existing	11828 RIVES	1/1/2006	6517020.372820	6517020.372820	1799741.223590	246079	1032	sf	64	cf
Infiltration BMP	Existing	12056 RIVES	10/7/2005	6516252.097820	6516252.097820	1798479.870770	246079	1032	sf	64	cf
Infiltration BMP	Existing	12213 RIVES	6/7/2007	6515544.034920	6515544.034920	1797794.303030	246079	1032	sf	64	cf
Infiltration BMP	Existing	12301 RIVES	1/27/2006	6515274.134590	6515274.134590	1797373.251430	246079	1032	sf	64	cf
Infiltration BMP	Existing	12542 ROSE	6/18/2010	6520775.320830	6520775.320830	1792425.734550	245115	1032	sf	64	cf
Infiltration BMP	Existing	7444 RUNDELL	9/28/2006	6514195.392880	6514195.392880	1798477.819400	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7458 RUNDELL	1/1/2006	6514328.036950	6514328.036950	1798395.544300	246079	1032	sf	64	cf
Infiltration BMP	Existing	8734 RUPP	5/24/2007	6518769.625610	6518769.625610	1791861.464390	245115	1032	sf	64	cf
Infiltration BMP	Existing	9206 SAMOLINE	9/20/2006	6524105.922670	6524105.922670	1808777.784250	246106	1032	sf	64	cf
Infiltration BMP	Existing	9363 SAMOLINE	2/12/2009	6523342.697990	6523342.697990	1808041.206940	246106	1032	sf	64	cf
Infiltration BMP	Existing	9630 SAMOLINE	1/1/2006	6523000.405210	6523000.405210	1807164.143360	246103	1032	sf	64	cf
Infiltration BMP	Existing	12041 SAMOLINE	6/23/2010	6516971.702030	6516971.702030	1798170.274910	246079	1032	sf	64	cf
Infiltration BMP	Existing	10629 SHELLEYFIELD	6/21/2010	6525284.582980	6525284.582980	1800508.363190	245119	1032	sf	64	cf
Infiltration BMP	Existing	9118 SHERIDELL	6/22/2010	6528683.896100	6528683.896100	1805941.227670	245125	1032	sf	64	cf
Infiltration BMP	Existing	10042 SIDEVIEW	6/21/2010	6529464.806690	6529464.806690	1801729.923910	245125	1032	sf	64	cf
Infiltration BMP	Existing	8349 SIXTH	6/21/2010	6522706.066860	6522706.066860	1802231.249170	245114	1032	sf	64	cf
Infiltration BMP	Existing	8363 SIXTH	6/18/2010	6522832.335670	6522832.335670	1802150.209500	245114	1032	sf	64	cf
Infiltration BMP	Existing	8532 SIXTH	6/23/2010	6523697.106090	6523697.106090	1801388.440460	245119	1032	sf	64	cf
Infiltration BMP	Existing	8514 SMALLWOOD	8/24/2006	6525167.581560	6525167.581560	1811228.866910	246106	1032	sf	64	cf
Infiltration BMP	Existing	12007 SMALLWOOD	1/1/2005	6516682.861570	6516682.861570	1798786.226940	246079	1032	sf	64	cf
Infiltration BMP	Existing	12936 SMALLWOOD	7/31/2006	6513688.714060	6513688.714060	1793540.982580	246077	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9235 SONGFEST	6/14/2006	6531351.855720	6531351.855720	1804709.858310	245127	1032	sf	64	cf
Infiltration BMP	Existing	7939 SPRINGER	10/6/2006	6516193.792450	6516193.792450	1796630.732180	246079	1032	sf	64	cf
Infiltration BMP	Existing	9306 STAMPS	6/21/2010	6525546.826990	6525546.826990	1807197.501010	246103	1032	sf	64	cf
Infiltration BMP	Existing	10446 STAMPS	1/1/2005	6523214.650320	6523214.650320	1803242.228000	246103	1032	sf	64	cf
Infiltration BMP	Existing	10536 STAMPS	6/1/2006	6522871.528480	6522871.528480	1802783.838380	246103	1032	sf	64	cf
Infiltration BMP	Existing	13219 STANBRIDGE	9/17/2007	6522806.618420	6522806.618420	1790045.381220	245114	1032	sf	64	cf
Infiltration BMP	Existing	8723 STEWART & GRAY	2/11/2009	6522100.372490	6522100.372490	1796545.507760	245114	1032	sf	64	cf
Infiltration BMP	Existing	9028 STOAKES	8/17/2007	6527221.634250	6527221.634250	1807951.198320	246103	1032	sf	64	cf
Infiltration BMP	Existing	7809 SUVA	1/13/2009	6522703.875430	6522703.875430	1808490.998990	246106	1032	sf	64	cf
Infiltration BMP	Existing	7827 SUVA	1/1/2006	6522849.829890	6522849.829890	1808368.560310	246106	1032	sf	64	cf
Infiltration BMP	Existing	8564 SUVA	1/1/2006	6526403.328390	6526403.328390	1805373.281490	245125	1032	sf	64	cf
Infiltration BMP	Existing	9943 TECUM	4/11/2008	6519363.349470	6519363.349470	1808047.658450	246111	1032	sf	64	cf
Infiltration BMP	Existing	9636 TELEGRAPH	5/8/2006	6531995.042290	6531995.042290	1804929.677680	245128	1032	sf	64	cf
Infiltration BMP	Existing	7968 THIRD	6/21/2005	6519929.169700	6519929.169700	1802199.016820	246102	1032	sf	64	cf
Infiltration BMP	Existing	9819 TRISTAN	10/7/2005	6526302.584780	6526302.584780	1804524.383680	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9253 TRUE	1/1/2005	6531891.994890	6531891.994890	1804462.821310	245127	1032	sf	64	cf
Infiltration BMP	Existing	8843 TWEEDY	9/12/2006	6524140.679400	6524140.679400	1809940.135780	246106	1032	sf	64	cf
Infiltration BMP	Existing	9012 TWEEDY	1/1/2005	6523977.735950	6523977.735950	1809300.273240	246106	1032	sf	64	cf
Infiltration BMP	Existing	9029 TWEEDY	1/1/2006	6523763.012330	6523763.012330	1809288.681880	246106	1032	sf	64	cf
Infiltration BMP	Existing	9612 TWEEDY	6/22/2010	6522847.016620	6522847.016620	1807449.028980	246106	1032	sf	64	cf
Infiltration BMP	Existing	9636 TWEEDY	10/11/2005	6522732.626430	6522732.626430	1807259.266340	246103	1032	sf	64	cf
Infiltration BMP	Existing	9714 TWEEDY	7/24/2006	6522647.237500	6522647.237500	1807116.822930	246103	1032	sf	64	cf
Infiltration BMP	Existing	9718 TWEEDY	9/22/2008	6522619.325230	6522619.325230	1807068.990310	246103	1032	sf	64	cf
Infiltration BMP	Existing	9730 TWEEDY	6/18/2010	6522565.360970	6522565.360970	1806976.155270	246103	1032	sf	64	cf
Infiltration BMP	Existing	13409 VERDURA	1/1/2006	6516484.588360	6516484.588360	1789346.159960	245524	1032	sf	64	cf
Infiltration BMP	Existing	8607 VIA AMORITA	1/19/2006	6524994.226680	6524994.226680	1803003.226520	245119	1032	sf	64	cf
Infiltration BMP	Existing	9356 VIA AMORITA	4/27/2005	6528170.664540	6528170.664540	1800850.979140	245126	1032	sf	64	cf
Infiltration BMP	Existing	7402 VIA RIO NIDO	2/10/2005	6518371.376580	6518371.376580	1806186.704160	246102	1032	sf	64	cf
Infiltration BMP	Existing	8303 VISTA DEL RIO	5/1/2007	6526003.249760	6526003.249760	1808077.011440	246103	1032	sf	64	cf
Infiltration BMP	Existing	8303 VISTA DEL ROSA	4/26/2007	6526763.242710	6526763.242710	1809159.607970	246106	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8351 VISTA DEL ROSA	12/19/2005	6527091.635630	6527091.635630	1808824.632820	246106	2063	sf	129	cf
Infiltration BMP	Existing	10265 VULTEE	4/24/2006	6525980.530560	6525980.530560	1802568.772980	245119	1032	sf	64	cf
Infiltration BMP	Existing	10339 VULTEE	6/18/2010	6525804.209560	6525804.209560	1802209.879860	245119	1032	sf	64	cf
Infiltration BMP	Existing	12709 VULTEE	3/9/2007	6519587.948000	6519587.948000	1791264.714830	245115	1032	sf	64	cf
Infiltration BMP	Existing	12725 WHITEWOOD	7/26/2005	6520341.668580	6520341.668580	1791179.460770	245115	1032	sf	64	cf
Infiltration BMP	Existing	9702 WILEY BURKE	6/21/2010	6521126.099980	6521126.099980	1808337.656530	246106	1032	sf	64	cf
Infiltration BMP	Existing	9750 WILEY BURKE	12/11/2006	6520822.729060	6520822.729060	1807995.132410	246106	1032	sf	64	cf
Infiltration BMP	Existing	9925 WILEY BURKE	1/10/2007	6520271.299840	6520271.299840	1807447.007570	246106	1032	sf	64	cf
Infiltration BMP	Existing	10540 WILEY BURKE	6/21/2007	6519089.326110	6519089.326110	1805048.306870	246102	1032	sf	64	cf
Infiltration BMP	Existing	10643 WOODRUFF	1/1/2006	6526887.322420	6526887.322420	1799535.375650	245119	1032	sf	64	cf
Infiltration BMP	Existing	7515 YANKEY	10/24/2006	6515115.108440	6515115.108440	1798924.389740	246079	1032	sf	64	cf
Infiltration BMP	Existing	10047 CASANES	1/1/2006	6529512.635540	6529512.635540	1801587.658100	245125	1032	sf	64	cf
Infiltration BMP	Existing	9220 CORD	1/1/2004	6530296.778820	6530296.778820	1804178.901350	245125	1032	sf	64	cf
Infiltration BMP	Existing	10040 MATTOCK	1/1/2006	6530247.042350	6530247.042350	1801200.601240	245125	1032	sf	64	cf
Infiltration BMP	Existing	10018 PANGBORN	1/1/2006	6530084.251260	6530084.251260	1801567.525640	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12053 PATTON	10/19/2004	6520642.037410	6520642.037410	1796050.004800	245115	1032	sf	64	cf
Infiltration BMP	Existing	12048 SAMOLINE	3/20/2007	6517021.712450	6517021.712450	1798014.455830	246079	2063	sf	129	cf
Infiltration BMP	Existing	7879 FLORENCE	2/14/2014	6521700.000000	6521700.000000	1806100.000000	246103	16504	sf	1032	cf
Infiltration BMP	Existing	9020 FIRESTONE	9/12/2008	6524113.023390	6524113.023390	1798572.164290	245119	70288	sf	4393	cf
Infiltration BMP	Existing	7910 FIRESTONE	6/28/2005	6519165.968790	6519165.968790	1801736.513180	246102	55686	sf	3480	cf
Infiltration BMP	Existing	7252 FIRESTONE	5/19/2004	6515489.000650	6515489.000650	1803082.633110	246079	36224	sf	2264	cf
Infiltration BMP	Existing	12256 PARAMOUNT	3/13/2006	6516813.225030	6516813.225030	1796497.685630	246077	34112	sf	2132	cf
Infiltration BMP	Existing	9462 FIRESTONE BL	2/14/2014	6526885.862260	6526885.862260	1797100.585140	245119	35437	sf	2215	cf
Infiltration BMP	Existing	8250 FIRESTONE BLVD	2/14/2014	6521000.000000	6521000.000000	1800300.000000	245115	59085	sf	3693	cf
Infiltration BMP	Existing	8018 TELEGRAPH	8/20/2004	6526800.000000	6526800.000000	1809400.000000	246106	35437	sf	2215	cf
Infiltration BMP	Existing	7447 FIRESTONE BLVD	7/9/2009	6516971.590923	6516971.590923	1803474.089243	246102	43124	sf	2192	cf
Infiltration BMP	Existing	9126 FLORENCE	4/25/2008	6526980.883730	6526980.883730	1802613.015890	245119	29248	sf	1828	cf
Infiltration BMP	Existing	11111 OLD RIVER SCHOOL	6/15/2004	6515500.000000	6515500.000000	1803800.000000	246102	27843	sf	1740	cf
Infiltration BMP	Existing	9634 WASHBURN	5/25/2004	6526574.558590	6526574.558590	1794738.334020	245118	35712	sf	2232	cf
Infiltration BMP	Existing	9475 FIRESTONE	9/20/2004	6527102.470060	6527102.470060	1797292.175990	245119	25078	sf	1567	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9125 IMPERIAL	9/17/2007	6520700.000000	6520700.000000	1792100.000000	245115	53104	sf	3319	cf
Infiltration BMP	Existing	11231 RIVES	4/25/2006	6518392.506170	6518392.506170	1802335.247680	246102	20250	sf	1266	cf
Infiltration BMP	Existing	7936 QUILL	8/23/2006	6515830.400000	6515830.400000	1795880.196930	246079	18984	sf	1187	cf
Infiltration BMP	Existing	8337 FONTANA	8/11/2005	6520206.194620	6520206.194620	1797870.434810	245114	36672	sf	2292	cf
Infiltration BMP	Existing	10225 LESTERFORD	6/22/2010	6530244.844140	6530244.844140	1800567.187010	245126	17718	sf	1107	cf
Infiltration BMP	Existing	7915 FLORENCE	8/11/2009	6522019.025220	6522019.025220	1805973.779210	246103	20192	sf	1262	cf
Infiltration BMP	Existing	11229 PARAMOUNT	3/16/2004	6519482.925030	6519482.925030	1801457.806750	246102	16453	sf	1028	cf
Infiltration BMP	Existing	8103 COLE	5/1/2007	6518213.448370	6518213.448370	1798049.118910	246077	0	sf	0	cf
Infiltration BMP	Existing	8722 BOYNE	7/1/2008	6521213.643060	6521213.643060	1795216.473800	245115	11390	sf	712	cf
Infiltration BMP	Existing	10612 LESTERFORD	6/14/2006	6529218.389270	6529218.389270	1798513.115960	245126	11390	sf	712	cf
Infiltration BMP	Existing	8444 LEXINGTON	4/24/2006	6524361.433930	6524361.433930	1803767.599820	246103	11390	sf	712	cf
Infiltration BMP	Existing	13221 BARLIN	10/10/2006	6516992.431610	6516992.431610	1789646.610200	245524	10125	sf	633	cf
Infiltration BMP	Existing	9611 GARNISH	6/7/2007	6529217.309540	6529217.309540	1803965.758960	245125	10125	sf	633	cf
Infiltration BMP	Existing	7118 PELLET	12/3/2008	6515184.074160	6515184.074160	1804905.113850	246104	10125	sf	633	cf
Infiltration BMP	Existing	9325 RIVES AM	2/14/2014	6522517.375370	6522517.375370	1808878.723180	246111	10125	sf	633	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9371 SUVA	3/13/2007	6529247.009310	6529247.009310	1803484.685240	245125	10125	sf	633	cf
Infiltration BMP	Existing	8556 FLORENCE	1/1/2006	6525137.675720	6525137.675720	1803770.147850	245125	8859	sf	554	cf
Infiltration BMP	Existing	9755 IMPERIAL	3/29/2006	6525700.000000	6525700.000000	1792200.000000	245114	8859	sf	554	cf
Infiltration BMP	Existing	10000 IMPERIAL	3/29/2006	6527246.839530	6527246.839530	1791706.604350	245118	8859	sf	554	cf
Infiltration BMP	Existing	10030 LESTERFORD	6/21/2010	6530953.991420	6530953.991420	1801165.004470	245125	8859	sf	554	cf
Infiltration BMP	Existing	7235 LUXOR	12/12/2005	6514593.326010	6514593.326010	1801941.887350	246079	8859	sf	554	cf
Infiltration BMP	Existing	8115 STEWART & GRAY	3/25/2009	6518648.406750	6518648.406750	1798495.150040	246077	11760	sf	735	cf
Infiltration BMP	Existing	9804 BROOKSHIRE	5/2/2007	6525737.765210	6525737.765210	1805415.750650	246103	7594	sf	475	cf
Infiltration BMP	Existing	7830 DANVERS	12/18/2008	6523967.248740	6523967.248740	1810379.348050	246106	7594	sf	475	cf
Infiltration BMP	Existing	8357 FLORENCE	11/29/2005	6524137.162990	6524137.162990	1804589.285090	246103	7594	sf	475	cf
Infiltration BMP	Existing	8562 FLORENCE	1/1/2006	6525210.620820	6525210.620820	1803736.004200	245125	7594	sf	475	cf
Infiltration BMP	Existing	10735 LAKEWOOD	1/19/2007	6524698.379320	6524698.379320	1800460.893140	245119	8640	sf	540	cf
Infiltration BMP	Existing	9732 ORIZABA	6/5/2008	6523842.356050	6523842.356050	1806158.297200	246103	7594	sf	475	cf
Infiltration BMP	Existing	12066 SAMOLINE	6/18/2010	6517119.562750	6517119.562750	1797806.070750	246079	7594	sf	475	cf
Infiltration BMP	Existing	7711 SECOND	6/21/2010	6518493.103400	6518493.103400	1802942.740750	246102	7594	sf	475	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9517 STOAKES	6/21/2010	6525287.319840	6525287.319840	1806612.266920	246103	7594	sf	475	cf
Infiltration BMP	Existing	12133 ANDERBERG	6/26/2009	6518010.879310	6518010.879310	1796818.463370	245115	6328	sf	396	cf
Infiltration BMP	Existing	9115 BROCK	6/21/2010	6524898.717190	6524898.717190	1808433.166330	246106	6328	sf	396	cf
Infiltration BMP	Existing	9541 CECILIA	6/23/2010	6528302.087900	6528302.087900	1798262.111790	245126	6328	sf	396	cf
Infiltration BMP	Existing	10243 CORD	11/4/2008	6528334.164460	6528334.164460	1801344.678940	245126	6328	sf	396	cf
Infiltration BMP	Existing	13108 CORNUTA	6/21/2010	6525701.475550	6525701.475550	1790449.882450	245113	6328	sf	396	cf
Infiltration BMP	Existing	8129 DACOSTA	8/5/2008	6523736.839560	6523736.839560	1805716.362640	246103	6328	sf	396	cf
Infiltration BMP	Existing	7247 DINWIDDIE	6/22/2010	6515896.418780	6515896.418780	1804170.223670	246104	6328	sf	396	cf
Infiltration BMP	Existing	12002A DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	6328	sf	396	cf
Infiltration BMP	Existing	12002C DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	6328	sf	396	cf
Infiltration BMP	Existing	8529 EUCALYPTUS	6/18/2010	6519136.171020	6519136.171020	1794210.333930	245115	6328	sf	396	cf
Infiltration BMP	Existing	9204 LA REINA	6/22/2010	6525799.255250	6525799.255250	1808110.827020	246103	6328	sf	396	cf
Infiltration BMP	Existing	9241 LUBEC	6/21/2010	6528410.398740	6528410.398740	1803633.947240	245125	6328	sf	396	cf
Infiltration BMP	Existing	10051 MATTOCK	9/25/2008	6530040.953970	6530040.953970	1801237.222590	245125	6328	sf	396	cf
Infiltration BMP	Existing	12273 PLANETT	6/21/2010	6518942.439290	6518942.439290	1795136.426680	245115	6328	sf	396	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9075 RAVILLER	4/9/2007	6527819.498980	6527819.498980	1805031.907810	245125	6328	sf	396	cf
Infiltration BMP	Existing	7149 ADWEN	5/31/2006	6514275.907390	6514275.907390	1803122.312290	246079	5062	sf	316	cf
Infiltration BMP	Existing	8703 ALAMEDA	9/14/2005	6520830.700880	6520830.700880	1795016.469260	245115	4594	sf	287	cf
Infiltration BMP	Existing	9242 APPLEBY	11/21/2008	6528866.478730	6528866.478730	1804798.824690	245125	5062	sf	316	cf
Infiltration BMP	Existing	9926 BELLDER	3/19/2007	6525715.329050	6525715.329050	1804487.716960	245125	5062	sf	316	cf
Infiltration BMP	Existing	11715 BELLFLOWER	6/15/2009	6523530.688010	6523530.688010	1796655.823230	245114	5062	sf	316	cf
Infiltration BMP	Existing	8019 BERGMAN	10/22/2008	6517711.829130	6517711.829130	1797726.503570	246077	5062	sf	316	cf
Infiltration BMP	Existing	8417 BIGBY	7/23/2007	6523908.146010	6523908.146010	1803525.055670	245119	5062	sf	316	cf
Infiltration BMP	Existing	10004 BIRCHDALE	1/23/2006	6525798.638290	6525798.638290	1803985.957400	245125	5062	sf	316	cf
Infiltration BMP	Existing	9951 BROOKSHIRE	6/18/2010	6525004.036100	6525004.036100	1804835.952720	246103	5062	sf	316	cf
Infiltration BMP	Existing	10927 BROOKSHIRE AV	2/14/2014	6522640.981090	6522640.981090	1800949.695110	245114	5062	sf	316	cf
Infiltration BMP	Existing	10304 CLANCEY	9/19/2008	6526762.243870	6526762.243870	1802017.295250	245119	5062	sf	316	cf
Infiltration BMP	Existing	7213 DINWIDDIE	6/21/2010	6515644.523280	6515644.523280	1804333.457340	246104	5062	sf	316	cf
Infiltration BMP	Existing	9245 DOWNEY	9/19/2007	6525582.317560	6525582.317560	1807792.114420	246103	5062	sf	316	cf
Infiltration BMP	Existing	12002B DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12002D DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	5062	sf	316	cf
Infiltration BMP	Existing	10250 EGLISE AV	2/14/2014	6528202.138900	6528202.138900	1801366.096440	245126	5062	sf	316	cf
Infiltration BMP	Existing	8719 ELMONT	6/18/2010	6526144.563940	6526144.563940	1809393.110180	246106	5062	sf	316	cf
Infiltration BMP	Existing	9355 FLORENCE	7/30/2007	6528769.559400	6528769.559400	1801814.385750	245125	5062	sf	316	cf
Infiltration BMP	Existing	9252 GALLATIN	3/29/2006	6528859.757520	6528859.757520	1804394.594600	245125	5062	sf	316	cf
Infiltration BMP	Existing	9553 GALLATIN	7/28/2004	6530910.776140	6530910.776140	1803037.898220	245125	5062	sf	316	cf
Infiltration BMP	Existing	9724 GARNISH	1/14/2008	6529062.109120	6529062.109120	1803453.035240	245125	5062	sf	316	cf
Infiltration BMP	Existing	8610 GUATEMALA	10/24/2006	6524386.905480	6524386.905480	1811339.167280	246106	5062	sf	316	cf
Infiltration BMP	Existing	10214 HORLEY	8/14/2007	6520372.544870	6520372.544870	1806355.591210	246102	5062	sf	316	cf
Infiltration BMP	Existing	10513 JULIUS	1/22/2009	6518877.932890	6518877.932890	1805532.376750	246102	5062	sf	316	cf
Infiltration BMP	Existing	9204 LA REINA	4/18/2007	6525799.255250	6525799.255250	1808110.827020	246103	5062	sf	316	cf
Infiltration BMP	Existing	9528 LEMORAN	8/29/2008	6529000.799820	6529000.799820	1804066.473220	245125	5062	sf	316	cf
Infiltration BMP	Existing	7334 LUXOR	4/25/2007	6514999.892740	6514999.892740	1801407.207050	246079	5062	sf	316	cf
Infiltration BMP	Existing	9226 MANZANAR	7/8/2005	6526470.419470	6526470.419470	1806685.422630	246103	5062	sf	316	cf
Infiltration BMP	Existing	10524 MATTOCK	2/5/2009	6528788.349750	6528788.349750	1799096.345380	245126	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12123 ORIZABA	12/28/2005	6517943.193960	6517943.193960	1797041.752750	245115	5062	sf	316	cf
Infiltration BMP	Existing	7130 PELLET	6/4/2008	6515276.387650	6515276.387650	1804845.311440	246104	5062	sf	316	cf
Infiltration BMP	Existing	8322 PURITAN	6/14/2007	6516164.281440	6516164.281440	1791774.558840	245524	5062	sf	316	cf
Infiltration BMP	Existing	7312 RIO FLORA	6/18/2010	6516577.089870	6516577.089870	1804589.040390	246104	5062	sf	316	cf
Infiltration BMP	Existing	9331 SAMOLINE	2/17/2006	6523511.819100	6523511.819100	1808307.819060	246106	5062	sf	316	cf
Infiltration BMP	Existing	8015 SEVENTH	8/16/2005	6521322.893520	6521322.893520	1803640.949260	246103	5062	sf	316	cf
Infiltration BMP	Existing	7821 SIXTH	12/6/2005	6519846.881130	6519846.881130	1804004.436800	246102	5062	sf	316	cf
Infiltration BMP	Existing	8409 SIXTH	12/10/2008	6523050.669740	6523050.669740	1802016.668700	245114	5062	sf	316	cf
Infiltration BMP	Existing	9317 STAMPS	1/30/2007	6525356.702810	6525356.702810	1807182.805460	246103	5062	sf	316	cf
Infiltration BMP	Existing	9322 STAMPS	3/16/2006	6525453.602600	6525453.602600	1807062.934260	246103	5062	sf	316	cf
Infiltration BMP	Existing	10443 STAMPS	5/21/2008	6523061.022110	6523061.022110	1803394.248860	246103	5062	sf	316	cf
Infiltration BMP	Existing	10517 STAMPS	6/18/2010	6522812.240000	6522812.240000	1803043.757460	246103	5062	sf	316	cf
Infiltration BMP	Existing	9444 STOAKES	5/22/2007	6525587.983230	6525587.983230	1806625.551490	246103	5062	sf	316	cf
Infiltration BMP	Existing	8329 VISTA DEL RIO	6/18/2010	6526300.133280	6526300.133280	1808123.116520	246103	5062	sf	316	cf
Infiltration BMP	Existing	8368 VISTA DEL RIO	6/1/2007	6526427.553640	6526427.553640	1807729.596630	246103	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8543 ALBIA	1/1/2006	6520215.566510	6520215.566510	1795689.212970	245115	3797	sf	237	cf
Infiltration BMP	Existing	7162 BENARES	1/1/2008	6514067.610360	6514067.610360	1802493.217160	246079	3797	sf	237	cf
Infiltration BMP	Existing	12812 BLODGETT	6/8/2009	6518629.647540	6518629.647540	1791208.759970	245115	3797	sf	237	cf
Infiltration BMP	Existing	9503 BROCK AV	2/14/2014	6524115.247920	6524115.247920	1807488.010330	246106	3797	sf	237	cf
Infiltration BMP	Existing	9045 BUCKLES	12/11/2008	6523278.581350	6523278.581350	1796905.300470	245114	3797	sf	237	cf
Infiltration BMP	Existing	10045 CHANEY	7/5/2007	6527656.534860	6527656.534860	1802672.871800	245125	3797	sf	237	cf
Infiltration BMP	Existing	8714 CHEROKEE	5/1/2007	6525056.428300	6525056.428300	1801833.489170	245119	3797	sf	237	cf
Infiltration BMP	Existing	10729 CLANCEY	7/5/2007	6525292.127080	6525292.127080	1799996.460370	245119	3797	sf	237	cf
Infiltration BMP	Existing	8215 COMOLETTE	5/18/2006	6516024.585540	6516024.585540	1792904.896040	246077	3563	sf	223	cf
Infiltration BMP	Existing	7809 DACOSTA	10/5/2007	6521756.096640	6521756.096640	1806979.884160	246106	3797	sf	237	cf
Infiltration BMP	Existing	10424 DOLAN AV	2/14/2014	6523609.999510	6523609.999510	1803226.099470	245119	3797	sf	237	cf
Infiltration BMP	Existing	12337 DUNROBIN	6/21/2010	6524854.924990	6524854.924990	1793158.910710	245114	3797	sf	237	cf
Infiltration BMP	Existing	13234 DUNROBIN	9/30/2005	6525046.618370	6525046.618370	1789885.630870	245114	3797	sf	237	cf
Infiltration BMP	Existing	12612 EASTBROOK	5/30/2006	6525374.680490	6525374.680490	1791988.629320	245114	3797	sf	237	cf
Infiltration BMP	Existing	9400 FLORENCE	7/8/2005	6528900.299250	6528900.299250	1801380.002980	245126	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7823 FOURTH PL	9/16/2005	6519381.530610	6519381.530610	1803107.418050	246102	3797	sf	237	cf
Infiltration BMP	Existing	7826 GAINFORD	10/13/2005	6521963.408230	6521963.408230	1806968.662960	246106	3797	sf	237	cf
Infiltration BMP	Existing	7909 GALLATIN	4/27/2006	6523955.572760	6523955.572760	1809190.106160	246106	3797	sf	237	cf
Infiltration BMP	Existing	9118 GARNISH	6/21/2010	6529677.777690	6529677.777690	1805040.238300	245125	3797	sf	237	cf
Infiltration BMP	Existing	12752 GLYNN	6/18/2010	6516929.257070	6516929.257070	1792615.717350	245524	3797	sf	237	cf
Infiltration BMP	Existing	9116 HALEDON	3/2/2006	6528925.738880	6528925.738880	1805732.953010	245125	3797	sf	237	cf
Infiltration BMP	Existing	12819 IBBETSON	11/23/2005	6525827.025010	6525827.025010	1791350.711010	245114	3797	sf	237	cf
Infiltration BMP	Existing	9528 LEMORAN	8/26/2008	6528914.390000	6528914.390000	1804053.870620	245125	3797	sf	237	cf
Infiltration BMP	Existing	10514 LESTERFORD	2/14/2006	6529382.491640	6529382.491640	1798787.162960	245126	3797	sf	237	cf
Infiltration BMP	Existing	9030 LUBEC	2/9/2006	6526996.357320	6526996.357320	1804242.372880	245125	3797	sf	237	cf
Infiltration BMP	Existing	9264 LUBEC	4/19/2006	6528519.099740	6528519.099740	1803331.221940	245125	3797	sf	237	cf
Infiltration BMP	Existing	8545 LUBEC ST	2/14/2014	6525866.355120	6525866.355120	1805123.134500	246103	3797	sf	237	cf
Infiltration BMP	Existing	9247 MANZANAR	10/30/2006	6526227.935330	6526227.935330	1806695.994430	246103	3797	sf	237	cf
Infiltration BMP	Existing	7866 MELVA	6/20/2006	6516126.027390	6516126.027390	1797191.628010	246079	3797	sf	237	cf
Infiltration BMP	Existing	12109 MORNING	5/16/2006	6516408.716280	6516408.716280	1797765.727430	246079	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7332 NADA	6/18/2007	6514319.703850	6514319.703850	1800394.247560	246079	3797	sf	237	cf
Infiltration BMP	Existing	7334 NADA	6/18/2007	6514319.703850	6514319.703850	1800394.247560	246079	3797	sf	237	cf
Infiltration BMP	Existing	9821 NEWVILLE	7/30/2007	6530987.438110	6530987.438110	1802116.080780	245125	3797	sf	237	cf
Infiltration BMP	Existing	10268 NEWVILLE	4/24/2007	6529747.604150	6529747.604150	1800228.046080	245126	3797	sf	237	cf
Infiltration BMP	Existing	12280 ORIZABA	6/18/2010	6517505.248620	6517505.248620	1795784.740290	246077	3797	sf	237	cf
Infiltration BMP	Existing	10404 PANGBORN	6/18/2010	6528952.556500	6528952.556500	1800031.154520	245126	3797	sf	237	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	3797	sf	237	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	3797	sf	237	cf
Infiltration BMP	Existing	11994 POMERING	2/23/2005	6514993.390330	6514993.390330	1799517.781680	246079	3797	sf	237	cf
Infiltration BMP	Existing	9525 QUINN	2/8/2007	6528803.711540	6528803.711540	1799421.544220	245126	3797	sf	237	cf
Infiltration BMP	Existing	8048 QUOIT	1/21/2009	6516443.407630	6516443.407630	1795348.218010	246077	3797	sf	237	cf
Infiltration BMP	Existing	12326 SAMOLINE	8/29/2008	6516269.535370	6516269.535370	1796118.615320	246077	3797	sf	237	cf
Infiltration BMP	Existing	12504 SMALLWOOD	9/30/2008	6515227.996100	6515227.996100	1795705.820110	246079	3797	sf	237	cf
Infiltration BMP	Existing	9520 STEWART & GRAY	4/10/2008	6526628.650930	6526628.650930	1796061.800920	245118	3797	sf	237	cf
Infiltration BMP	Existing	7411 THIRD	6/2/2006	6517216.302090	6517216.302090	1804140.837740	246102	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12706 WHITEWOOD	9/20/2007	6520505.791550	6520505.791550	1791390.733010	245115	3797	sf	237	cf
Infiltration BMP	Existing	9049 HALL ROAD	2/9/2007	6523684.587500	6523684.587500	1797586.831540	245114	2531	sf	158	cf
Infiltration BMP	Existing	7118 ADWEN	1/27/2006	6513895.884030	6513895.884030	1803086.756410	246100	2531	sf	158	cf
Infiltration BMP	Existing	13202 BARLIN	2/14/2007	6517303.317510	6517303.317510	1789688.349400	245524	2531	sf	158	cf
Infiltration BMP	Existing	10216 BELLMAN	1/5/2009	6525703.110200	6525703.110200	1803293.056930	245119	2531	sf	158	cf
Infiltration BMP	Existing	11809 BELLMAN	2/8/2006	6521732.804620	6521732.804620	1797303.369450	245114	2531	sf	158	cf
Infiltration BMP	Existing	7117 BENARES	8/10/2006	6513814.981610	6513814.981610	1802936.506930	246079	2531	sf	158	cf
Infiltration BMP	Existing	9108 BIGBY	11/23/2005	6526215.785230	6526215.785230	1801649.270450	245119	2531	sf	158	cf
Infiltration BMP	Existing	10213 BIRCHDALE	4/19/2006	6525304.414970	6525304.414970	1803562.084330	245119	2531	sf	158	cf
Infiltration BMP	Existing	9004 BIRCHLEAF	3/7/2007	6527047.235450	6527047.235450	1808159.837050	246103	2531	sf	158	cf
Infiltration BMP	Existing	13126 BLODGETT	8/18/2005	6517829.686700	6517829.686700	1789824.186060	245115	2531	sf	158	cf
Infiltration BMP	Existing	9508 BROCK	2/27/2006	6524228.012180	6524228.012180	1807355.118100	246103	2531	sf	158	cf
Infiltration BMP	Existing	7418 BROOKMILL	7/25/2008	6515791.043440	6515791.043440	1801624.672750	246079	2531	sf	158	cf
Infiltration BMP	Existing	12201 BROOKSHIRE	6/22/2010	6519506.452440	6519506.452440	1795585.950880	245115	2531	sf	158	cf
Infiltration BMP	Existing	7942 BRUNACHE	11/28/2005	6517219.149000	6517219.149000	1798061.073260	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9349 CECILIA	9/25/2008	6527282.306940	6527282.306940	1798988.874460	245126	2531	sf	158	cf
Infiltration BMP	Existing	9365 CECILIA	6/18/2010	6527411.791310	6527411.791310	1798910.665650	245126	2531	sf	158	cf
Infiltration BMP	Existing	9608 CECILIA	1/1/2007	6528406.351870	6528406.351870	1798010.127160	245126	2531	sf	158	cf
Infiltration BMP	Existing	9624 CEDARTREE	8/8/2005	6531911.946630	6531911.946630	1804673.812930	245127	2531	sf	158	cf
Infiltration BMP	Existing	8519 CLETA	9/10/2007	6521470.081710	6521470.081710	1798172.541560	245114	2531	sf	158	cf
Infiltration BMP	Existing	7803 CONKLIN	9/2/2005	6513317.560580	6513317.560580	1793980.901190	246077	2297	sf	144	cf
Infiltration BMP	Existing	12816 CORNUTA	10/9/2006	6525701.592160	6525701.592160	1791350.505200	245114	2531	sf	158	cf
Infiltration BMP	Existing	8018 DANVERS	1/26/2009	6524882.345060	6524882.345060	1809453.159850	246106	2531	sf	158	cf
Infiltration BMP	Existing	8517 DEVENIR	10/11/2005	6517399.640210	6517399.640210	1791811.493450	245115	2531	sf	158	cf
Infiltration BMP	Existing	8049 DINSDALE	6/15/2006	6522974.989820	6522974.989820	1805624.556380	246103	2531	sf	158	cf
Infiltration BMP	Existing	9317 DINSDALE	11/5/2008	6528560.545810	6528560.545810	1802232.852640	245125	2531	sf	158	cf
Infiltration BMP	Existing	8510 DONOVAN	7/5/2005	6519046.837890	6519046.837890	1794446.597550	245115	2531	sf	158	cf
Infiltration BMP	Existing	8415 DONOVAN ST	2/14/2014	6518508.946270	6518508.946270	1795018.898890	245115	2531	sf	158	cf
Infiltration BMP	Existing	9635 DOWNEY	7/15/2004	6524420.085960	6524420.085960	1806308.452290	246103	2531	sf	158	cf
Infiltration BMP	Existing	9830 DOWNEY	1/1/2006	6524176.121770	6524176.121770	1805651.929490	246103	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12718 DOWNEY	8/30/2007	6516814.229160	6516814.229160	1793075.140590	245524	2531	sf	158	cf
Infiltration BMP	Existing	12650 DUNROBIN	7/27/2007	6525045.587920	6525045.587920	1791614.482510	245114	2531	sf	158	cf
Infiltration BMP	Existing	9067 EGLISE	9/30/2005	6530265.716940	6530265.716940	1805184.414240	245127	2531	sf	158	cf
Infiltration BMP	Existing	9131 EGLISE	1/16/2009	6529904.336320	6529904.336320	1804464.041860	245125	2531	sf	158	cf
Infiltration BMP	Existing	8573 ELEVENTH	4/24/2006	6525253.900610	6525253.900610	1803595.328980	245119	2531	sf	158	cf
Infiltration BMP	Existing	9061 FARM ST	2/14/2014	6526099.027600	6526099.027600	1801582.141470	245119	2531	sf	158	cf
Infiltration BMP	Existing	7936 FOURTH	1/26/2006	6520005.666040	6520005.666040	1802880.634680	246103	2531	sf	158	cf
Infiltration BMP	Existing	7829 FOURTH PL	2/14/2014	6519381.530610	6519381.530610	1803107.418050	246102	2531	sf	158	cf
Infiltration BMP	Existing	7528 GAINFORD	6/18/2010	6520331.076350	6520331.076350	1807734.704270	246106	1266	sf	79	cf
Infiltration BMP	Existing	8150 GALLATIN	1/14/2008	6524851.065410	6524851.065410	1807922.731550	246103	2531	sf	158	cf
Infiltration BMP	Existing	9068 GALLATIN	7/18/2005	6527754.167230	6527754.167230	1805244.499940	245125	2531	sf	158	cf
Infiltration BMP	Existing	12703 GLENSHIRE	8/18/2006	6520090.968440	6520090.968440	1791341.816710	245115	2531	sf	158	cf
Infiltration BMP	Existing	8703 GUATEMALA	6/18/2010	6523747.929510	6523747.929510	1811239.685330	246111	2531	sf	158	cf
Infiltration BMP	Existing	9903 GUATEMALA	6/21/2010	6519189.043810	6519189.043810	1808530.913060	246111	2531	sf	158	cf
Infiltration BMP	Existing	9208 HALEDON	3/29/2007	6528788.981770	6528788.981770	1805412.621690	245125	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9083 HALL	12/8/2005	6524025.781090	6524025.781090	1797583.104370	245114	2531	sf	158	cf
Infiltration BMP	Existing	10348 HASTY	9/14/2006	6528480.545700	6528480.545700	1800482.839460	245126	2531	sf	158	cf
Infiltration BMP	Existing	7844 HONDO	7/8/2005	6515417.898670	6515417.898670	1796530.778030	246079	2531	sf	158	cf
Infiltration BMP	Existing	9244 HORLEY	6/22/2006	6522498.248530	6522498.248530	1809199.750130	246111	2531	sf	158	cf
Infiltration BMP	Existing	12612 IBBETSON	2/9/2007	6526008.655610	6526008.655610	1792000.536540	245114	2531	sf	158	cf
Infiltration BMP	Existing	7214 IRWINGROVE	8/17/2007	6517736.835580	6517736.835580	1807424.228480	246104	2531	sf	158	cf
Infiltration BMP	Existing	10209 JULIUS	6/21/2010	6519702.452650	6519702.452650	1806880.883230	246102	2531	sf	158	cf
Infiltration BMP	Existing	10341 JULIUS	6/4/2008	6519700.000000	6519700.000000	1806100.000000	246102	2531	sf	158	cf
Infiltration BMP	Existing	12313 JULIUS	6/21/2010	6514155.209020	6514155.209020	1797936.932020	246079	2531	sf	158	cf
Infiltration BMP	Existing	7944 KINGBEE	5/31/2007	6516311.045420	6516311.045420	1796702.710410	246079	2531	sf	158	cf
Infiltration BMP	Existing	9605 LA REINA	6/18/2010	6524325.141120	6524325.141120	1806744.664340	246103	2531	sf	158	cf
Infiltration BMP	Existing	10074 LESTERFORD	4/12/2006	6530716.286370	6530716.286370	1800772.683680	245125	2531	sf	158	cf
Infiltration BMP	Existing	9626 LUBEC	6/21/2005	6530889.535260	6530889.535260	1801910.718740	245125	2531	sf	158	cf
Infiltration BMP	Existing	7156 LUXOR	10/28/2005	6513800.826420	6513800.826420	1802169.595300	246100	2531	sf	158	cf
Infiltration BMP	Existing	9202 MANZANAR	4/13/2004	6526663.177850	6526663.177850	1806830.315690	246103	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9020 MARGARET	10/2/2006	6523822.925930	6523822.925930	1798066.530690	245114	2531	sf	158	cf
Infiltration BMP	Existing	9127 MELDAR	4/29/2004	6526710.714590	6526710.714590	1807437.827920	246103	2531	sf	158	cf
Infiltration BMP	Existing	11814 MORNING	9/2/2005	6517648.916460	6517648.916460	1799680.107480	246077	2531	sf	158	cf
Infiltration BMP	Existing	7440 MULLER	11/7/2006	6518162.654940	6518162.654940	1805120.460880	246102	2531	sf	158	cf
Infiltration BMP	Existing	12334 ORIZABA	5/5/2005	6517231.678930	6517231.678930	1795384.927500	246077	2531	sf	158	cf
Infiltration BMP	Existing	9311 OTTO	2/2/2008	6528809.245500	6528809.245500	1802513.951810	245125	2531	sf	158	cf
Infiltration BMP	Existing	10436 PANGBORN	7/6/2006	6528781.443840	6528781.443840	1799746.387720	245126	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	9008 PARROT	6/22/2010	6524997.125330	6524997.125330	1808680.720210	246106	2531	sf	158	cf
Infiltration BMP	Existing	9530 PARROT	10/11/2006	6523866.950960	6523866.950960	1807305.627380	246103	2531	sf	158	cf
Infiltration BMP	Existing	7125 PELLET	11/21/2005	6515366.521160	6515366.521160	1805107.133170	246104	2531	sf	158	cf
Infiltration BMP	Existing	7335 PELLET	2/15/2007	6516661.302200	6516661.302200	1804268.401510	246104	2531	sf	158	cf
Infiltration BMP	Existing	7348 PELLET	6/22/2010	6516619.400060	6516619.400060	1803975.379460	246102	2531	sf	158	cf
Infiltration BMP	Existing	10433 PICO VISTA	6/21/2010	6529704.381130	6529704.381130	1799155.408730	245126	2531	sf	158	cf
Infiltration BMP	Existing	7629 PIVOT	6/4/2008	6517523.064870	6517523.064870	1802428.507060	246079	2531	sf	158	cf
Infiltration BMP	Existing	11962 POMERING	2/24/2006	6515175.131420	6515175.131420	1799743.806870	246079	2531	sf	158	cf
Infiltration BMP	Existing	8133 PRISCILLA	6/22/2010	6515078.400000	6515078.400000	1792153.440000	246077	2531	sf	158	cf
Infiltration BMP	Existing	7603 QUILL	2/28/2007	6514155.935840	6514155.935840	1797151.984960	246079	2531	sf	158	cf
Infiltration BMP	Existing	11539 RICHEON	7/8/2005	6517174.382020	6517174.382020	1801464.078770	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	6545 RIVERGROVE	10/11/2005	6520696.757140	6520696.757140	1811248.378990	246111	2531	sf	158	cf
Infiltration BMP	Existing	9320 SAMOLINE	11/3/2006	6523716.410960	6523716.410960	1808296.703240	246106	2531	sf	158	cf
Infiltration BMP	Existing	9602 SAMOLINE	11/23/2005	6523146.135200	6523146.135200	1807399.732010	246103	2531	sf	158	cf
Infiltration BMP	Existing	12015 SAMOLINE	9/29/2008	6517129.601540	6517129.601540	1798409.043860	246079	2531	sf	158	cf
Infiltration BMP	Existing	12048 SAMOLINE	6/22/2010	6517021.712450	6517021.712450	1798014.455830	246079	2531	sf	158	cf
Infiltration BMP	Existing	7962 SECOND	10/3/2007	6519694.108620	6519694.108620	1801968.426700	246102	2531	sf	158	cf
Infiltration BMP	Existing	7712 SEVERY ST	1/1/2008	6524575.222650	6524575.222650	1807124.160130	246103	2531	sf	158	cf
Infiltration BMP	Existing	7331 SHADYOAK	1/16/2009	6521597.847660	6521597.847660	1810725.646550	246111	2531	sf	158	cf
Infiltration BMP	Existing	9103 SHERIDELL	10/29/2007	6528594.889520	6528594.889520	1806159.584670	245125	2531	sf	158	cf
Infiltration BMP	Existing	8345 SIXTH	4/23/2008	6522663.428460	6522663.428460	1802257.170290	245114	2531	sf	158	cf
Infiltration BMP	Existing	9124 STOAKES	4/29/2004	6526659.033140	6526659.033140	1807538.875170	246103	2531	sf	158	cf
Infiltration BMP	Existing	9906 TECUM	8/26/2008	6519710.324270	6519710.324270	1808196.223590	246111	2531	sf	158	cf
Infiltration BMP	Existing	9520 TELEGRAPH	12/4/2008	6531301.476840	6531301.476840	1805512.099740	245127	2531	sf	158	cf
Infiltration BMP	Existing	8302 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1840	sf	115	cf
Infiltration BMP	Existing	8304 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8306 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8308 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8310 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8312 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8314 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8316 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8318 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8320 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8322 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8324 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8326 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8328 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8330 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8332 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8334 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8336 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8338 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8340 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8342 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8344 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8346 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8348 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8350 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8352 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	7438 THIRD	11/10/2005	6517353.808450	6517353.808450	1803828.489190	246102	2531	sf	158	cf
Infiltration BMP	Existing	7955 THIRD	1/30/2006	6519871.299810	6519871.299810	1802440.525110	246103	2531	sf	158	cf
Infiltration BMP	Existing	9819 TRISTAN	11/19/2007	6526302.584780	6526302.584780	1804524.383680	245125	2531	sf	158	cf
Infiltration BMP	Existing	8555 VIA AMORITA	10/27/2008	6524751.467620	6524751.467620	1803150.610950	245119	2531	sf	158	cf
Infiltration BMP	Existing	9631 WILEY BURKE	3/27/2006	6521095.475640	6521095.475640	1808618.175130	246106	2531	sf	158	cf
Infiltration BMP	Existing	10419 WILEY BURKE	3/7/2008	6519382.492080	6519382.492080	1805731.311650	246102	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7319 ADWEN	2/22/2006	6515346.754980	6515346.754980	1802425.342900	246079	1266	sf	79	cf
Infiltration BMP	Existing	13033 AIRPOINT	6/14/2010	6517837.198260	6517837.198260	1790420.981040	245115	1266	sf	79	cf
Infiltration BMP	Existing	8446 ALAMEDA	6/24/2005	6519341.878190	6519341.878190	1795502.737620	245115	1266	sf	79	cf
Infiltration BMP	Existing	9336 APPLEBY	3/9/2006	6529377.514420	6529377.514420	1804389.744220	245125	1266	sf	79	cf
Infiltration BMP	Existing	9540 ARDINE	1/1/2006	6527800.346060	6527800.346060	1797420.079620	245119	1266	sf	79	cf
Infiltration BMP	Existing	7849 ARNETT	7/8/2005	6518395.700160	6518395.700160	1801138.921810	246079	1266	sf	79	cf
Infiltration BMP	Existing	8645 BAYSINGER	11/10/2005	6525612.031290	6525612.031290	1803108.706240	245119	1266	sf	79	cf
Infiltration BMP	Existing	9210 BELCHER	10/12/2006	6519891.840050	6519891.840050	1789806.904790	245115	1266	sf	79	cf
Infiltration BMP	Existing	9245 BELCHER	9/4/2007	6520247.532430	6520247.532430	1789967.036150	245115	1266	sf	79	cf
Infiltration BMP	Existing	10234 BELCHER	6/18/2010	6527119.239350	6527119.239350	1789810.183210	245113	1266	sf	79	cf
Infiltration BMP	Existing	10285 BELCHER	6/21/2010	6527612.081010	6527612.081010	1789959.646450	245118	1266	sf	79	cf
Infiltration BMP	Existing	10028 BELLDER	1/1/2006	6525360.965940	6525360.965940	1803913.208580	245125	1266	sf	79	cf
Infiltration BMP	Existing	10304 BELLMAN	6/1/2005	6525418.498520	6525418.498520	1803041.069680	245119	1266	sf	79	cf
Infiltration BMP	Existing	11014 BENFIELD	6/24/2008	6531918.630750	6531918.630750	1797937.959120	245122	1266	sf	79	cf
Infiltration BMP	Existing	9324 BIRCHBARK	10/7/2005	6524879.129350	6524879.129350	1807661.831210	246103	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7847 BLANDWOOD	6/29/2006	6525016.522210	6525016.522210	1811074.341940	246106	1266	sf	79	cf
Infiltration BMP	Existing	8415 BORSON	10/9/2006	6517421.536650	6517421.536650	1792735.849280	245115	1266	sf	79	cf
Infiltration BMP	Existing	8710 BOYNE	6/29/2006	6521119.595500	6521119.595500	1795272.757840	245115	1266	sf	79	cf
Infiltration BMP	Existing	8910 BROCK	2/3/2009	6525582.226600	6525582.226600	1808734.892600	246106	1266	sf	79	cf
Infiltration BMP	Existing	9702 BROCK	9/25/2006	6523765.203820	6523765.203820	1806580.253440	246103	1266	sf	79	cf
Infiltration BMP	Existing	9730 BROCK	10/16/2009	6523625.354460	6523625.354460	1806340.478590	246103	1266	sf	79	cf
Infiltration BMP	Existing	7550 BROOKMILL	9/25/2006	6516432.435790	6516432.435790	1801137.496710	246079	1266	sf	79	cf
Infiltration BMP	Existing	10360 BROOKSHIRE	8/2/2005	6524254.056510	6524254.056510	1803200.425100	245119	1266	sf	79	cf
Infiltration BMP	Existing	9336 BUELL	5/4/2007	6527241.052050	6527241.052050	1799190.479610	245126	1266	sf	79	cf
Infiltration BMP	Existing	9408 BUELL	1/1/2007	6527563.840160	6527563.840160	1798993.546660	245126	1266	sf	79	cf
Infiltration BMP	Existing	10210 CASANES	7/20/2005	6529273.829610	6529273.829610	1801143.143100	245125	1266	sf	79	cf
Infiltration BMP	Existing	10308 CASANES	6/9/2005	6528827.020030	6528827.020030	1800415.364480	245126	1266	sf	79	cf
Infiltration BMP	Existing	10845 CASANES	12/4/2007	6527288.943480	6527288.943480	1798213.890680	245119	1266	sf	79	cf
Infiltration BMP	Existing	10922 CASANES	8/3/2005	6527279.490710	6527279.490710	1797849.792160	245119	1266	sf	79	cf
Infiltration BMP	Existing	8715 CAVEL	6/22/2010	6521261.550160	6521261.550160	1795688.489420	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9707 CEDARTREE	5/25/2006	6532283.863380	6532283.863380	1804587.051690	245127	1266	sf	79	cf
Infiltration BMP	Existing	10260 CHANEY	6/21/2010	6527337.911630	6527337.911630	1801874.691650	245119	1266	sf	79	cf
Infiltration BMP	Existing	10362 CHANEY	9/4/2007	6526983.558290	6526983.558290	1801306.071650	245119	1266	sf	79	cf
Infiltration BMP	Existing	9246 CLANCEY	5/1/2007	6528479.118010	6528479.118010	1805448.947460	245125	1266	sf	79	cf
Infiltration BMP	Existing	10546 CLANCEY	5/26/2005	6525904.831900	6525904.831900	1800674.595520	245119	1266	sf	79	cf
Infiltration BMP	Existing	12658 COLDBROOK	6/25/2009	6524501.637760	6524501.637760	1791525.543010	245114	1266	sf	79	cf
Infiltration BMP	Existing	8111 COMOLETTE	12/18/2006	6515465.796840	6515465.796840	1793242.397990	246077	1266	sf	79	cf
Infiltration BMP	Existing	8140 COMOLETTE	12/2/2008	6515640.775000	6515640.775000	1792943.865000	246077	1266	sf	79	cf
Infiltration BMP	Existing	8316 COMOLETTE	5/23/2005	6516475.681440	6516475.681440	1792370.081790	245524	1266	sf	79	cf
Infiltration BMP	Existing	9325 CORD	3/21/2008	6529940.912480	6529940.912480	1803762.584020	245125	1266	sf	79	cf
Infiltration BMP	Existing	7732 COREY	1/8/2009	6515481.796500	6515481.796500	1798137.416600	246079	1266	sf	79	cf
Infiltration BMP	Existing	11810 CORRIGAN	3/4/2009	6523411.287590	6523411.287590	1796210.739300	245114	1266	sf	79	cf
Infiltration BMP	Existing	10925 CROSSDALE	6/9/2005	6532012.125130	6532012.125130	1798163.740010	245122	1266	sf	79	cf
Infiltration BMP	Existing	7757 DACOSTA	6/7/2005	6521506.383470	6521506.383470	1807138.583520	246106	1266	sf	79	cf
Infiltration BMP	Existing	8324 DAVIS	6/15/2005	6520852.481770	6520852.481770	1799213.987880	245114	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8517 DEVENIR	2/19/2008	6517399.640210	6517399.640210	1791811.493450	245115	1266	sf	79	cf
Infiltration BMP	Existing	7345 DINSDALE	9/29/2005	6519203.299320	6519203.299320	1808002.090250	246111	1266	sf	79	cf
Infiltration BMP	Existing	8330 DINSDALE	6/21/2010	6524002.238290	6524002.238290	1804838.107610	246103	1266	sf	79	cf
Infiltration BMP	Existing	10340 DOLAN	8/15/2007	6523856.967630	6523856.967630	1803630.622810	245119	1266	sf	79	cf
Infiltration BMP	Existing	12260 DOLAN	4/5/2006	6518910.565000	6518910.565000	1795264.305000	245115	1266	sf	79	cf
Infiltration BMP	Existing	12521 DOLAN	7/19/2007	6517914.404040	6517914.404040	1794175.419610	245115	1266	sf	79	cf
Infiltration BMP	Existing	12621 DOLAN	8/17/2007	6517501.190610	6517501.190610	1793293.644730	245115	1266	sf	79	cf
Infiltration BMP	Existing	12308 DOWNEY	4/19/2007	6518251.608680	6518251.608680	1795363.261670	245115	1266	sf	79	cf
Infiltration BMP	Existing	12532 DOWNEY	10/11/2005	6517442.718730	6517442.718730	1794104.887260	245115	1266	sf	79	cf
Infiltration BMP	Existing	12820 DOWNEY	5/17/2007	6516486.923440	6516486.923440	1792584.707230	245524	1266	sf	79	cf
Infiltration BMP	Existing	12603 DUNROBIN	6/22/2010	6524864.880980	6524864.880980	1792095.613000	245114	1266	sf	79	cf
Infiltration BMP	Existing	12643 DUNROBIN	11/21/2006	6524865.889210	6524865.889210	1791696.268120	245114	1266	sf	79	cf
Infiltration BMP	Existing	12818 DUNROBIN	12/15/2006	6525044.191110	6525044.191110	1791331.787300	245114	1266	sf	79	cf
Infiltration BMP	Existing	12823 DUNROBIN	2/12/2008	6524866.593650	6524866.593650	1791299.463030	245114	1266	sf	79	cf
Infiltration BMP	Existing	13024 DUNROBIN	5/24/2005	6525048.058670	6525048.058670	1790633.750860	245114	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13240 DUNROBIN	10/1/2008	6525046.731200	6525046.731200	1789833.348360	245114	1266	sf	79	cf
Infiltration BMP	Existing	13638 EARNSHAW	9/16/2005	6516330.576340	6516330.576340	1788317.037630	245524	1266	sf	79	cf
Infiltration BMP	Existing	12155 EASTBROOK	9/16/2005	6525128.882510	6525128.882510	1794289.182720	245114	2297	sf	144	cf
Infiltration BMP	Existing	9125 EGLISE	1/24/2007	6529928.564580	6529928.564580	1804520.963270	245125	1266	sf	79	cf
Infiltration BMP	Existing	10213 EGLISE	10/14/2008	6528271.447820	6528271.447820	1801803.093100	245126	1266	sf	79	cf
Infiltration BMP	Existing	8331 EVEREST	2/21/2007	6517984.856770	6517984.856770	1794526.994330	245115	1266	sf	79	cf
Infiltration BMP	Existing	9037 FARM	6/18/2010	6525882.141210	6525882.141210	1801714.480720	245119	1266	sf	79	cf
Infiltration BMP	Existing	9542 FARM	11/15/2005	6529019.221950	6529019.221950	1799423.700160	245126	1266	sf	79	cf
Infiltration BMP	Existing	8445 FIFTH	6/24/2005	6523180.907390	6523180.907390	1801530.163340	245114	1266	sf	79	cf
Infiltration BMP	Existing	8529 FIFTH	9/23/2005	6523578.003250	6523578.003250	1801288.543780	245114	1266	sf	79	cf
Infiltration BMP	Existing	9221 FOSTER	2/16/2008	6519835.324440	6519835.324440	1789377.664880	245115	1266	sf	79	cf
Infiltration BMP	Existing	9303 FOSTER	8/9/2006	6520280.515660	6520280.515660	1789513.941670	245115	1266	sf	79	cf
Infiltration BMP	Existing	9536 FOSTORIA	10/13/2005	6527900.524680	6527900.524680	1797686.001250	245119	1266	sf	79	cf
Infiltration BMP	Existing	7339 GAINFORD	11/5/2007	6519739.997490	6519739.997490	1808338.936030	246111	1266	sf	79	cf
Infiltration BMP	Existing	8426 GAINFORD	1/7/2008	6524961.213810	6524961.213810	1805124.602410	246103	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9315 GAINFORD	7/5/2005	6528715.710300	6528715.710300	1803034.881460	245125	1266	sf	79	cf
Infiltration BMP	Existing	9641 GAINFORD	10/16/2006	6530976.949360	6530976.949360	1801752.372100	245125	1266	sf	79	cf
Infiltration BMP	Existing	9357 GALLATIN	4/17/2006	6529509.957360	6529509.957360	1804133.004270	245125	1266	sf	79	cf
Infiltration BMP	Existing	8411 GALT	7/18/2007	6520931.662600	6520931.662600	1798681.676310	245114	1266	sf	79	cf
Infiltration BMP	Existing	8125 GARDENDALE	10/3/2007	6514840.842010	6514840.842010	1791988.219650	246077	1266	sf	79	cf
Infiltration BMP	Existing	7553 GLENCLIFF	11/5/2008	6521939.189570	6521939.189570	1809565.009220	246111	1266	sf	79	cf
Infiltration BMP	Existing	12615 GURLEY	9/8/2008	6516705.632650	6516705.632650	1793818.816440	246077	1266	sf	79	cf
Infiltration BMP	Existing	10557 HALEDON	3/22/2006	6525946.687500	6525946.687500	1800529.637640	245119	1266	sf	79	cf
Infiltration BMP	Existing	10714 HALEDON	7/11/2008	6525734.412480	6525734.412480	1799854.605530	245119	1266	sf	79	cf
Infiltration BMP	Existing	9101 HALL	7/19/2007	6524088.768660	6524088.768660	1797585.986810	245114	1266	sf	79	cf
Infiltration BMP	Existing	7416 HONDO	11/21/2007	6513414.170490	6513414.170490	1797767.919490	246079	1266	sf	79	cf
Infiltration BMP	Existing	7927 HONDO	1/8/2007	6515926.722240	6515926.722240	1796435.751150	246079	1266	sf	79	cf
Infiltration BMP	Existing	9228 HORLEY	7/20/2005	6522584.029360	6522584.029360	1809343.702000	246111	1266	sf	79	cf
Infiltration BMP	Existing	9929 HORLEY	6/23/2005	6520827.895940	6520827.895940	1807104.698370	246106	1266	sf	79	cf
Infiltration BMP	Existing	12316 HORLEY	1/1/2007	6515085.680000	6515085.680000	1797312.060000	246079	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11544 HORTON	5/1/2006	6517050.314050	6517050.314050	1801482.158860	246079	1266	sf	79	cf
Infiltration BMP	Existing	12619 IBBETSON	12/26/2007	6525826.717640	6525826.717640	1791950.694670	245114	1266	sf	79	cf
Infiltration BMP	Existing	12816 IBBETSON	11/23/2005	6526008.922590	6526008.922590	1791350.504040	245114	1266	sf	79	cf
Infiltration BMP	Existing	9030 IOWA	8/29/2007	6523719.000250	6523719.000250	1797706.215730	245114	1266	sf	79	cf
Infiltration BMP	Existing	9036 IOWA	1/23/2006	6523761.535660	6523761.535660	1797679.990250	245114	1266	sf	79	cf
Infiltration BMP	Existing	7214 IRWINGROVE	2/7/2008	6517736.835580	6517736.835580	1807424.228480	246104	1266	sf	79	cf
Infiltration BMP	Existing	7425 IRWINGROVE	11/22/2005	6519037.305040	6519037.305040	1806826.286520	246102	1266	sf	79	cf
Infiltration BMP	Existing	7431 IVO	5/23/2005	6520452.019960	6520452.019960	1808862.657860	246106	1266	sf	79	cf
Infiltration BMP	Existing	12258 IZETTA	11/19/2008	6524718.529730	6524718.529730	1793607.751080	245114	1266	sf	79	cf
Infiltration BMP	Existing	11427 JULIUS	10/6/2005	6517068.729490	6517068.729490	1802337.821610	246079	1266	sf	79	cf
Infiltration BMP	Existing	7863 KINGBEE	6/2/2005	6515998.395150	6515998.395150	1797104.463380	246079	1266	sf	79	cf
Infiltration BMP	Existing	10633 LA REINA	6/7/2005	6521844.406030	6521844.406030	1802801.159980	246103	1266	sf	79	cf
Infiltration BMP	Existing	10726 LA REINA	9/20/2005	6521763.725850	6521763.725850	1802369.001800	246103	1266	sf	79	cf
Infiltration BMP	Existing	10717 LAKEWOOD	1/1/2005	6524762.764130	6524762.764130	1800632.321080	245119	1266	sf	79	cf
Infiltration BMP	Existing	13229 LAKEWOOD	8/30/2005	6518145.854860	6518145.854860	1789091.323220	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8248 LANKIN	5/16/2007	6517152.534650	6517152.534650	1794608.293130	246077	1266	sf	79	cf
Infiltration BMP	Existing	13413 LAURELDALE	9/4/2007	6516097.983610	6516097.983610	1789503.029570	245524	1266	sf	79	cf
Infiltration BMP	Existing	9040 LEMORAN	9/16/2005	6529896.207920	6529896.207920	1805874.052840	245125	1266	sf	79	cf
Infiltration BMP	Existing	10225 LESTERFORD	12/22/2005	6530244.844140	6530244.844140	1800567.187010	245126	1266	sf	79	cf
Infiltration BMP	Existing	10415 LESTERFORD	6/22/2010	6529502.521580	6529502.521580	1799500.525910	245126	1266	sf	79	cf
Infiltration BMP	Existing	10730 LESTERFORD	6/8/2005	6528927.837490	6528927.837490	1798058.051080	245126	1266	sf	79	cf
Infiltration BMP	Existing	8020 LUBEC	3/8/2007	6523117.786070	6523117.786070	1806398.918760	246103	1266	sf	79	cf
Infiltration BMP	Existing	9230 LUBEC	9/30/2005	6528205.943320	6528205.943320	1803519.420650	245125	1266	sf	79	cf
Infiltration BMP	Existing	7259 LUXOR	1/1/2007	6514801.884280	6514801.884280	1801808.218080	246079	1266	sf	79	cf
Infiltration BMP	Existing	7315 LUXOR	3/16/2006	6514953.117040	6514953.117040	1801695.155730	246079	1266	sf	79	cf
Infiltration BMP	Existing	8444 LUXOR	11/10/2005	6520775.356850	6520775.356850	1797851.842110	245114	1266	sf	79	cf
Infiltration BMP	Existing	9102 MANZANAR	7/20/2005	6527192.246670	6527192.246670	1807219.965690	246103	1266	sf	79	cf
Infiltration BMP	Existing	10434 MANZANAR	6/7/2005	6523771.930100	6523771.930100	1803007.033470	245119	1266	sf	79	cf
Infiltration BMP	Existing	11109 MARBEL	7/20/2006	6523692.717760	6523692.717760	1799490.635090	245119	1266	sf	79	cf
Infiltration BMP	Existing	12108 MARBEL	1/31/2006	6521445.538760	6521445.538760	1795214.942010	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7830 MELVA	1/1/2006	6515802.415360	6515802.415360	1797387.108860	246079	1266	sf	79	cf
Infiltration BMP	Existing	7844 MELVA	1/5/2006	6515910.196660	6515910.196660	1797321.983490	246079	1266	sf	79	cf
Infiltration BMP	Existing	12120 MORNING	8/14/2008	6516533.621320	6516533.621320	1797558.681060	246079	1266	sf	79	cf
Infiltration BMP	Existing	7339 NADA	7/8/2005	6514489.286480	6514489.286480	1800567.411080	246079	1266	sf	79	cf
Infiltration BMP	Existing	7351 NADA	6/23/2008	6514590.536380	6514590.536380	1800503.774190	246079	1266	sf	79	cf
Infiltration BMP	Existing	8202 NADA	1/9/2006	6518631.371590	6518631.371590	1797835.542430	245115	1266	sf	79	cf
Infiltration BMP	Existing	7415 NOREN	7/26/2005	6520794.671000	6520794.671000	1809286.272790	246111	1266	sf	79	cf
Infiltration BMP	Existing	9921 NORLAIN	11/3/2008	6519614.140210	6519614.140210	1807835.435830	246111	1266	sf	79	cf
Infiltration BMP	Existing	8127 ORANGE	6/23/2010	6517401.744430	6517401.744430	1796403.841780	246077	1266	sf	79	cf
Infiltration BMP	Existing	9554 ORIZABA	8/19/2005	6524235.753500	6524235.753500	1806817.618650	246103	1266	sf	79	cf
Infiltration BMP	Existing	12333 ORIZABA	1/23/2006	6517077.475660	6517077.475660	1795538.435260	246077	1266	sf	79	cf
Infiltration BMP	Existing	10834 PANGBORN	9/17/2007	6527760.431910	6527760.431910	1798051.772160	245119	1266	sf	79	cf
Infiltration BMP	Existing	7156 PELLET	6/22/2010	6515507.126970	6515507.126970	1804695.751890	246104	1266	sf	79	cf
Infiltration BMP	Existing	9466 PELLET	5/26/2005	6527082.799410	6527082.799410	1797550.782940	245119	1266	sf	79	cf
Infiltration BMP	Existing	10238 PICO VISTA	7/22/2008	6530559.495000	6530559.495000	1800212.246520	245126	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7706 PIVOT	6/18/2010	6517776.543940	6517776.543940	1802077.153370	246079	1266	sf	79	cf
Infiltration BMP	Existing	11951 POMERING	6/18/2010	6515072.562230	6515072.562230	1799936.867790	246079	1266	sf	79	cf
Infiltration BMP	Existing	12010 POMERING	9/20/2005	6514897.027930	6514897.027930	1799318.472210	246079	1266	sf	79	cf
Infiltration BMP	Existing	7803 PURITAN	6/22/2010	6513186.710850	6513186.710850	1793767.422040	246077	1266	sf	79	cf
Infiltration BMP	Existing	8249 QUOIT	5/17/2007	6517406.484080	6517406.484080	1795006.472870	246077	1266	sf	79	cf
Infiltration BMP	Existing	8506 RAVILLER	6/22/2010	6526200.032280	6526200.032280	1805944.598850	246103	1266	sf	79	cf
Infiltration BMP	Existing	9441 RAVILLER	10/7/2005	6529831.524430	6529831.524430	1803323.207760	245125	1266	sf	79	cf
Infiltration BMP	Existing	7110 RIO FLORA	6/1/2010	6515643.202310	6515643.202310	1805187.382260	246104	1266	sf	79	cf
Infiltration BMP	Existing	7371 RIO HONDO PL	7/11/2005	6517283.740950	6517283.740950	1804924.767440	246104	1266	sf	79	cf
Infiltration BMP	Existing	10802 RIVES	3/23/2007	6519422.470020	6519422.470020	1803623.413330	246102	1266	sf	79	cf
Infiltration BMP	Existing	11916 RIVES	2/6/2007	6516737.168290	6516737.168290	1799258.165990	246079	1266	sf	79	cf
Infiltration BMP	Existing	10912 RYERSON	7/14/2005	6515882.754330	6515882.754330	1804962.955590	246104	1266	sf	79	cf
Infiltration BMP	Existing	9505 SAMOLINE	6/21/2010	6523279.038200	6523279.038200	1807936.970620	246106	1266	sf	79	cf
Infiltration BMP	Existing	9631 SAMOLINE	9/4/2007	6522855.010000	6522855.010000	1807250.890000	246103	1266	sf	79	cf
Infiltration BMP	Existing	12030 SAMOLINE	9/23/2005	6517133.868790	6517133.868790	1798177.361600	246079	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12238 SAMOLINE	9/8/2006	6516738.176240	6516738.176240	1796883.684630	246079	1266	sf	79	cf
Infiltration BMP	Existing	7915 SECOND	3/23/2006	6519374.854020	6519374.854020	1802382.905560	246102	1266	sf	79	cf
Infiltration BMP	Existing	7816 SEVENTH	3/27/2007	6519884.790380	6519884.790380	1804163.292550	246102	1266	sf	79	cf
Infiltration BMP	Existing	8646 SEVENTH	1/3/2006	6524439.566780	6524439.566780	1801605.289810	245119	1266	sf	79	cf
Infiltration BMP	Existing	9225 SIDEVIEW	4/24/2006	6531114.889310	6531114.889310	1804872.365930	245127	1266	sf	79	cf
Infiltration BMP	Existing	8810 SMALLWOOD	6/20/2005	6524153.815510	6524153.815510	1810188.858090	246106	1266	sf	79	cf
Infiltration BMP	Existing	9264 SONGFEST	6/10/2008	6531394.983570	6531394.983570	1804360.661210	245127	1266	sf	79	cf
Infiltration BMP	Existing	7838 SPRINGER	11/21/2006	6515530.871940	6515530.871940	1796818.950680	246079	1266	sf	79	cf
Infiltration BMP	Existing	7844 SPRINGER	3/18/2008	6515582.250000	6515582.250000	1796787.835000	246079	1266	sf	79	cf
Infiltration BMP	Existing	10517 STAMPS	8/18/2005	6522812.240000	6522812.240000	1803043.757460	246103	1266	sf	79	cf
Infiltration BMP	Existing	9520 STEWART & GRAY	2/27/2009	6526628.650930	6526628.650930	1796061.800920	245118	1266	sf	79	cf
Infiltration BMP	Existing	8840 STOAKES	7/15/2005	6527643.045070	6527643.045070	1808263.273840	245125	1266	sf	79	cf
Infiltration BMP	Existing	11831 SUSAN	5/25/2006	6514568.915250	6514568.915250	1801466.560490	246079	1266	sf	79	cf
Infiltration BMP	Existing	8354 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8356 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8358 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8360 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8362 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8364 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8366 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8368 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	7420 THIRD	9/20/2007	6517202.761340	6517202.761340	1803926.714420	246102	1266	sf	79	cf
Infiltration BMP	Existing	7964 THIRD	2/21/2006	6519886.681280	6519886.681280	1802225.378910	246102	1266	sf	79	cf
Infiltration BMP	Existing	9532 TWEEDY	4/20/2007	6523025.939870	6523025.939870	1807743.953100	246106	1266	sf	79	cf
Infiltration BMP	Existing	7347 VIA RIO NIDO	8/1/2007	6518199.953350	6518199.953350	1806523.073370	246104	1266	sf	79	cf
Infiltration BMP	Existing	10419 WILEY BURKE	1/2/2008	6519382.492080	6519382.492080	1805731.311650	246102	1266	sf	79	cf
Infiltration BMP	Existing	10442 WILEY BURKE	1/1/2007	6519428.439440	6519428.439440	1805422.866650	246102	1266	sf	79	cf
Infiltration BMP	Existing	12639 WOODRUFF	12/22/2006	6526127.737740	6526127.737740	1791800.878460	245113	1266	sf	79	cf
Infiltration BMP	Existing	12356 DOWNEY	4/29/2004	6518006.757310	6518006.757310	1794978.083160	245115	5062	sf	316	cf
Infiltration BMP	Existing	10613 NEWVILLE	4/21/2004	6528761.027810	6528761.027810	1798786.621380	245126	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10627 OLD RIVER SCHOOL	7/24/2003	6515233.048270	6515233.048270	1805631.128330	246104	174752	sf	10922	cf
Infiltration BMP	Existing	9215 HALL	12/9/2002	6524758.793890	6524758.793890	1797647.866960	245113	74592	sf	4662	cf
Infiltration BMP	Existing	10933 LAKEWOOD BLVD	10/5/2005	6524600.000000	6524600.000000	1800100.000000	245119	6400	sf	400	cf
Infiltration BMP	Existing	12322 SAMOLINE	7/8/2005	6516301.814120	6516301.814120	1796169.128220	246077	4256	sf	266	cf
Infiltration BMP	Existing	12731 LAKEWOOD	9/17/2003	6519215.285000	6519215.285000	1791371.090000	245115	2128	sf	133	cf
Infiltration BMP	Existing	12739 LAKEWOOD	9/17/2003	6519200.000000	6519200.000000	1791100.000000	245115	2128	sf	133	cf
Infiltration BMP	Existing	8927 BIRCHLEAF	7/11/2006	6527008.160170	6527008.160170	1808327.449830	246103	1056	sf	66	cf
Infiltration BMP	Existing	11929 POMERING	5/1/2006	6515108.241040	6515108.241040	1800149.473170	246079	1056	sf	66	cf
Infiltration BMP	Existing	12240 WOODRUFF	3/19/2010	6526758.991120	6526758.991120	1793878.747920	245118	300224	sf	18764	cf
Infiltration BMP	Existing	12222 WOODRUFF	9/14/2009	6526625.121210	6526625.121210	1794009.479990	245118	70200	sf	4388	cf
Infiltration BMP	Existing	7624 FIRESTONE	1/1/2008	6517500.000000	6517500.000000	1802600.000000	246079	41632	sf	2602	cf
Infiltration BMP	Existing	7714 STEWART & GRAY	4/9/2007	6516397.756580	6516397.756580	1799563.749470	246079	30016	sf	1876	cf
Infiltration BMP	Existing	9637 LAKEWOOD	10/2/2008	6526780.802630	6526780.802630	1805111.536210	245125	15136	sf	946	cf
Infiltration BMP	Existing	12428 BENEDICT	6/14/2007	6525687.022380	6525687.022380	1792528.538110	245114	8080	sf	505	cf
Infiltration BMP	Existing	7774 DINSDALE	2/14/2014	6521332.495780	6521332.495780	1806385.183840	246103	4680	sf	293	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8030 IMPERIAL HWY	2/14/2014	6515729.368090	6515729.368090	1794471.493939	246077	41789	sf	2000	cf
Infiltration BMP	Existing	9623 IMPERIAL HWY	2/14/2014	6524482.209740	6524482.209740	1792569.983950	245114	35408	sf	2213	cf
Infiltration BMP	Existing	10531 LAKEWOOD BL	2/14/2014	6525178.634060	6525178.634060	1801497.338680	245119	5840	sf	365	cf
Infiltration BMP	Existing	8121 FOURTH ST	2/14/2014	6521147.926450	6521147.926450	1802216.858440	246103	4680	sf	293	cf
Infiltration BMP	Existing	8123 FOURTH ST	2/14/2014	6521147.926450	6521147.926450	1802216.858440	246103	4680	sf	293	cf
Infiltration BMP	Existing	8555 TENTH ST	2/14/2014	6524962.328390	6524962.328390	1803501.510410	245119	4680	sf	293	cf
Infiltration BMP	Existing	9356 BUELL ST	2/14/2014	6527425.774610	6527425.774610	1799078.145910	245126	3120	sf	195	cf
Infiltration BMP	Existing	8449 COLE ST	2/14/2014	6520362.597670	6520362.597670	1796910.373080	245115	1560	sf	98	cf

D1.3. City of Lakewood

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Filterra Tree Wells (2)		Paramount & Arbor	33.843398	-118.159673	445521				
Infiltration BMP	Existing	Retention Basin at Cherry Cove Park			33.850296	-118.165478	446014				

D1.4. City of Paramount

Type of BMP	Existing or Planned ?	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioswales	Existing	Landscape Swale	2012	Texaco/Alondra	33.889066	-118.171849	606071	37,500	sf	2109	cf
Bioswales	Existing	Landscape Swale	2012	Orange/Windmill	33.891602	-118.177436	606072	0.6	ac	1470	cf

D1.5. City of Pico Rivera

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Site-Scale Detention Basin	Existing	French drains at Smith Park	2013	6016 Rosemead Blvd				16	ac		
Site-Scale Detention Basin	Existing	French drains at Rio Vista	2013	Coffman Pico Road				7	ac		
Bioswales	Existing	Beverly Boulevard medians	2012	Beverly Blvd				5280	sf		
Permeable Pavement	Existing	Pico Park permeable pavement	2012	9528 Beverly Blvd				12	ac		
Bioswales	Existing	Telegraph Road medians	2013	Telegraph Rd from Rosemead Blvd to Eastside limit				5280	sf		
Bioswales	Planned	Paramount Blvd medians	2016	Paramount Blvd from Whittier Blvd to Mines Ave				5280	sf		
Infiltration BMPs	Planned	Two (2) Filterra Systems	2016	various				1	ac		
Infiltration BMPs	Existing	City of Pico Rivera City Hall	2011	8615 Passons Blvd				2.75	ac		
Infiltration BMPs	Existing	Rivera Park	2012	9530 Shade Lane				16	ac		

D1.6. City of Signal Hill

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration		Palm Drive Business Center	2/19/2008	2445 N Palm Drive	33.801973	-118.157962	775510	1	ac		
Bioretention / Biofiltration		Aragon Townhomes & Duplexes (City View)	3/9/2007	1902 (1890) Oribaza Ave	33.790924	-118.156725	776003	93,780	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2755 California Avenue	33.807881	-118.181769	776011	9,583	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2756 California Avenue	33.807881	-118.181769	776011	17,424	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2757 California Avenue	33.807881	-118.181769	776011	33,106	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2758 California Avenue	33.807881	-118.181769	776011	10,454	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2759 California Avenue	33.807881	-118.181769	776011	78,486	sf		
Bioretention / Biofiltration		2-Story Building and Parking Lot	12/28/2010	2653 Walnut Avenue	33.805754	-118.171978	776012	0.51	ac		
Bioretention / Biofiltration		EDCO Administrative Terminal	8/1/2011	950 27th Street	33.806179	-118.1812	776012	9583	sf	0.06	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/2/2011	951 27th Street	33.806179	-118.1812	776012	17424	sf	0.08	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/3/2011	952 27th Street	33.806179	-118.1812	776012	33106	sf	0.14	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/4/2011	953 27th Street	33.806179	-118.1812	776012	10454	sf	0.08	cfs
Bioretention / Biofiltration		Fantasy Castle	6/30/2009	2801 Walnut Ave	33.808289	118.171777		1,584	sf		
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/16/2010	3300 Atlantic Avenue	33.817504	-118.184643	485510	18,000	sf	931	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/17/2010	3301 Atlantic Avenue	33.817504	-118.184643	485510	120	sf	7	cf
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/18/2010	3302 Atlantic Avenue	33.817504	-118.184643	485510	10,904	sf	542	cf
Bioswales	Existing	Signal Hill Police Station and Emergency Operation	5/26/2011	2745 Walnut Avenue	33.807067	-118.171984	775510	115,870	sf		
Bioswales	Existing	Jack in the Box	10/21/2008	802 Spring Street	33.812049	-118.182595	775510	12,000	sf		
Bioswales		Boiler Tech Warehouse	10/2/2009	2503 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Bioswales		Aragon Townhomes & Duplexes (City View)	3/11/2007	1904 (1890) Oribaza Ave	33.790924	-118.156725	776003	31,100	sf		
Bioswales		Fantasy Castle	6/29/2009	2800 Walnut Ave	33.808289	118.171777		32,883	sf		
Flow-Through Treatment BMP	Existing	Petco, Party City	3/3/2009	3100 Atlantic Ave	33.813946	-118.184789	485510				
Flow-Through Treatment BMP	Existing	Petco, Party City	3/4/2009	3101 Atlantic Ave	33.813946	-118.184789	485510				
Flow-Through Treatment BMP	Existing	The Home Depot		3100 Atlantic Avenue	33.813946	-118.184789	485510	3.65	ac		
Flow-Through Treatment BMP	Existing	The Home Depot		3101 Atlantic Avenue	33.813946	-118.184789	485510	7.99	ac		
Flow-Through Treatment BMP	Existing	The Home Depot		3102 Atlantic Avenue	33.813946	-118.184789	485510	3.28	ac		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	The Home Depot		3103 Atlantic Avenue	33.813946	-118.184789	485510	4.79	ac		
Flow-Through Treatment BMP		Palm Drive Business Center	2/20/2008	2446 N Palm Drive	33.801973	-118.157962	775510	7,000	sf		
Flow-Through Treatment BMP	Existing	Fresh & Easy	11/17/2009	2475 Cherry Avenue	33.802363	-118.168152	775510	0.68	ac		
Flow-Through Treatment BMP	Existing	Fresh & Easy	11/18/2009	2476 Cherry Avenue	33.802363	-118.168152	775510	0.58	ac		
Flow-Through Treatment BMP	Existing	US Bank	9/17/2008	2615 Cherry Ave	33.804856	-118.167999	775510	18732	sf		
Flow-Through Treatment BMP	Existing	Signal Hill Industrial Center		2665-2745 Temple Ave	33.80648	-118.159782	775510	143,312	sf		
Flow-Through Treatment BMP	Existing	Tanker Interior Washing Facility		1710 E 29th Street	33.80935	-118.170824	775510	10,000	sf		
Flow-Through Treatment BMP	Existing	Delius Restaurant	7/14/2006	2951 Cherry Ave	33.81111	-118.168077	775510	32,000	sf		
Flow-Through Treatment BMP	Existing	Jack in the Box	10/20/2008	801 Spring Street	33.812049	-118.182595	775510	12,000	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Target (T-2319)	2/13/2007	950 E 33rd Street	33.816767	-118.181488	775510	178,600	sf		
Flow-Through Treatment BMP	Existing	Hawk Industries	5/8/2007	1245 E. 23rd Street	33.799126	-118.17577	776002	27,322	sf		
Flow-Through Treatment BMP	Existing	Hawk Industries	5/9/2007	1246 E. 23rd Street	33.799126	-118.17577	776002	1575	sf		
Flow-Through Treatment BMP		Boiler Tech Warehouse	9/30/2009	2501 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Flow-Through Treatment BMP	Existing	Las Brisas II Community Housing	1/11/2006	2400-2418 California Ave	33.803504	-118.180639	776002	16,247	sf		
Flow-Through Treatment BMP	Existing	Las Brisas II Community Housing	1/12/2006	2400-2418 California Ave	33.803504	-118.180639	776002	25,047	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/5/2005	2550 Gundry Ave	33.803577	-118.173289	776002	61,000	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/6/2005	2551 Gundry Ave	33.803577	-118.173289	776002	30,492	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/7/2005	2552 Gundry Ave	33.803577	-118.173289	776002	4,356	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP		Aragon Townhomes & Duplexes (City View)	3/6/2007	1899 (1890) Oribaza Ave	33.790924	-118.156725	776003	31,350	sf		
Flow-Through Treatment BMP		Aragon Townhomes & Duplexes (City View)	3/7/2007	1900 (1890) Oribaza Ave	33.790924	-118.156725	776003	63,400	sf		
Flow-Through Treatment BMP		In-N-Out Burger	5/27/2011	799 E. Spring Street	33.812066	-118.183197	776011	65,220	sf		
Flow-Through Treatment BMP		Shoreline Fabricators	8/1/2007	2652 Gundry Ave	33.805493	-118.173804	776012	16,300	sf		
Flow-Through Treatment BMP		Shoreline Fabricators	8/2/2007	2653 Gundry Ave	33.805493	-118.173804	776012	1,395	sf		
Flow-Through Treatment BMP		2-Story Building and Parking Lot	12/29/2010	2654 Walnut Avenue	33.805754	-118.171978	776012				
Flow-Through Treatment BMP		Islamic Center	5/29/2009	996 27th St	33.806216	-118.180729	776012	5000	sf		
Flow-Through Treatment BMP		Crescent Square Development	8/10/2007	1600-1799 Green House Place				136,955	sf		
Infiltration BMPs	Existing	Fresh & Easy	11/19/2009	2477 Cherry Avenue	33.802363	-118.168152	775510	76,143	sf		
Infiltration BMPs	Existing	US Bank	9/19/2008	2617 Cherry Ave	33.804856	-118.167999	775510	18732	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs	Planned	Applebee's	3/12/2013	899 E. Spring Street	33.812089	-118.181855	775510	23,580	sf		
Infiltration BMPs	Existing	Hawk Industries	5/10/2007	1247 E. 23rd Street	33.799126	-118.17577	776002	27,322	sf		
Infiltration BMPs		Boiler Tech Warehouse	10/1/2009	2502 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Infiltration BMPs		Pacific Walk	1/4/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	100,200	sf		
Infiltration BMPs		Pacific Walk	1/5/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	149,015	sf		
Infiltration BMPs		Pacific Walk	1/6/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	1,300	sf		
Infiltration BMPs		Aragon Townhomes & Duplexes (City View)	3/8/2007	1901 (1890) Oribaza Ave	33.790924	-118.156725	776003	94,750	sf		
Infiltration BMPs		Aragon Townhomes & Duplexes (City View)	3/10/2007	1903 (1890) Oribaza Ave	33.790924	-118.156725	776003	93,780	sf		
Infiltration BMPs	Planned	Willow Street Medical Office Building	12/9/2013	845 E. Willow Street	33.804664	-118.182279	776009	22,651	sf	1095	cf
Infiltration BMPs	Planned	Willow Street Medical Office Building	12/10/2013	846 E. Willow Street	33.804664	-118.182279	776009	37,304	sf	1890	cf
Infiltration BMPs		In-N-Out Burger	5/28/2011	800 E. Spring Street	33.812066	-118.183197	776011	65,220	sf	3425	cf
Infiltration BMPs		Shoreline Fabricators	8/3/2007	2654 Gundry Ave	33.805493	-118.173804	776012	16,300	sf		
Infiltration BMPs		Islamic Center	5/28/2009	995 27th St	33.806216	-118.180729	776012	5000	sf		
Infiltration BMPs	Existing	A & A Ready Mix Concrete	8/1/2007	900 E. Patterson	33.806664	-118.182206	776012	2	ac		
Permeable Pavement	Existing	US Bank	9/18/2008	2616 Cherry Ave	33.804856	-118.167999	775510	60	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Permeable Pavement	Existing	Hawk Industries	5/11/2007	1248 E. 23rd Street	33.799126	-118.17577	776002	5,628	sf		

D1.7. City of South Gate

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration		Self Storage	9/15/2008	2405 Southern Ave	33.953436	-118.229363	796034	0.25	ac		
Bioretention / Biofiltration		Hollydale Plaza	3/30/2010	12222 Garfield Avenue	33.915655	-118.168383	796076	15,278	sf		
Bioretention / Biofiltration		Atlantic Avenue Improvements	4/21/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	7.44	ac		
Bioretention / Biofiltration	Planned	azalea	11/25/2012	4641 Firestone Blvd.	33.952413	-118.187909	796084	7,328	sf	0.22	cfs
Bioswales		South Gate McDonald's	9/30/2013	3313 Tweedy Boulevard	33.945113	-118.211464	796034	5,119	sf		
Bioswales		South Gate McDonald's	10/1/2013	3314 Tweedy Boulevard	33.945113	-118.211464	796034	5,545	sf		
Bioswales		Commercial Center	10/4/2010	9200 Califlornia Avenue	33.950805	-118.206221	796034	12,367	sf		
Bioswales		Commercial Center	10/5/2010	9201 Califlornia Avenue	33.950805	-118.206221	796034	4,263	sf		
Bioswales		Hot Mix Asphalt Plant	5/11/2001	5626 Southern Avenue	33.944913	-118.168148	796083	2.7	ac		
Bioswales		Goals Soccer Centers - South Gate	2/9/2010	9599 Pinehurst Avenue	33.945107	-118.182378	796084	53,142	sf		
Flow-Through Treatment BMP	Existing	South Gate McDonald's	9/26/2013	3309 Tweedy Boulevard	33.945113	-118.211464	796034	2,394	sf		
Flow-Through Treatment BMP		South Gate McDonald's	9/28/2013	3311 Tweedy Boulevard	33.945113	-118.211464	796034	2,436	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Walgreens	7/24/2006	9830 Long Beach	33.946082	-118.215937	796034	48,725	sf		
Flow-Through Treatment BMP	Existing	King's Car Wash	11/29/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034	10,461	sf		
Flow-Through Treatment BMP		King's Car Wash	12/1/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034				
Flow-Through Treatment BMP	Existing	Sarina Townhomes	2/12/2007	9321 State Street	33.950368	-118.21325	796034	14,375	sf		
Flow-Through Treatment BMP		Commercial Center	10/6/2010	9202 Califlornia Avenue	33.950805	-118.206221	796034	16,630	sf		
Flow-Through Treatment BMP		Office Bldg	12/20/2007	3830 Firestone Blvd	33.953324	-118.201934	796034	1,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/21/2007	3831 Firestone Blvd	33.953324	-118.201934	796034	112,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/20/2007	3800 Firestone Blvd	33.95348	-118.202386	796034	1,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/21/2007	3801 Firestone Blvd	33.95348	-118.202386	796034	112,000	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Planned	Calden Court Appartments	9/27/2013	8901 Calden Avenue	33.95515	-118.228736	796034	219,543	sf		
Flow-Through Treatment BMP		Hollydale Plaza	3/31/2010	12223 Garfield Avenue	33.915655	-118.168383	796076	27,381	sf		
Flow-Through Treatment BMP	Existing	Sherwin Inc	4/10/2007	5530 Borwick Ave	33.925749	-118.172611	796082	7,892	sf		
Flow-Through Treatment BMP		Hot Mix Asphalt Plant	5/10/2001	5625 Southern Avenue	33.944913	-118.168148	796083	9.5	ac		
Flow-Through Treatment BMP		Atlantic Avenue Improvements	4/22/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	13.32	ac		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/11/2010	9601 Pinehurst Avenue	33.945107	-118.182378	796084	70,036	sf		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/12/2010	9602 Pinehurst Avenue	33.945107	-118.182378	796084	37,897	sf		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/13/2010	9603 Pinehurst Avenue	33.945107	-118.182378	796084	63,400	sf		
Flow-Through Treatment BMP	Planned	azalea	11/24/2012	4640 Firestone Blvd.	33.952413	-118.187909	796084	1,583,819	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Interior Removal Specialist Demolition	5/21/2007	9309 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/22/2007	9310 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/23/2007	9311 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/24/2007	9312 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Petrochem Manufacturing	12/18/2006	8401 Quartz	33.957949	-118.191835	796090	162,305	sf		
Flow-Through Treatment BMP		Petrochem Manufacturing	12/19/2006	8402 Quartz	33.957949	-118.191835	796090	51,401	sf		
Infiltration BMPs		South Gate McDonald's	9/27/2013	3310 Tweedy Boulevard	33.945113	-118.211464	796034	2,394	sf		
Infiltration BMPs		South Gate McDonald's	9/29/2013	3312 Tweedy Boulevard	33.945113	-118.211464	796034	2,436	sf		
Infiltration BMPs		South Gate McDonald's	10/4/2013	3317 Tweedy Boulevard	33.945113	-118.211464	796034	3,743	sf		
Infiltration BMPs		King's Car Wash	11/30/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034	3,047	sf		
Infiltration BMPs		Sarina Townhomes	2/13/2007	9322 State Street	33.950368	-118.21325	796034	17,519	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs		Office Bldg	12/22/2007	3832 Firestone Blvd	33.953324	-118.201934	796034	112,000	sf		
Infiltration BMPs		Office Bldg	12/22/2007	3802 Firestone Blvd	33.95348	-118.202386	796034	112,000	sf		
Infiltration BMPs	Existing	Family Dollar	10/8/2012	3610 Firestone	33.95374	-118.204546	796034		sf		
Infiltration BMPs	Planned	Calden Court Appartments	9/28/2013	8902 Calden Avenue	33.95515	-118.228736	796034	219,543	sf		
Infiltration BMPs		South Gate Ward Building New Parking Lot	10/15/2010	2771 Liberty Boulevard	33.961969	-118.220918	796034	14,811	sf		
Infiltration BMPs		Sherwin Inc	4/11/2007	5531 Borwick Ave	33.925749	-118.172611	796082	7,892	sf		
Infiltration BMPs		Atlantic Avenue Improvements	4/23/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	22,400	sf		
Infiltration BMPs		Batting Cages	11/4/2010	9599 Pinehurst Avenue	33.945107	-118.182378	796084	7,953	sf		
Infiltration BMPs		Goals Soccer Centers - South Gate	2/10/2010	9600 Pinehurst Avenue	33.945107	-118.182378	796084	113	sf		
Infiltration BMPs		Goals Soccer Centers - South Gate	2/14/2010	9604 Pinehurst Avenue	33.945107	-118.182378	796084	171,333	sf		
Infiltration BMPs	Planned	azalea	11/19/2012	4635 Firestone Blvd.	33.952413	-118.187909	796084	444,636	sf	31,365	cf
Infiltration BMPs	Planned	azalea	11/20/2012	4636 Firestone Blvd.	33.952413	-118.187909	796084	110,869	sf	12,946	cf
Infiltration BMPs	Planned	azalea	11/21/2012	4637 Firestone Blvd.	33.952413	-118.187909	796084	582,860	sf	72,234	cf
Infiltration BMPs	Planned	azalea	11/22/2012	4638 Firestone Blvd.	33.952413	-118.187909	796084	222,727	sf	25,348	cf
Infiltration BMPs	Planned	azalea	11/23/2012	4639 Firestone Blvd.	33.952413	-118.187909	796084	222,727	sf	64,314	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs	Existing	New South Central Properties, LLC	5/28/2009	8600 Rheem Ave	33.955566	-118.192042	796084	20,960	sf		
Infiltration BMPs		LA Water	8/4/2010	9415 Burtis	33.947369	-118.176109	796350	154,538	sf		
Permeable Pavement		South Gate McDonald's	10/2/2013	3315 Tweedy Boulevard	33.945113	-118.211464	796034	8,697	sf		
Permeable Pavement		South Gate McDonald's	10/3/2013	3316 Tweedy Boulevard	33.945113	-118.211464	796034	3,550	sf		

D1.8. City of Whittier

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration	Planned	GWT Biolswale	2014	Greenway Trail from to	33.972121	-118.044253	895098				
Bioretention / Biofiltration	Planned	Whittier Blvd Widening and Bioswale	2017	Whittier Blvd from to							
Green Streets (Describe)	Planned	Lower Uptown reverse drains	2014	Milton, Newlin, Comstock from La Cuarta to Walnut	33.970199	-118.039721	895098		TBD		TBD
Site-Scale Detention Basin	Existing	Police Building and City Hall Storm Drainage	2010	13230 Penn St	33.974748	-118.03371	895098				

Attachment E: SUPPORTING CALIBRATION DATA

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

Tetra Tech
9444 Balboa Ave., Suite 215
San Diego, CA 92123

June 6, 2014

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1. Lower San Gabriel River

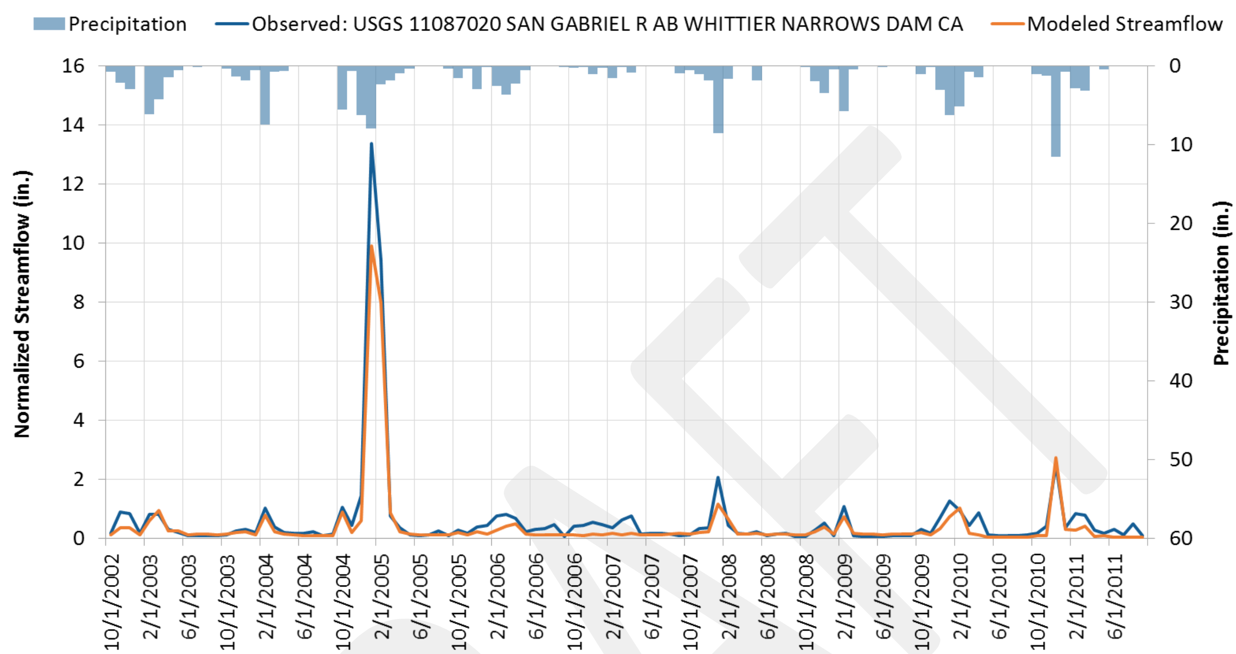


Figure 1. Monthly hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

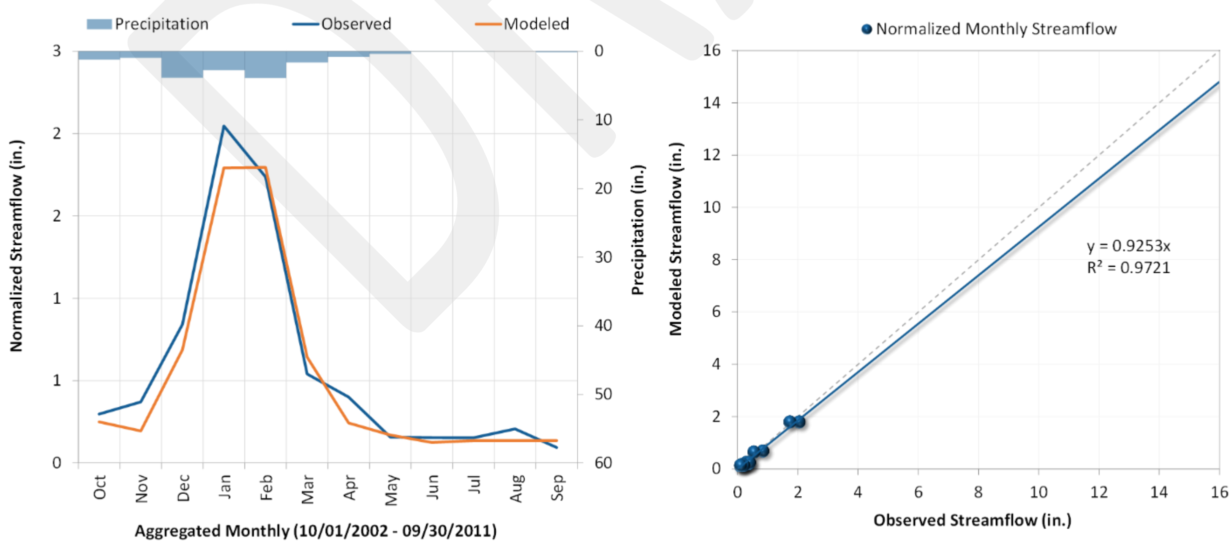
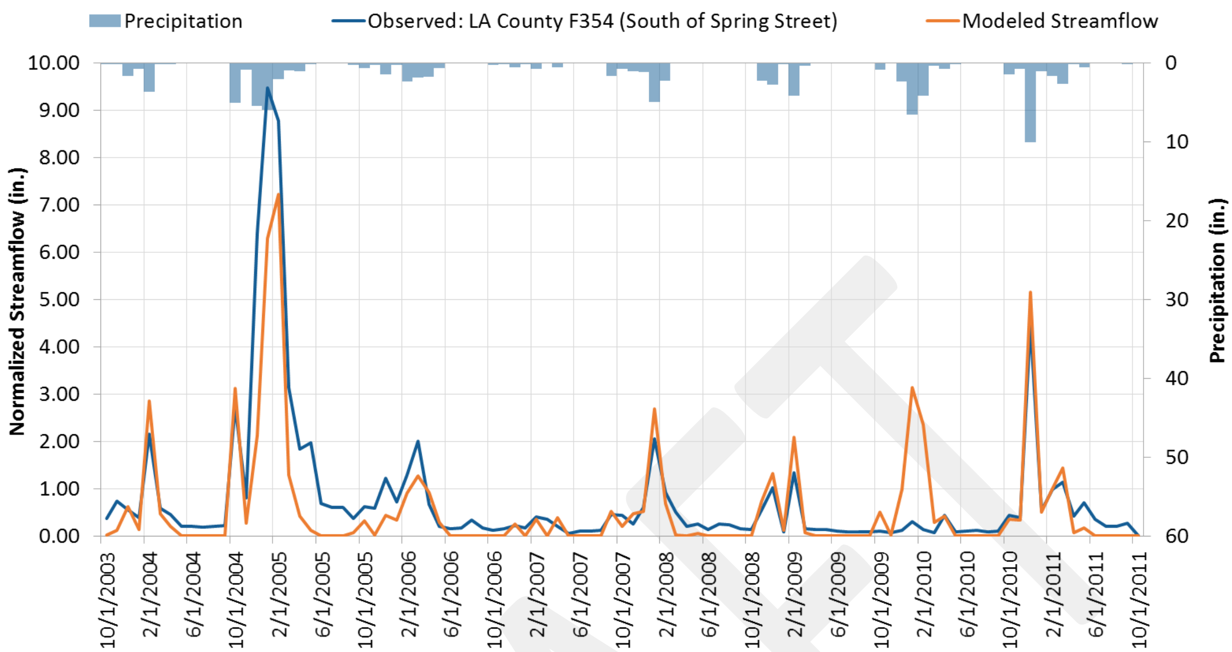


Figure 2. Aggregated monthly hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).



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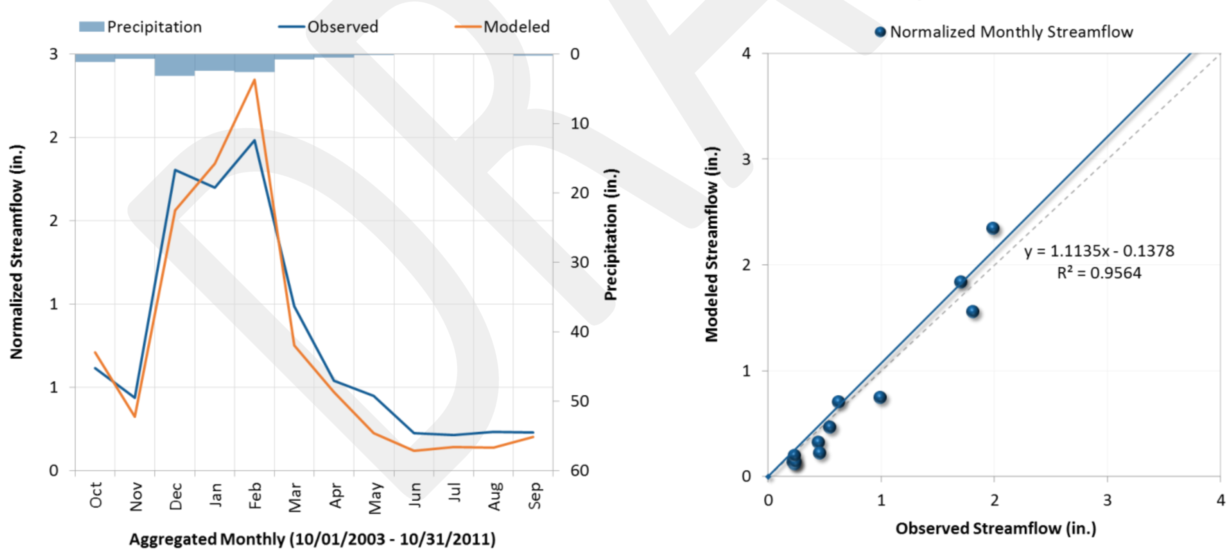

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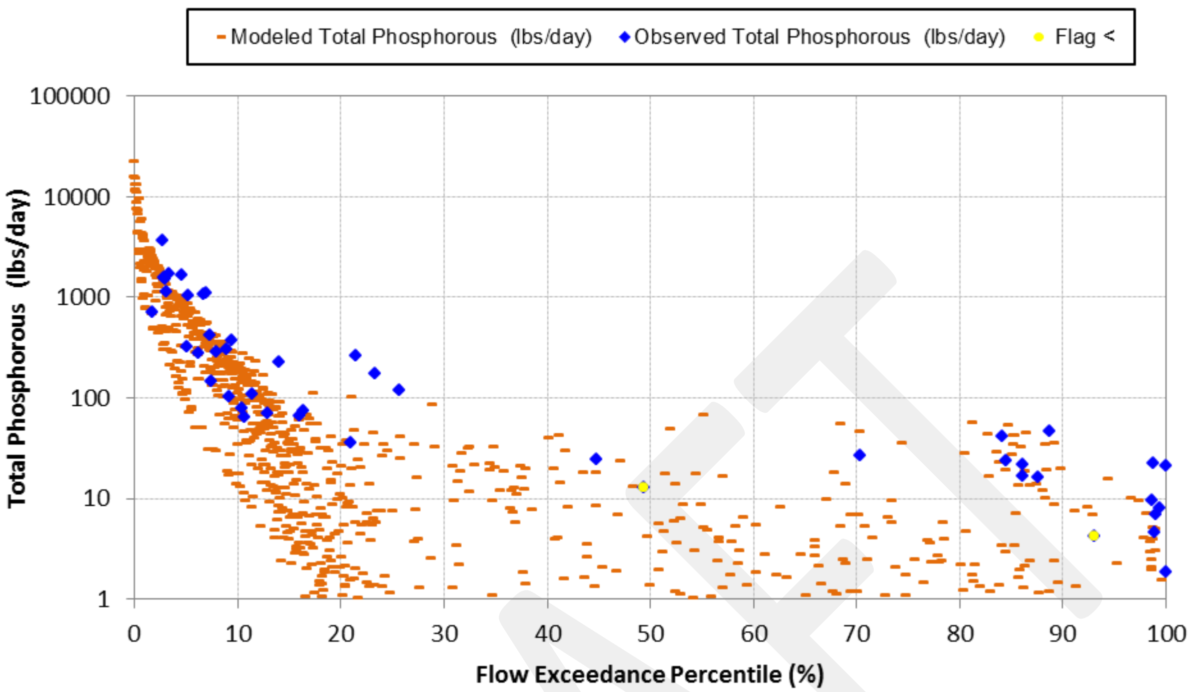
Table 1. Summary of water quality data evaluated for the Lower San Gabriel River

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
S14	Total Copper (ug/l)	5.0	10.5	13.1	23.9	81.4
S13	Total Copper (ug/l)	0.5	11.8	28.1	48.3	351.0
S14	Total Lead (ug/l)	0.7	1.4	2.9	8.2	56.0
S13	Total Lead (ug/l)	0.2	1.1	10.2	19.2	147.0
S14	TSS (mg/L)	5.0	16.8	38.0	169.8	1258.0
S13	TSS (mg/L)	1.0	48.0	97.0	230.5	1556.0
S14	Total Zinc (ug/l)	19.8	36.6	61.0	86.9	440.0
S13	Total Zinc (ug/l)	1.0	62.0	135.0	241.5	2010.0
S14	Fecal Coliform (MPN/100mL)	20	300	1,300	50,000	16,000,000
S13	FC (MPN/100mL)	20	1,300	16,000	90,000	2,200,000
S14	Total Nitrogen (mg/l)	-	-	-	-	-
S13	Total Nitrogen (mg/l)	-	-	-	-	-
S14	Total Phosphorous (mg/l)	0.05	0.11	0.18	0.41	0.86
S13	Total Phosphorous (mg/l)	-	-	-	-	-



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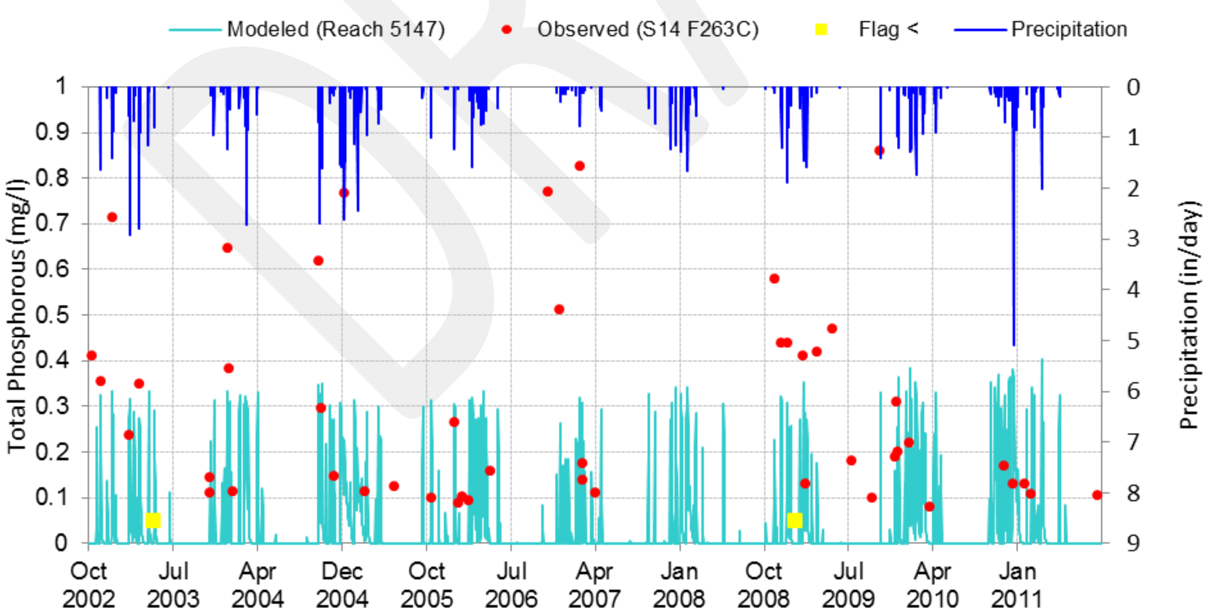

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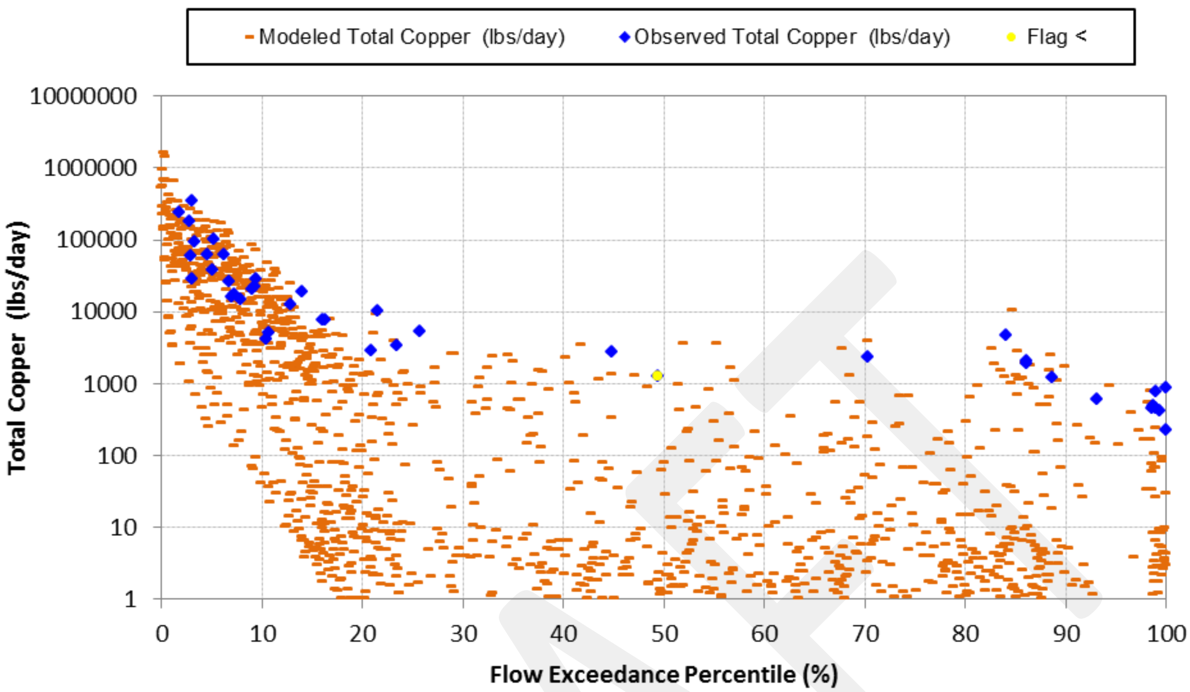

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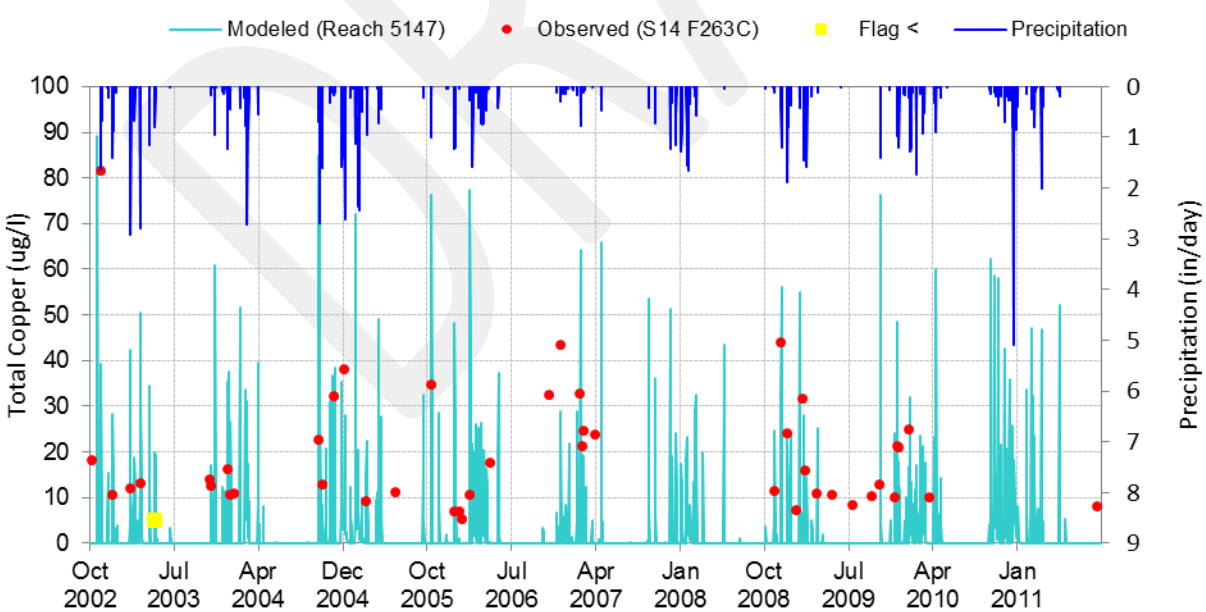

Figure 8. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

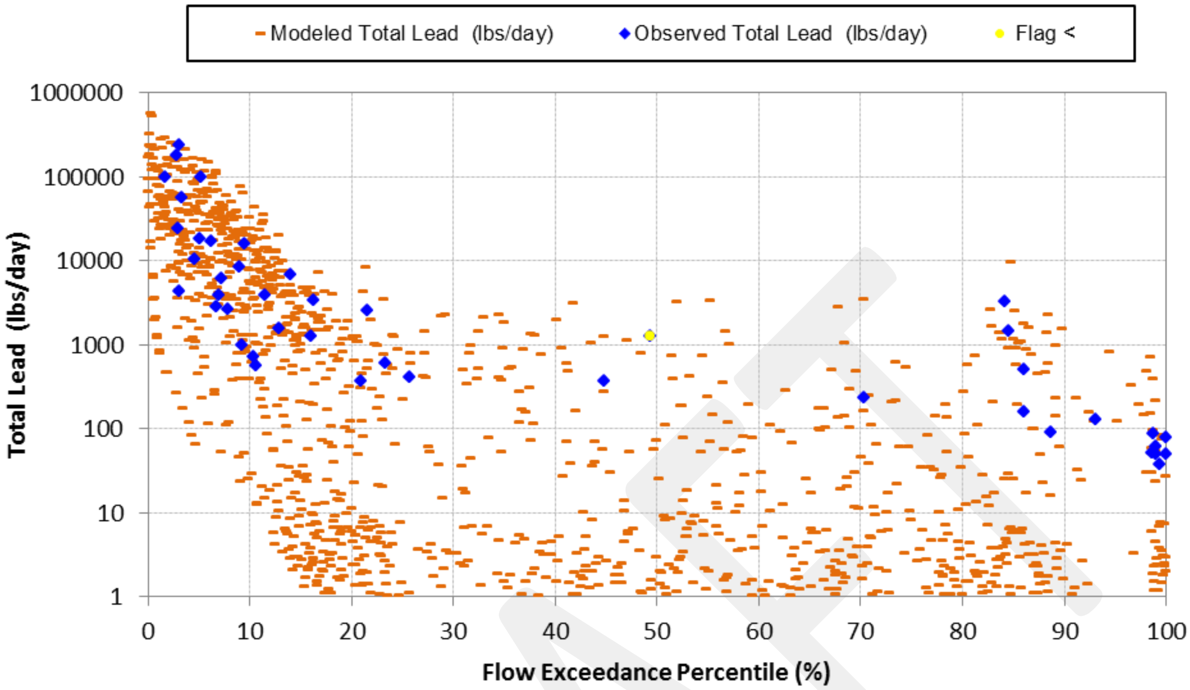

Figure 9. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

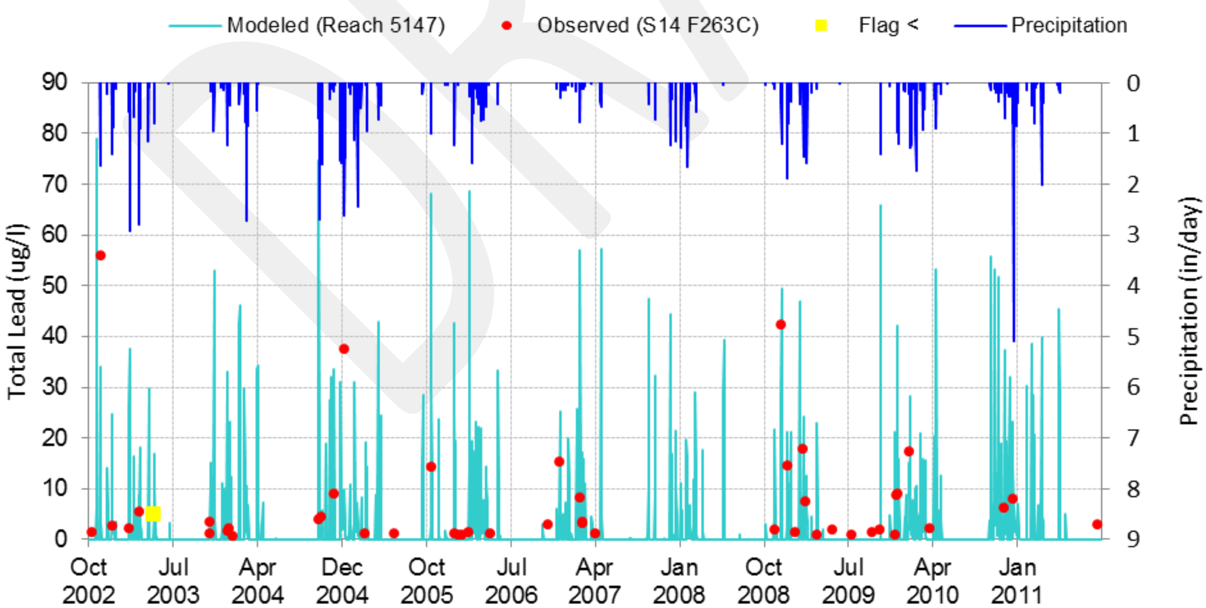

Figure 10. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

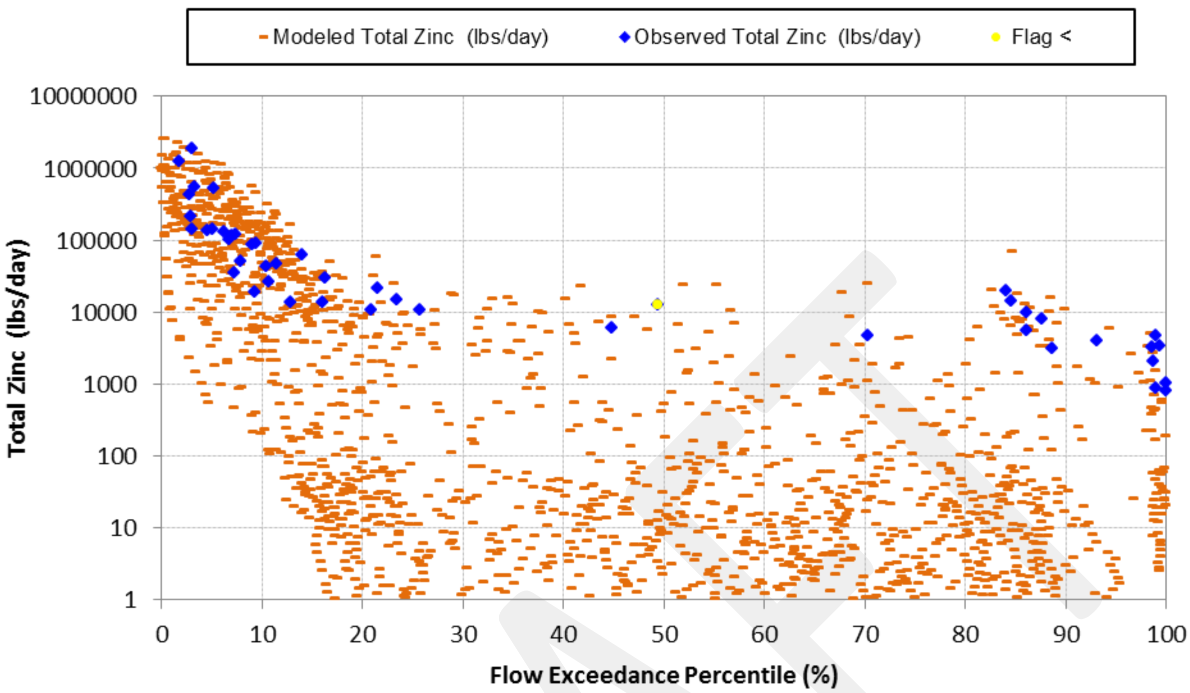

Figure 11. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

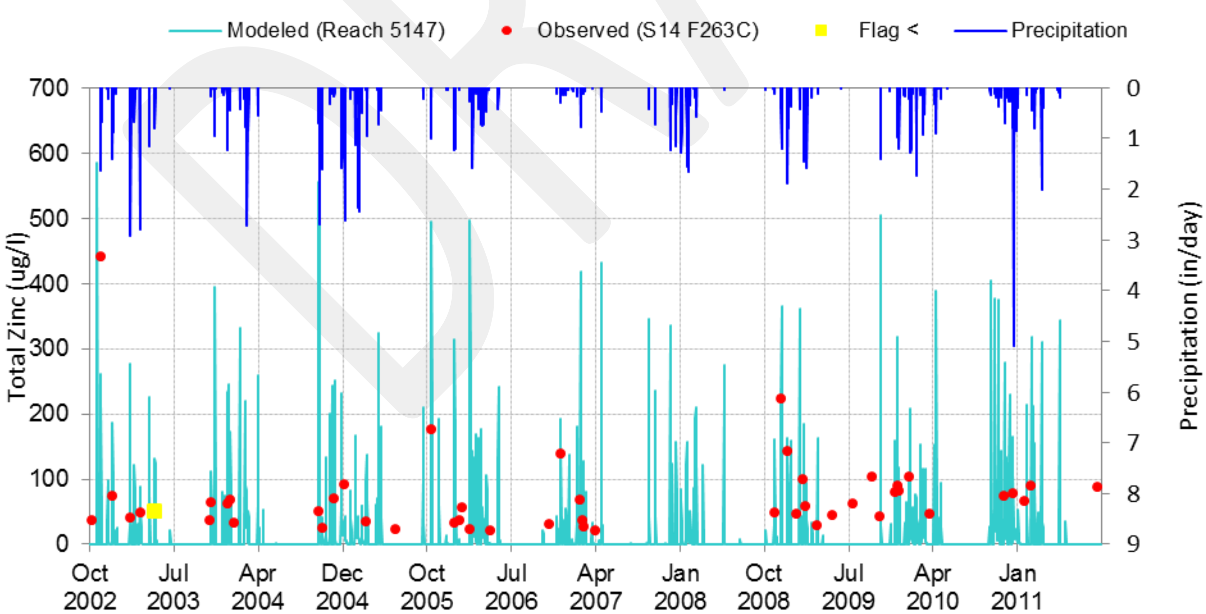

Figure 12. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

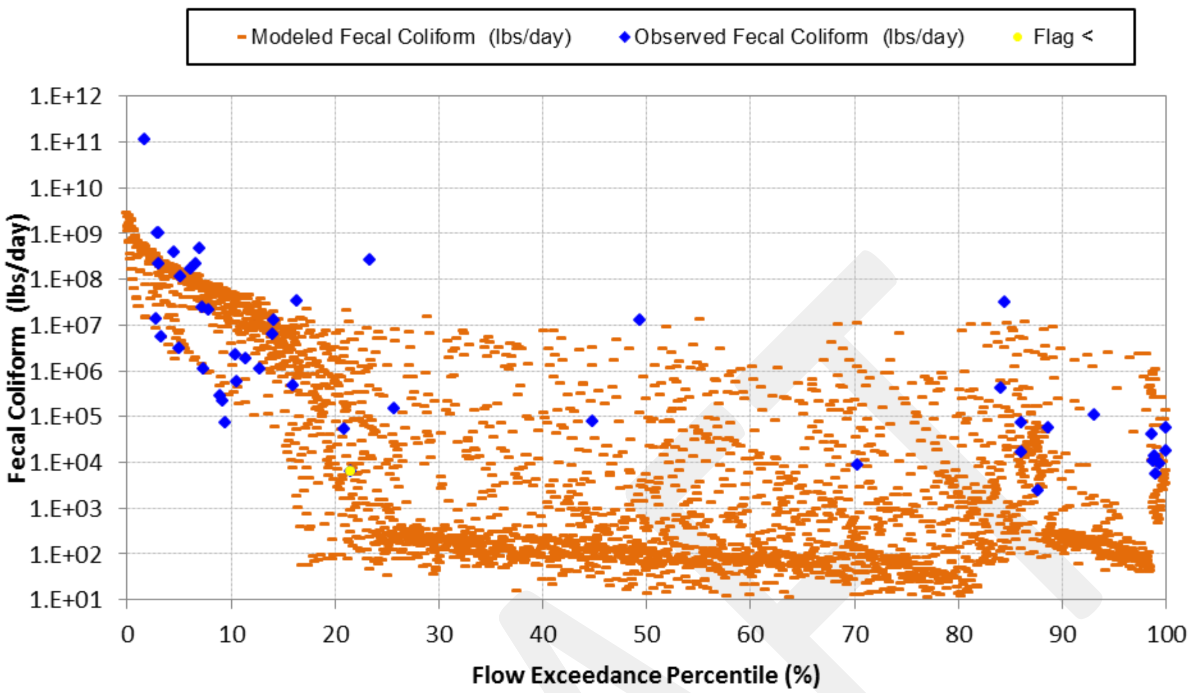

Figure 13. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011).

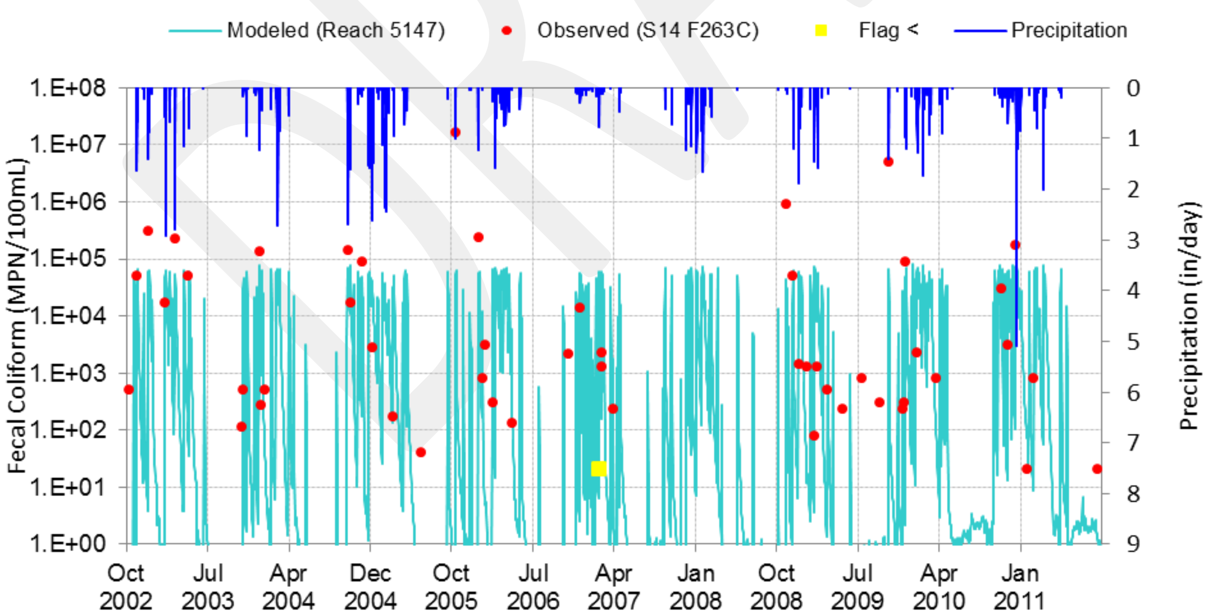

Figure 14. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011).

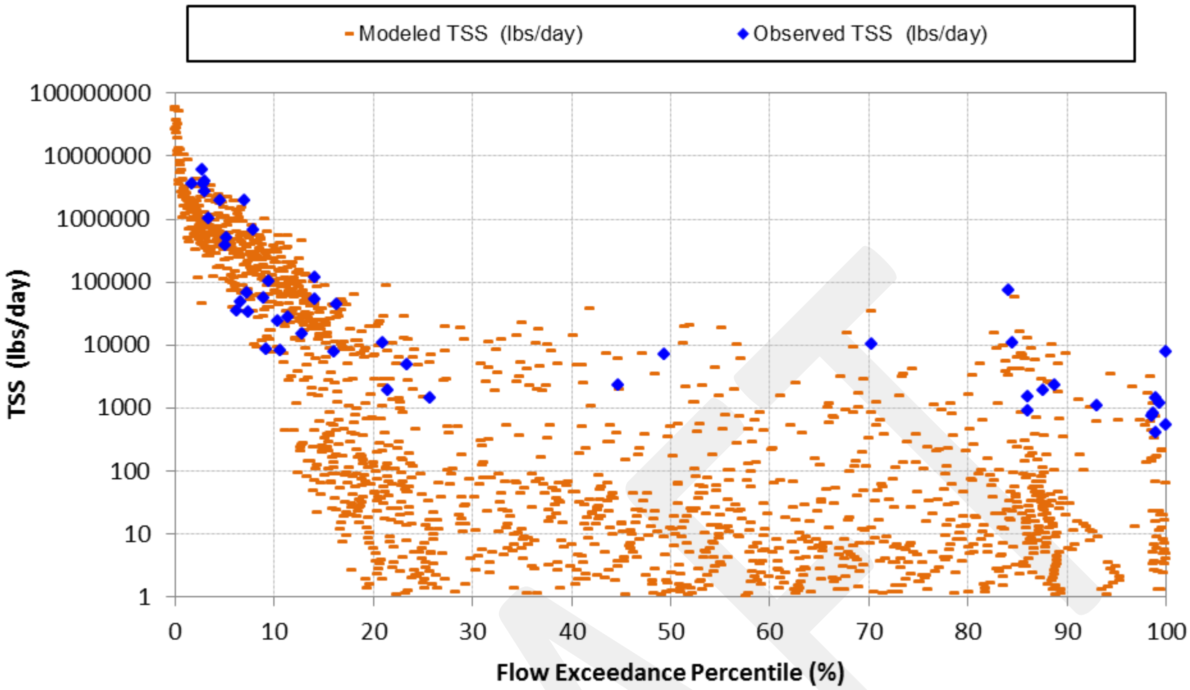

Figure 15. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011).

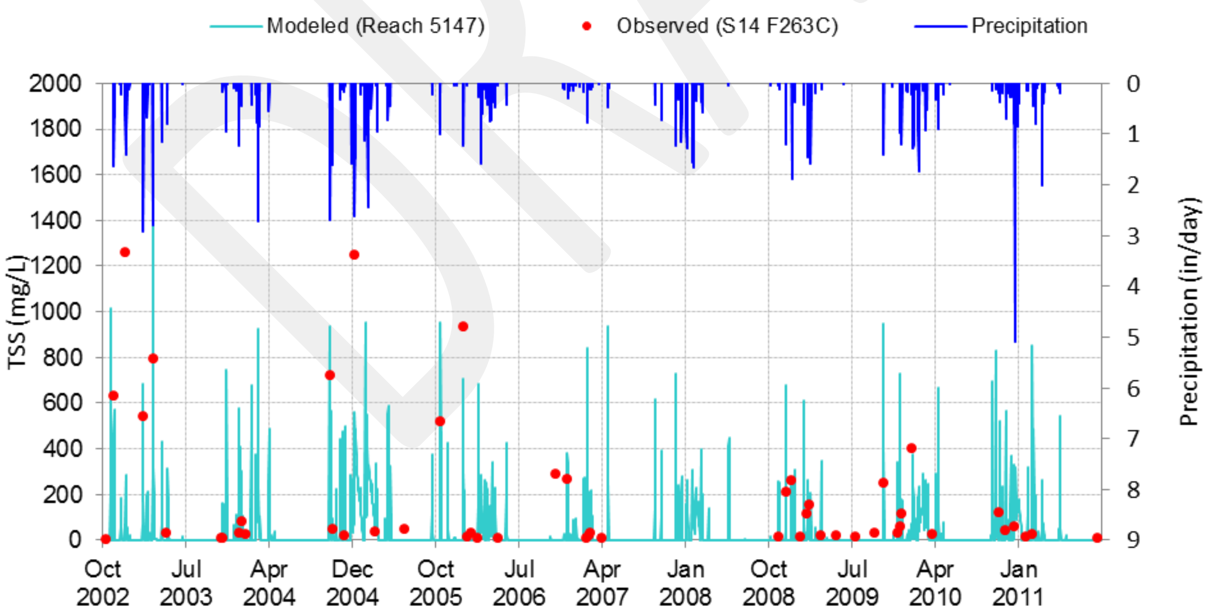

Figure 16. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011).

RB-AR13921

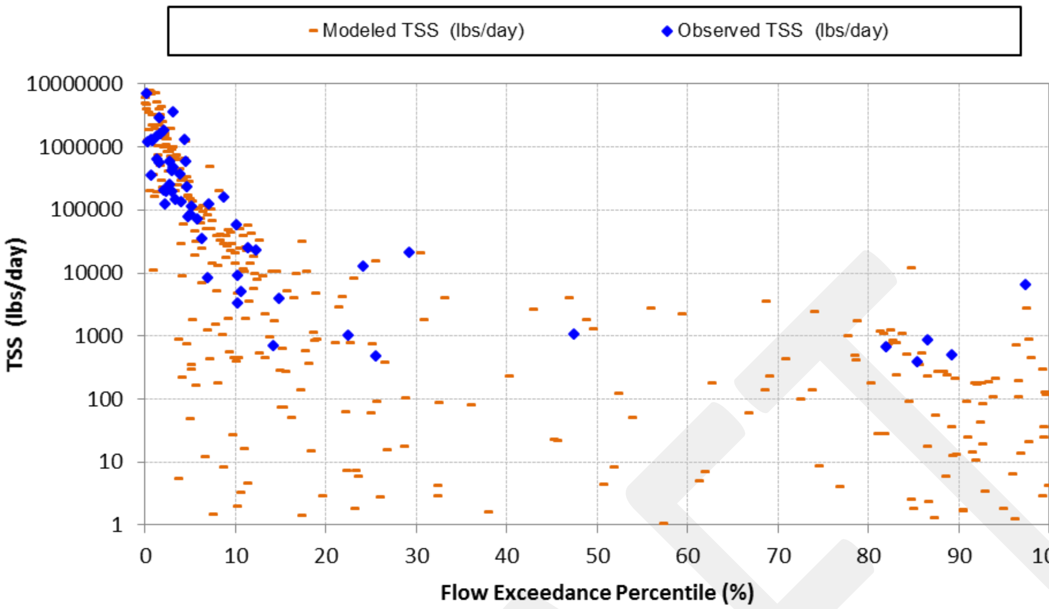

Figure 17. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

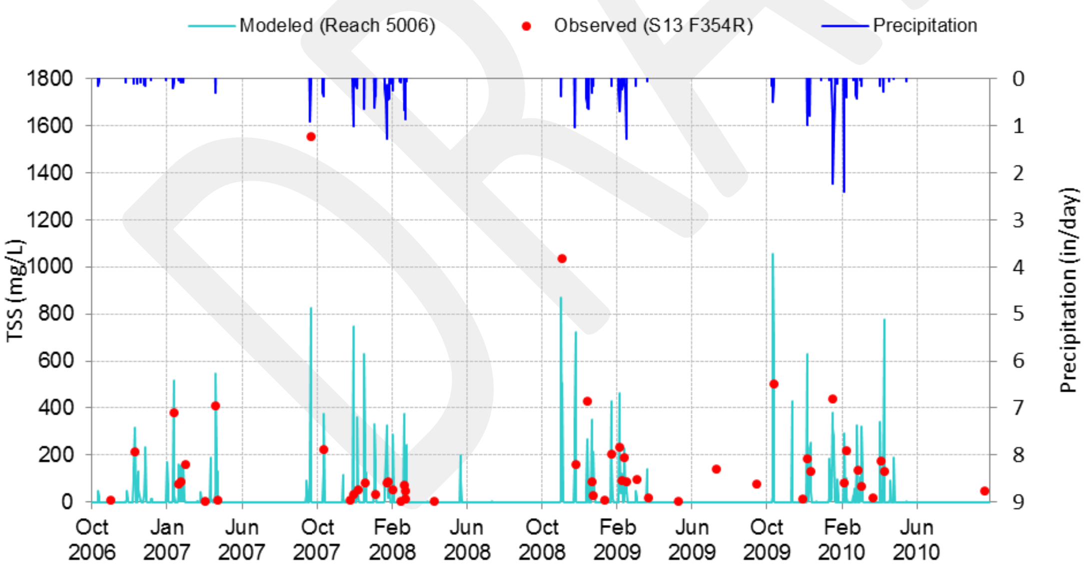

Figure 18. Simulated vs. observed timeseries plots for Total Sediment (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

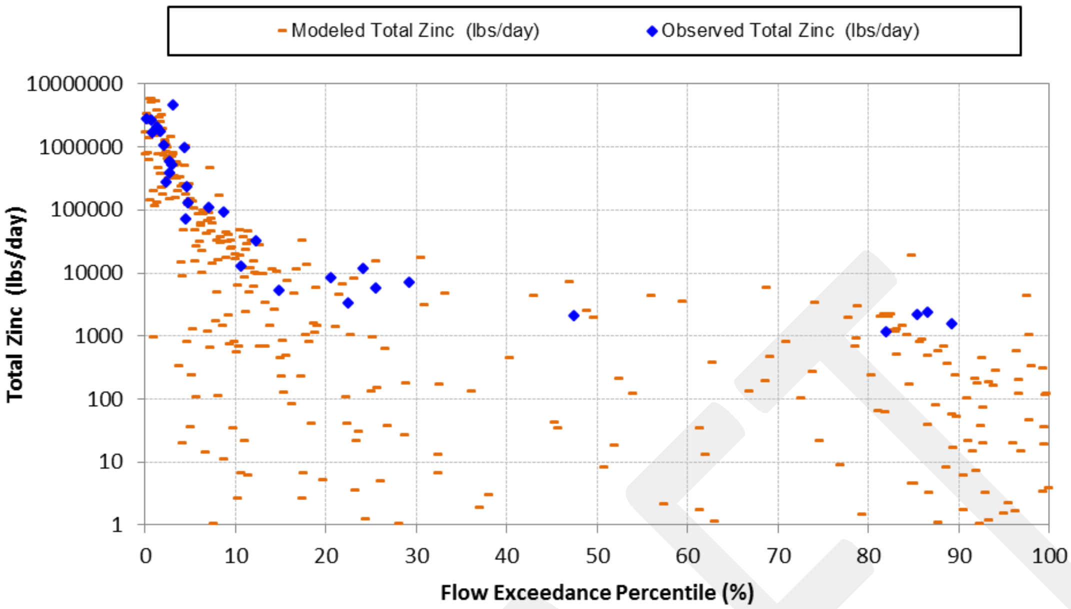

Figure 19. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

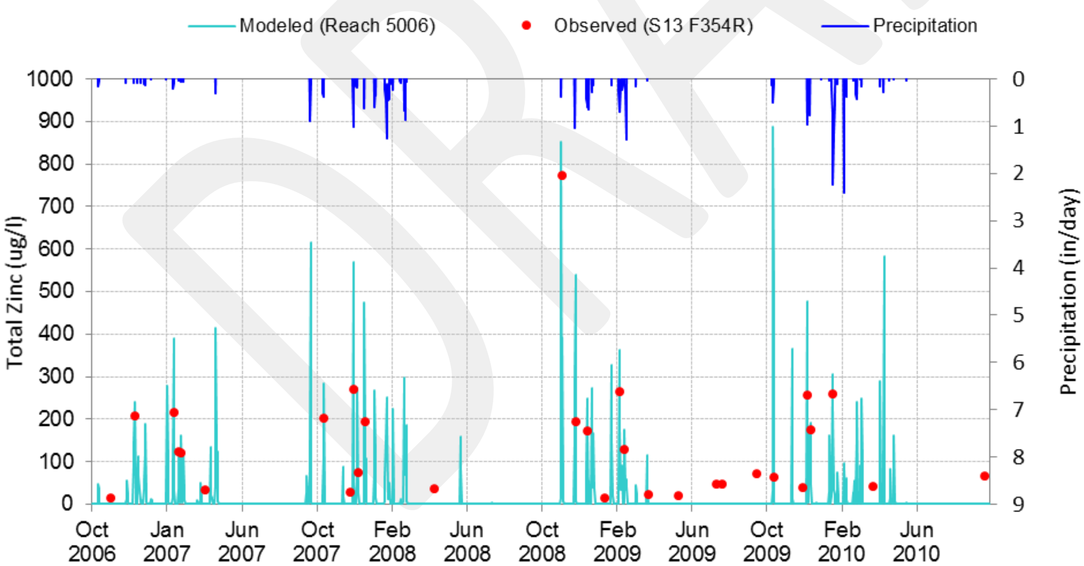

Figure 20. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

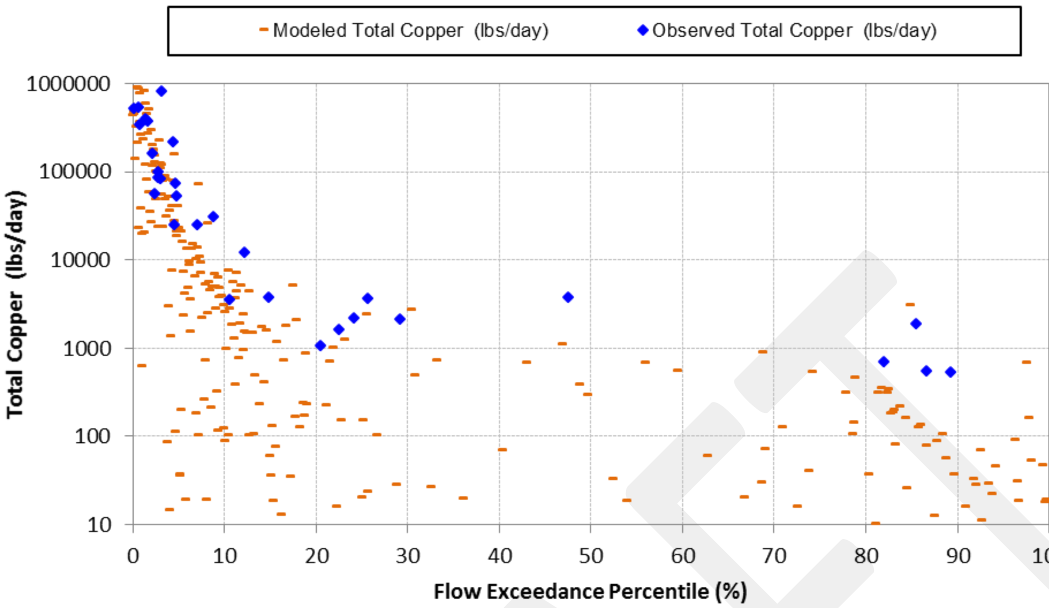

Figure 21. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

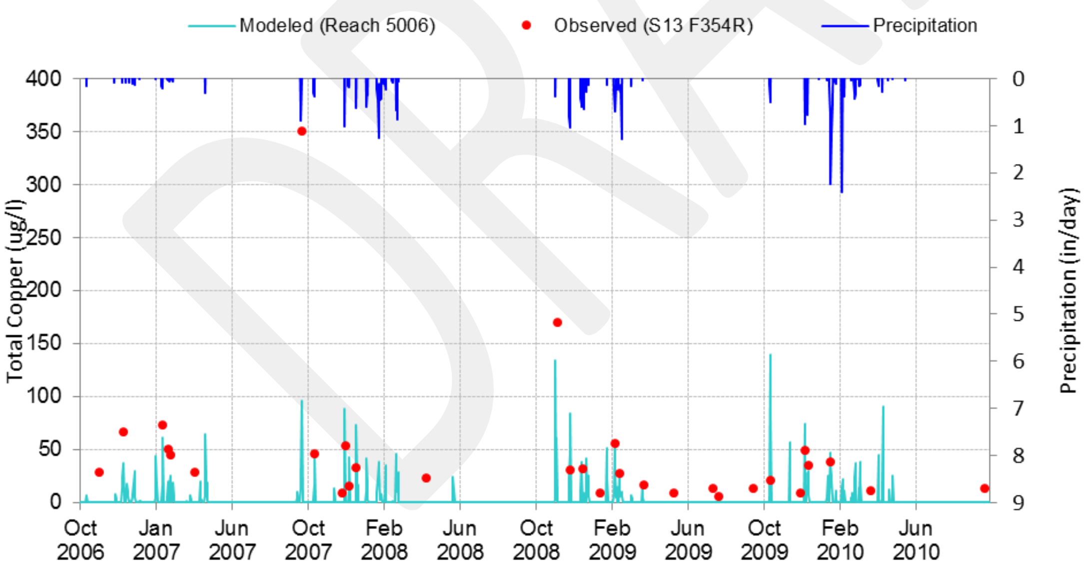

Figure 22. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

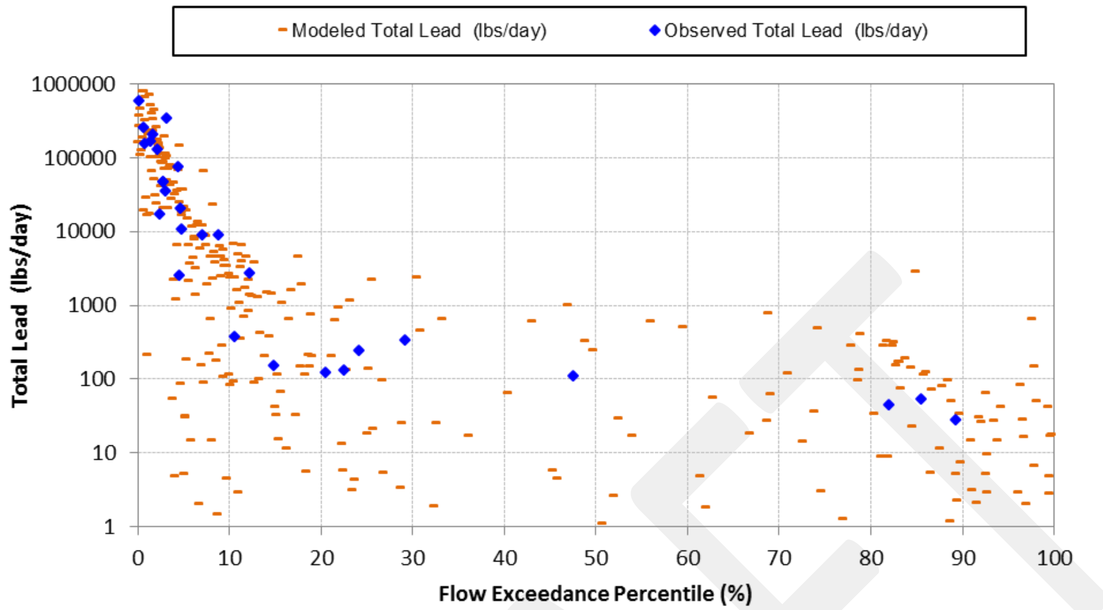

Figure 23 Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

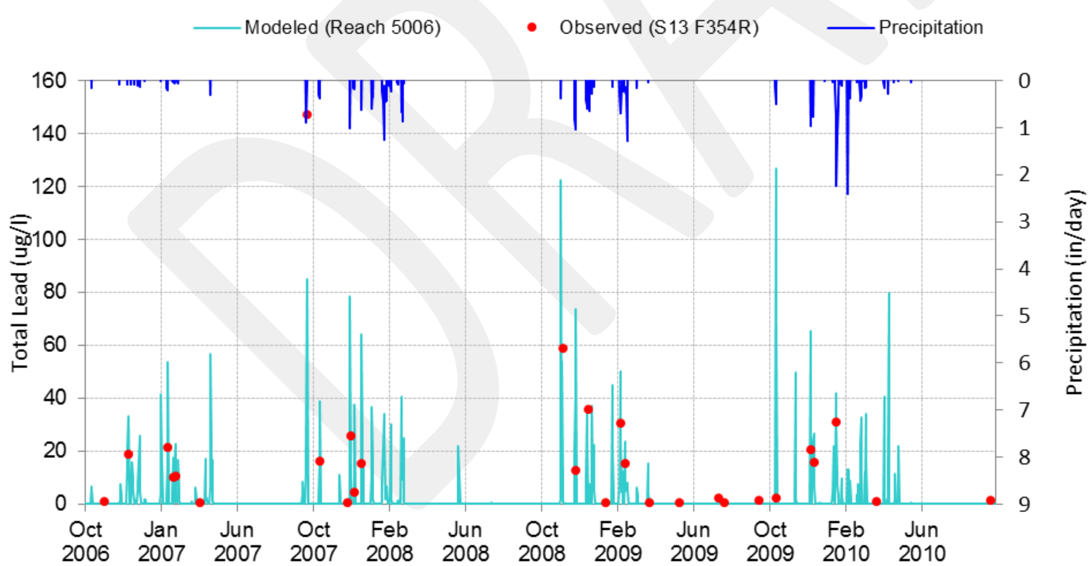

Figure 24. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

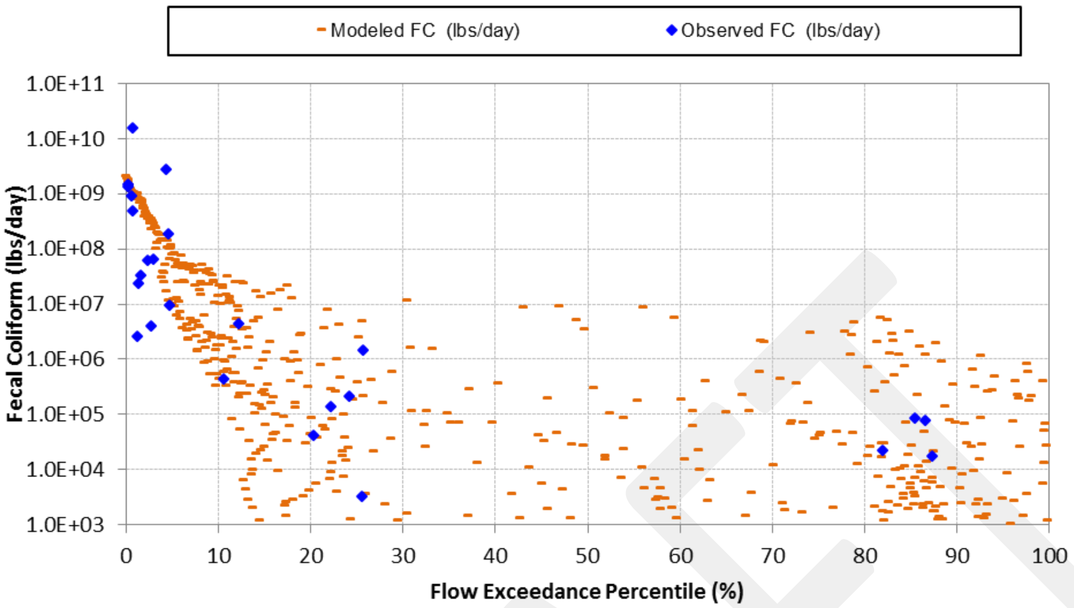

Figure 25. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

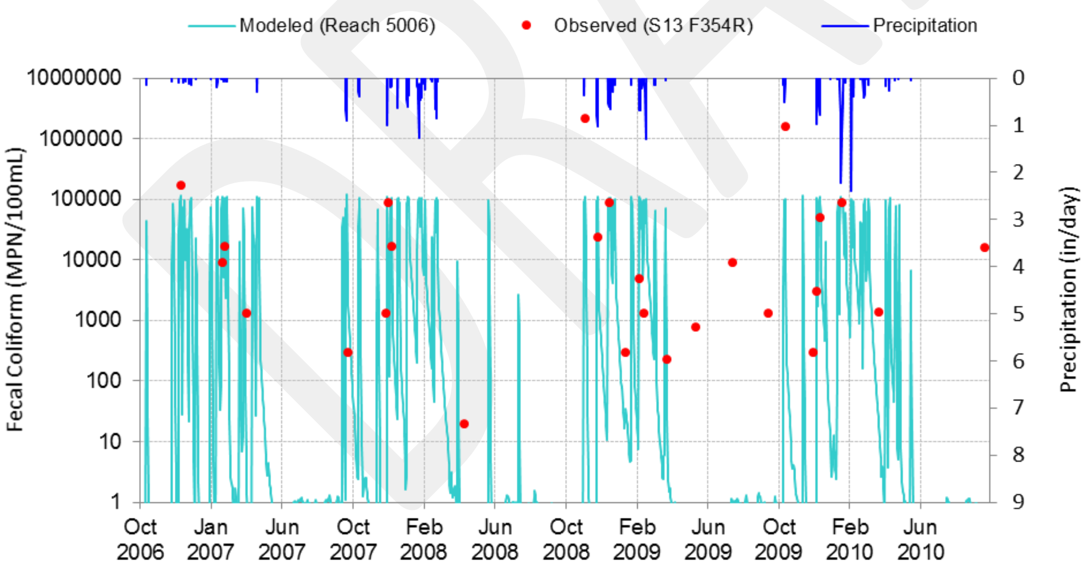

Figure 26. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

2. Lower Los Angeles River

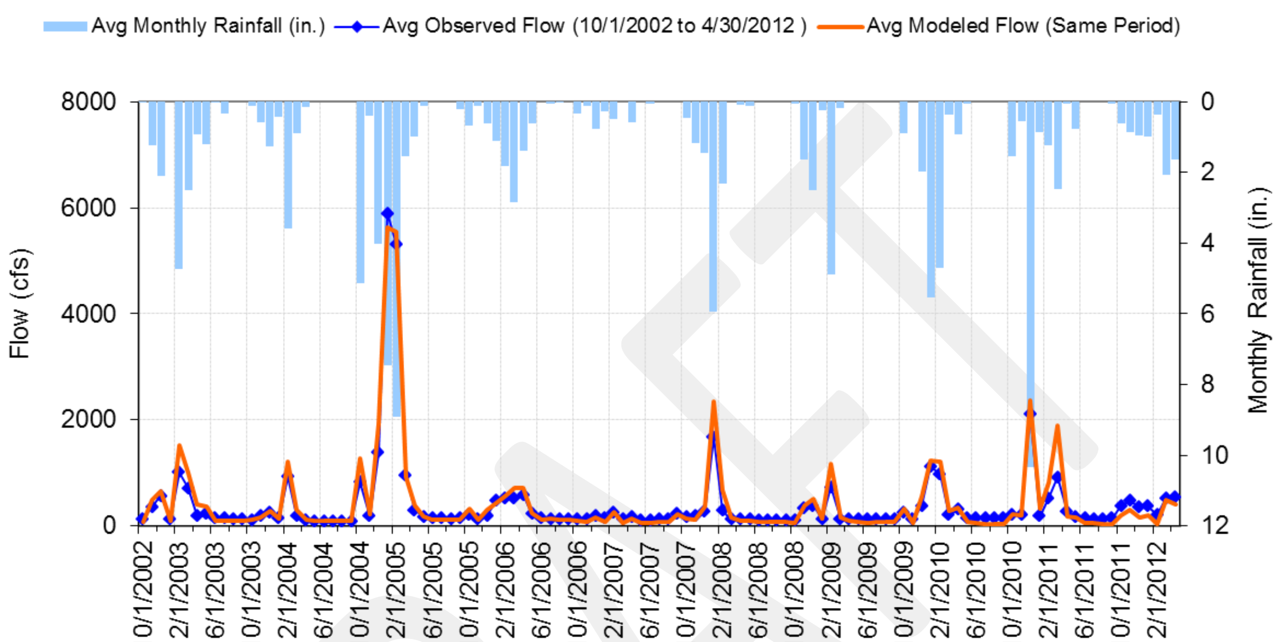

Figure 27. Monthly hydrograph for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

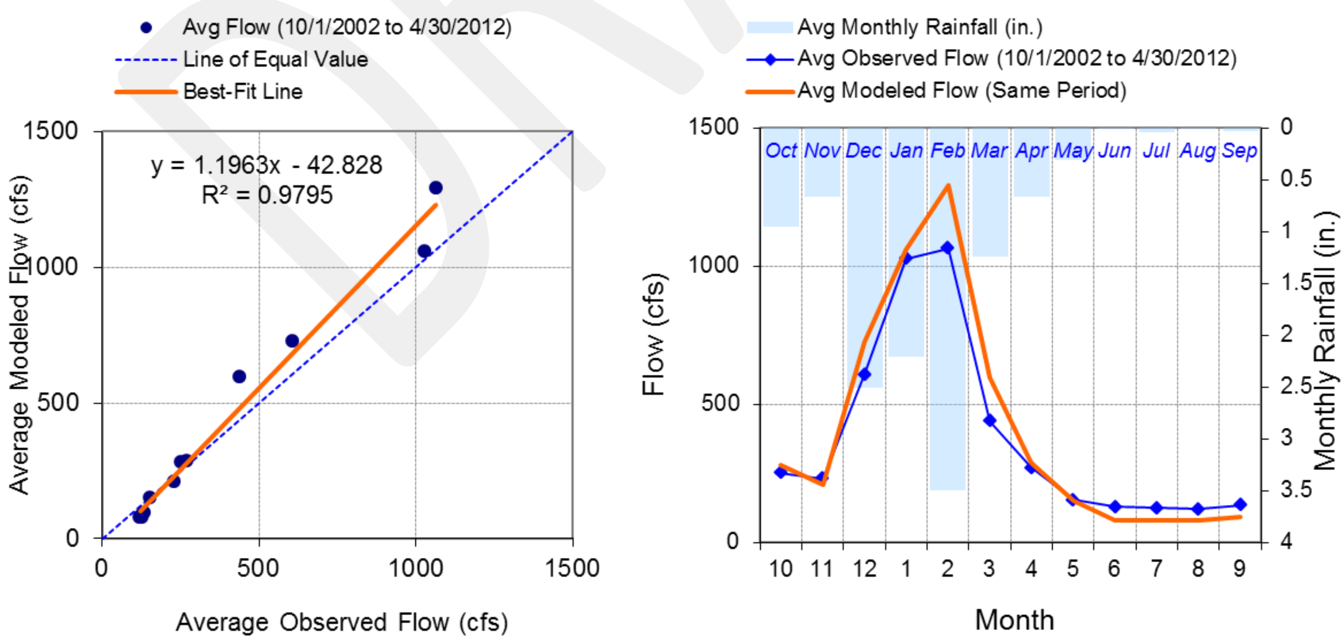

Figure 28. Aggregated monthly hydrograph for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

Table 2. Summary of water quality data evaluated for the Lower Los Angeles River

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
S10	Total Copper (ug/l)	0.5	12.975	25.8	49.55	424
S10	Total Lead (ug/l)	0.2	2.45	15.6	35.775	1070
S10	TSS (mg/L)	1	63	142.5	295	2280
S10	Total Zinc (ug/l)	22.3	63.85	124	261.75	2590
S10	Fecal Coliform (MPN/100mL)	20	500	24000	240000	24000000
S10	Total Nitrogen (mg/l)	0.03	0.60245	1.064	1.725	6.75
S10	Total Phosphorous (mg/l)	0.05	0.24	0.3785	0.538	8.24

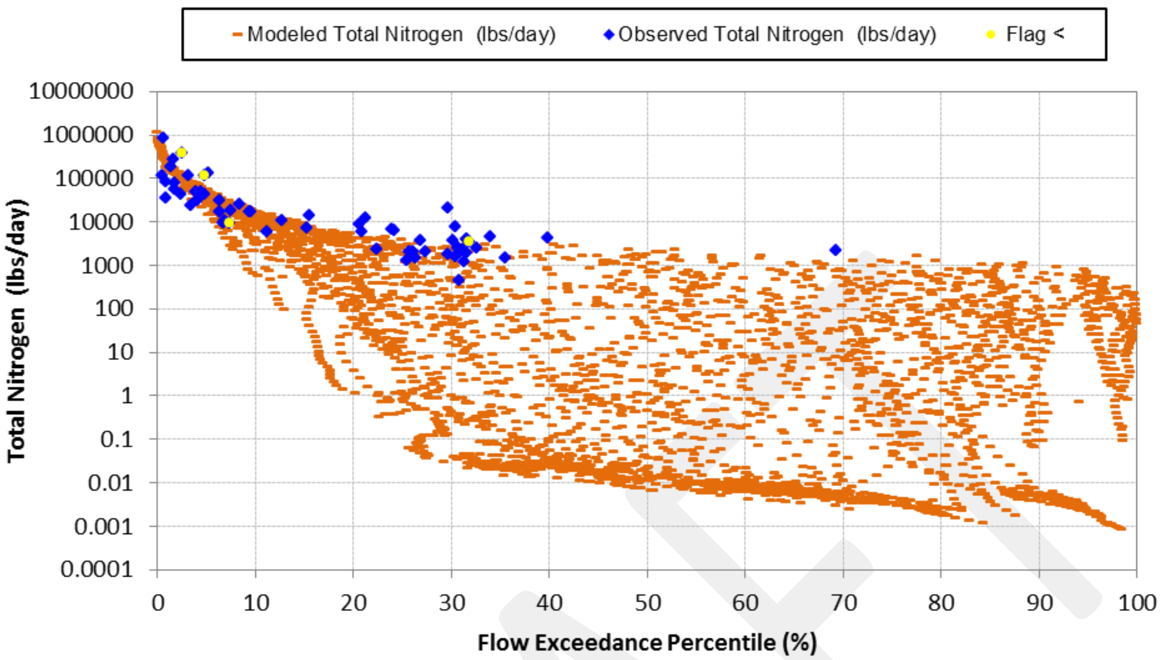

Figure 29. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

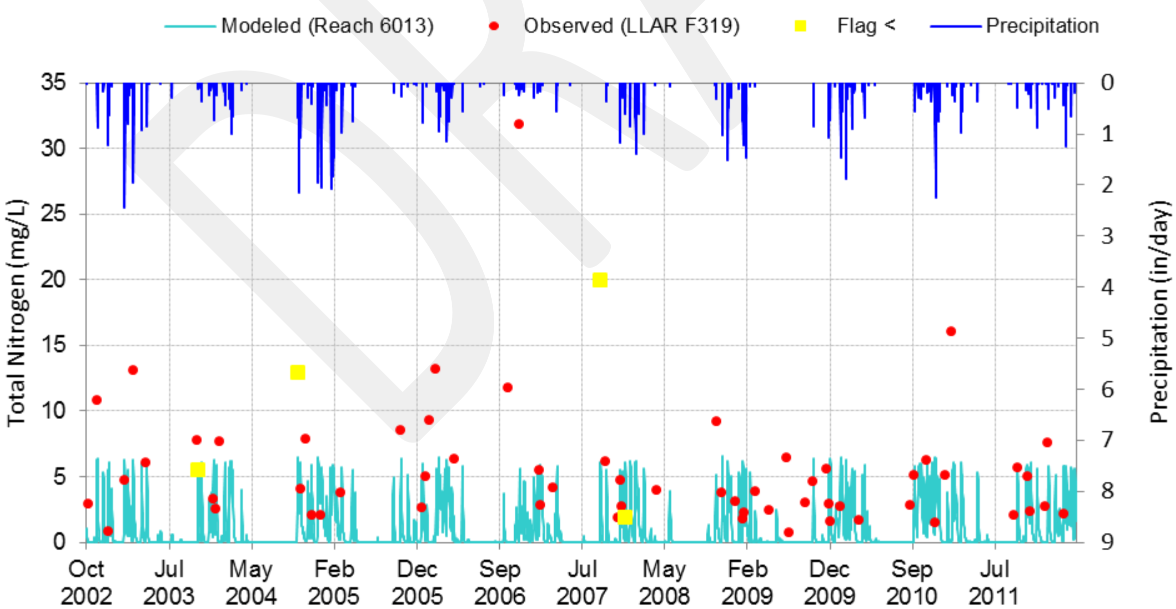

Figure 30. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

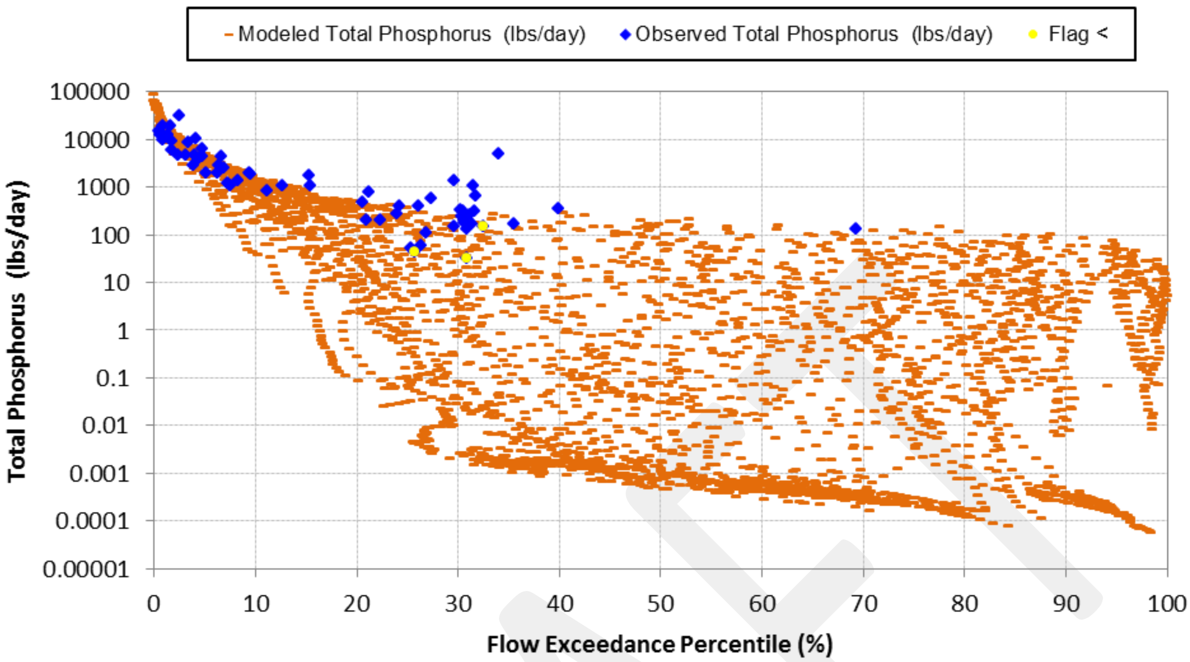

Figure 31. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

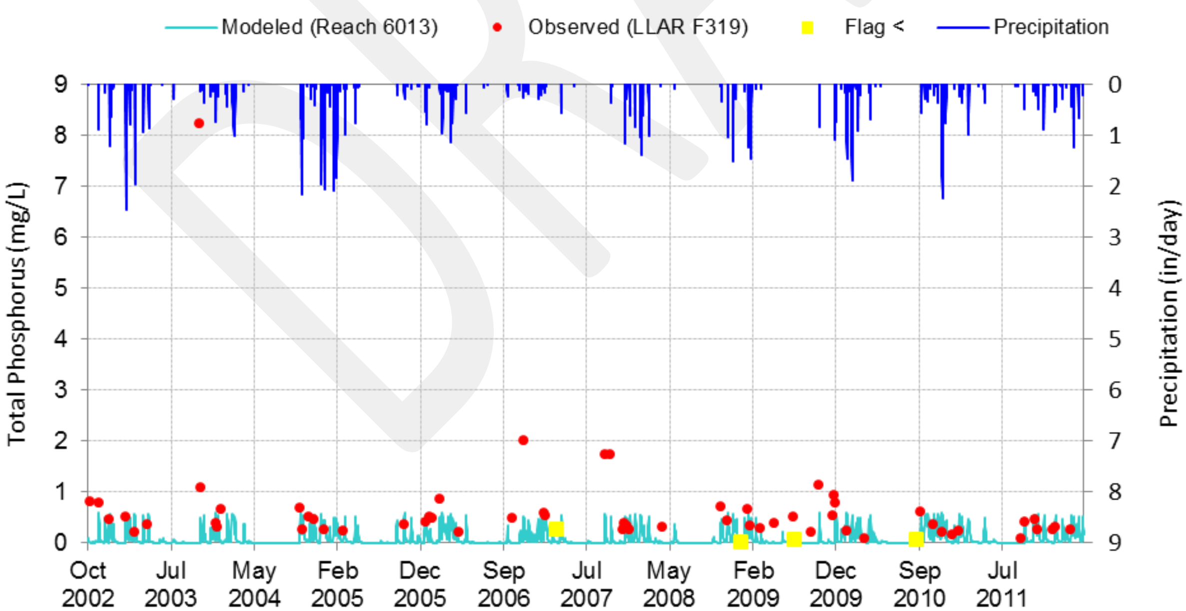

Figure 32. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

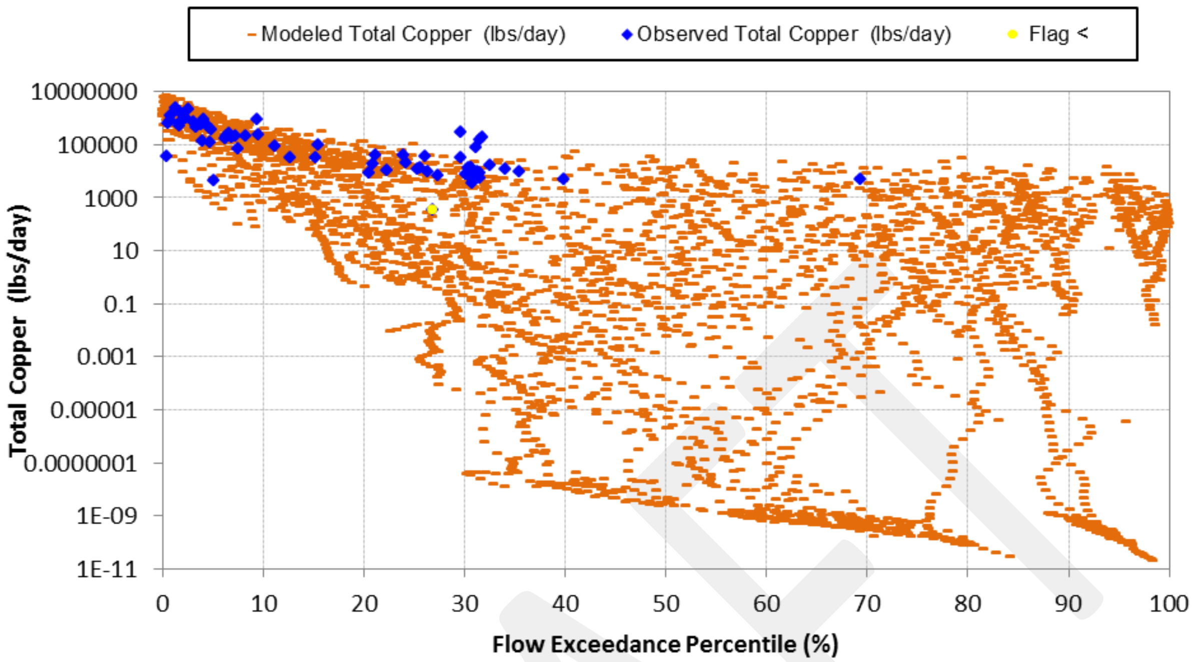

Figure 33. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

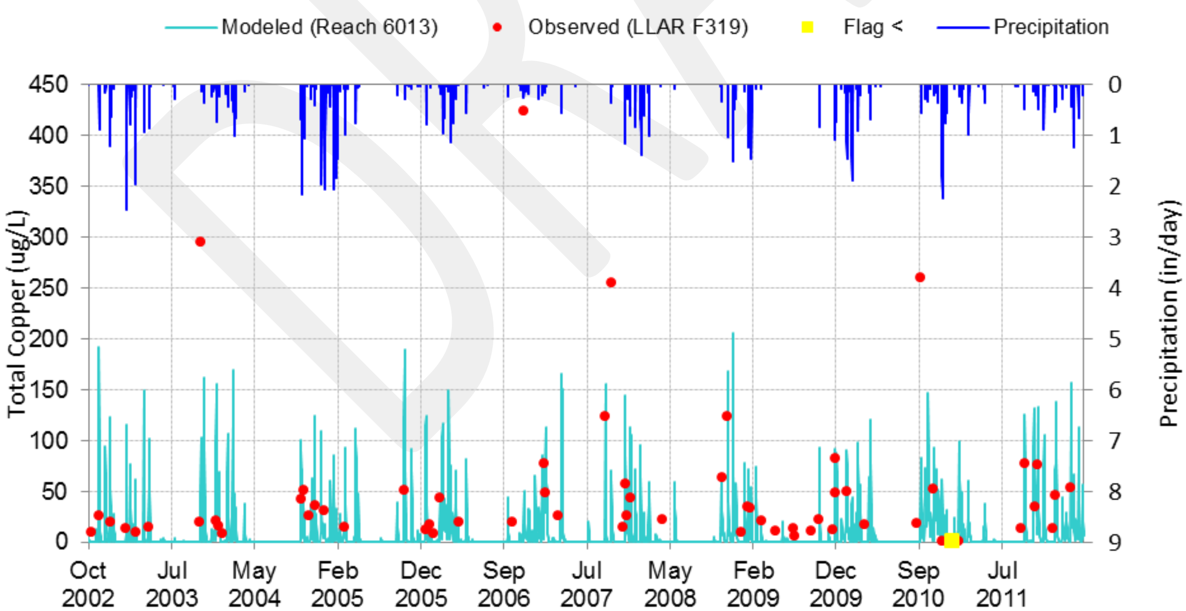

Figure 34. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

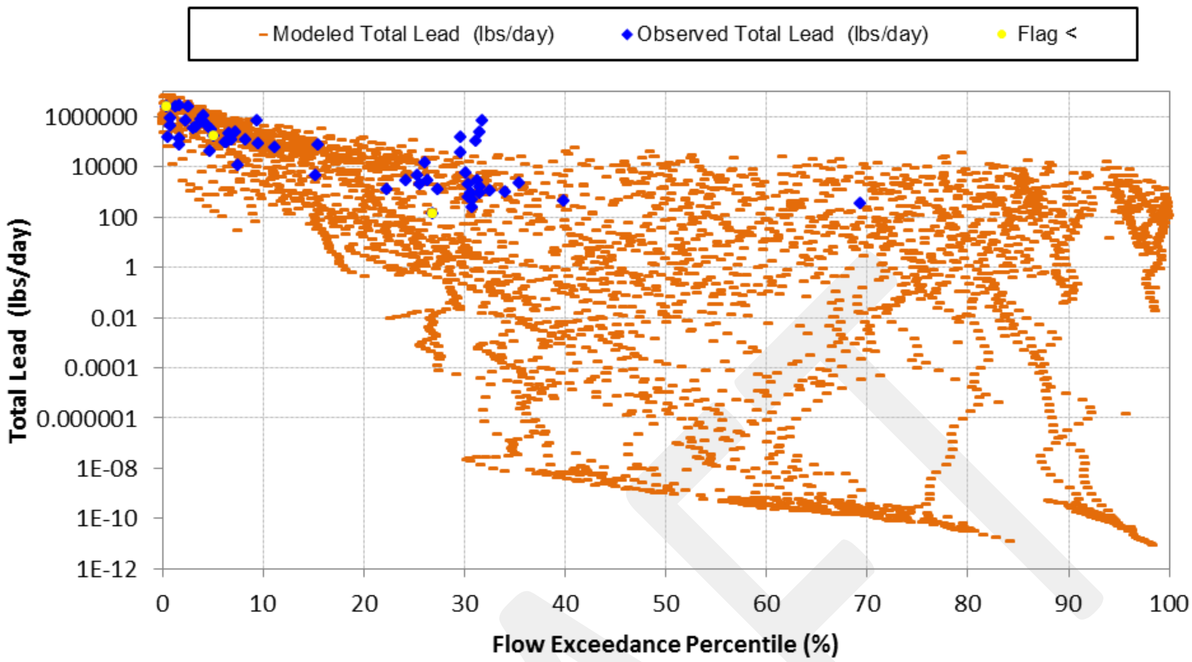

Figure 35. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

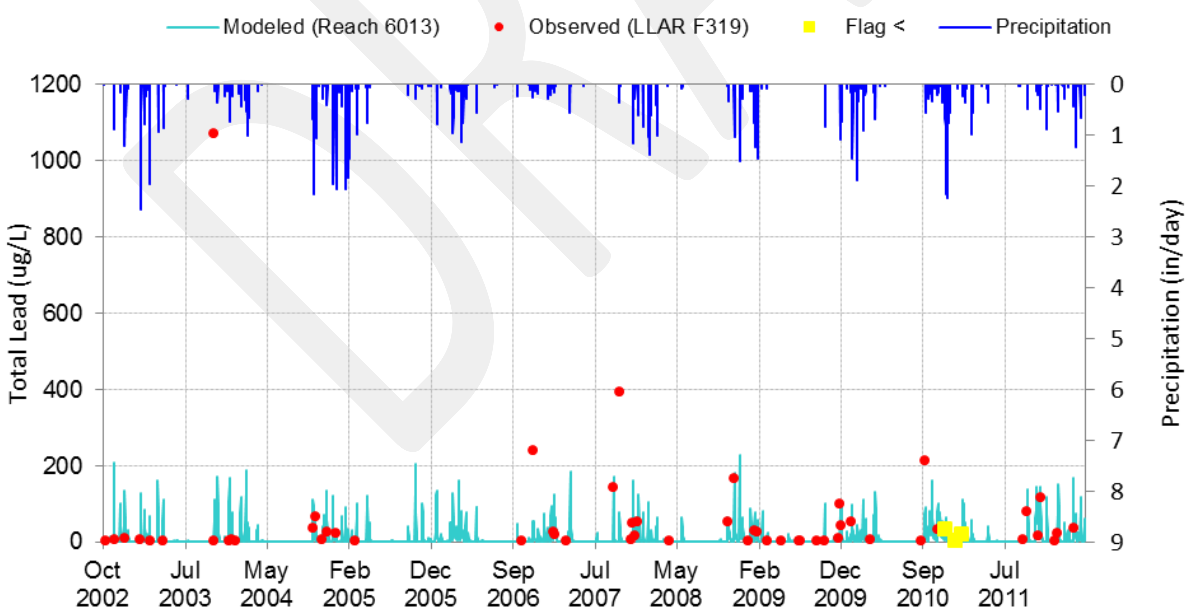

Figure 36. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

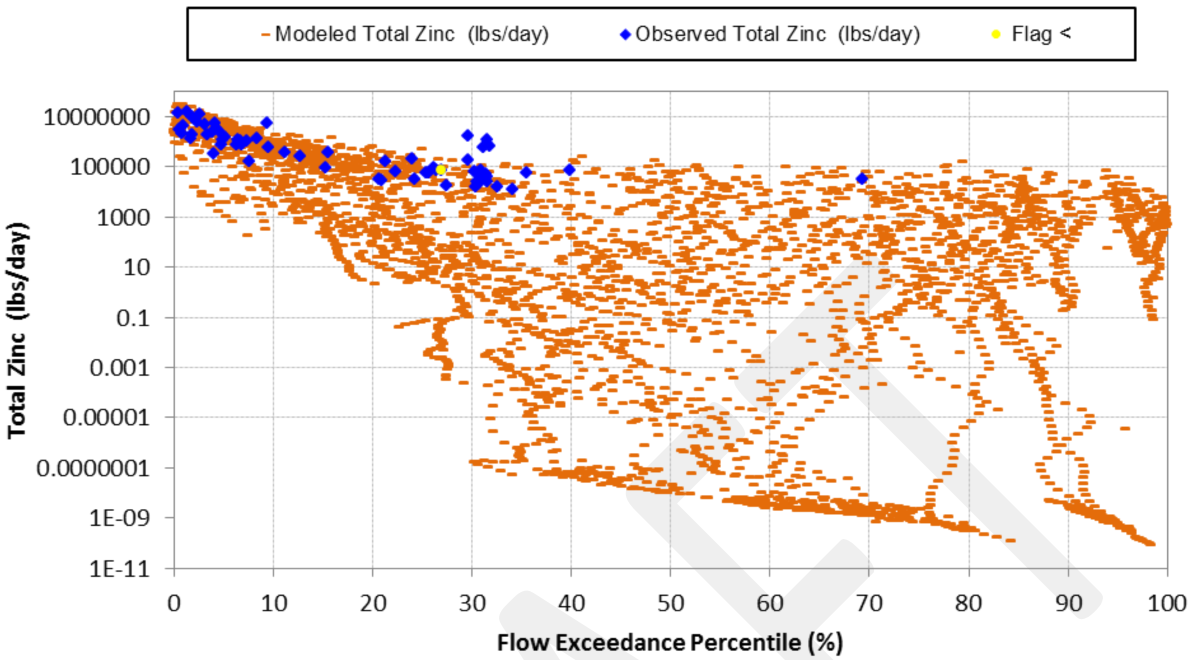

Figure 37. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

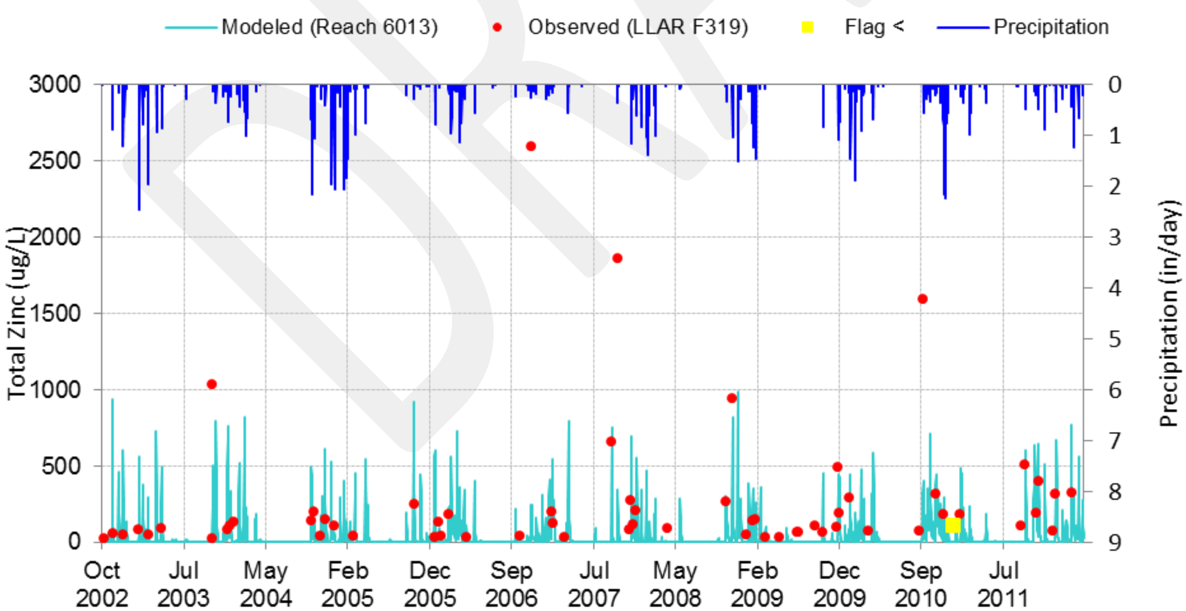

Figure 38. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

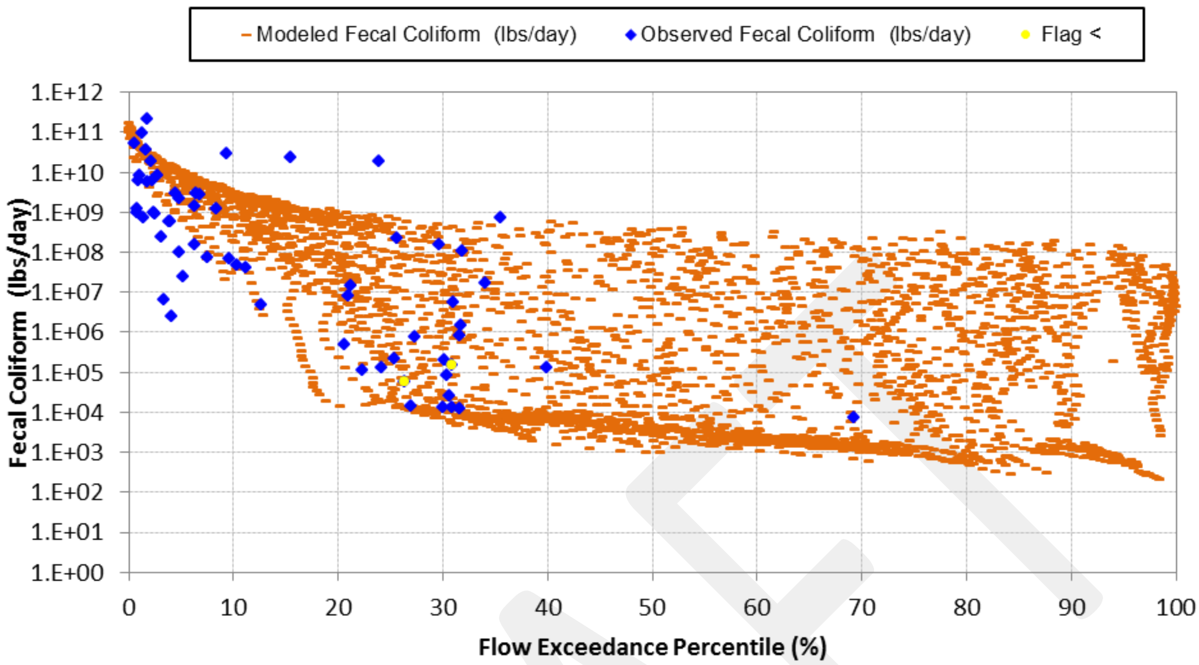

Figure 39. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

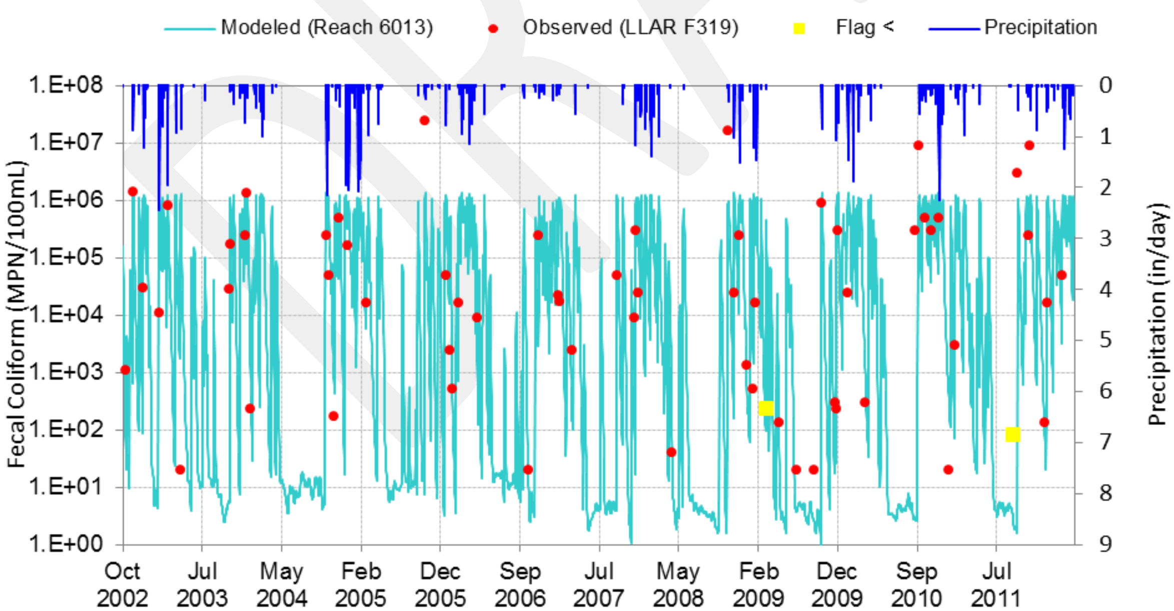

Figure 40. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

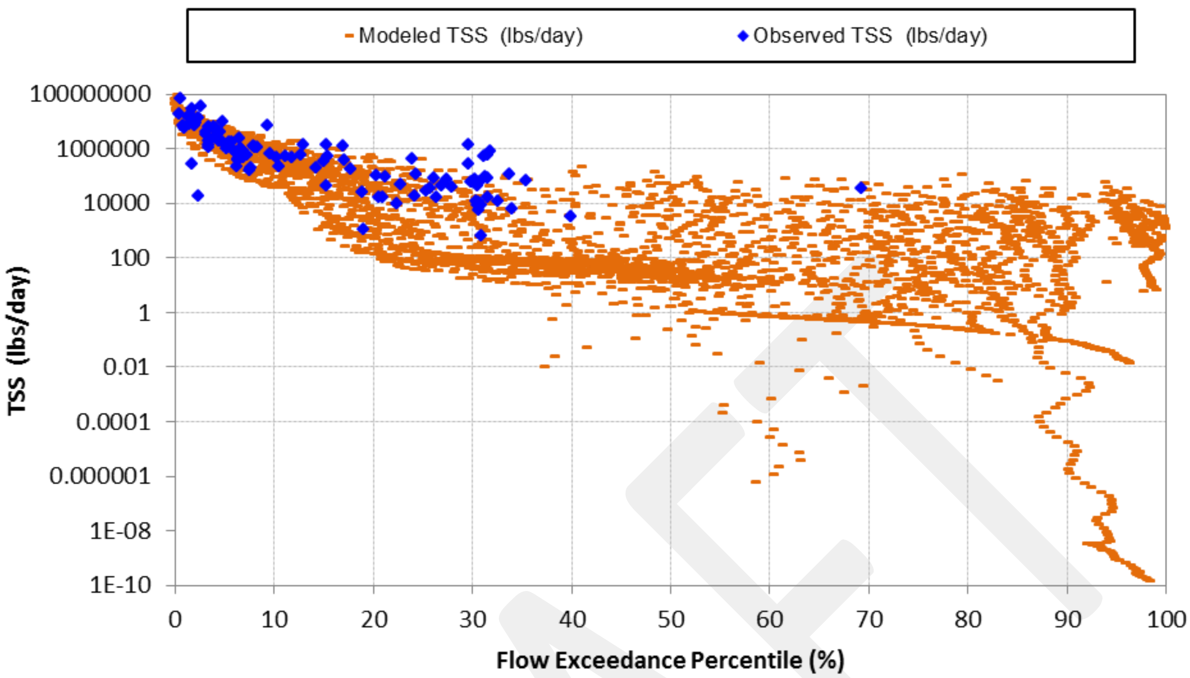

Figure 41. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

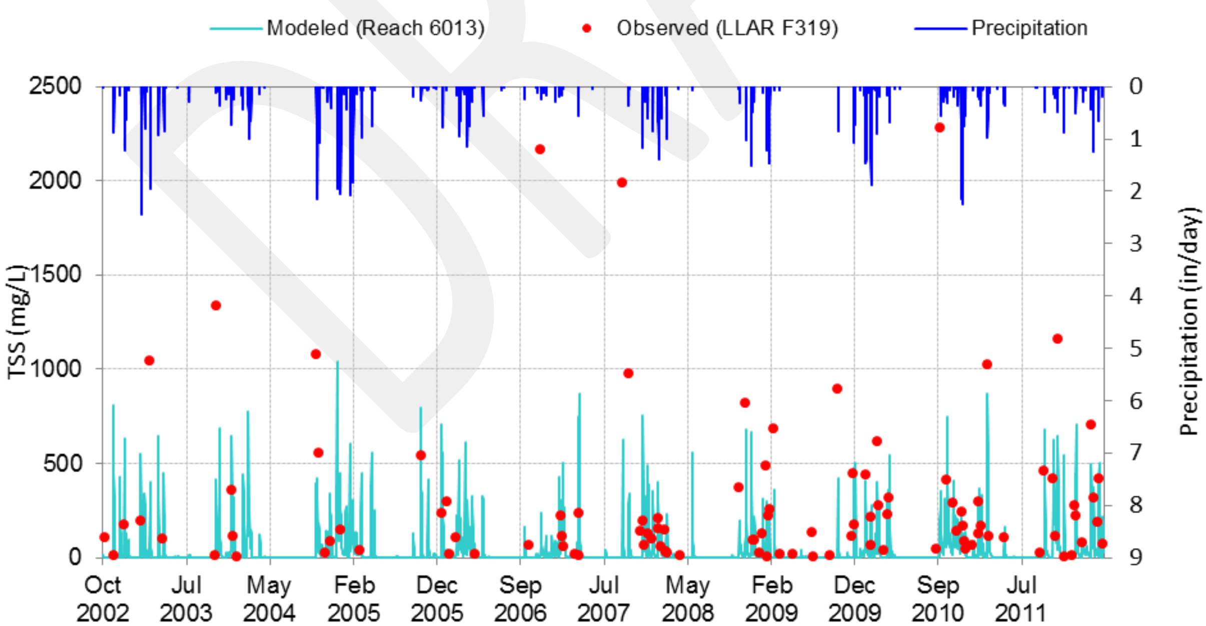

Figure 42. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

3. Los Cerritos Channel

Table 3. Summary of water quality data evaluated for Los Cerritos Channel

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
Stearns St.	Total Copper (ug/l)	8.4	17.25	25	43.5	240
Stearns St.	Total Lead (ug/l)	0.78	3.025	17	41.75	370
Stearns St.	TSS (mg/L)	2	52.5	110	210	1700
Stearns St.	Total Zinc (ug/l)	9.5	33	180	390	2600
Stearns St.	Fecal Coliform (MPN/100mL)	18	2275	8000	28500	1600000
Stearns St.	Total Nitrogen (mg/l)	0.9	2.147	3.292	4.532	23.7
Stearns St.	Total Phosphorous (mg/l)	0.083	0.22	0.53	0.91	6.2

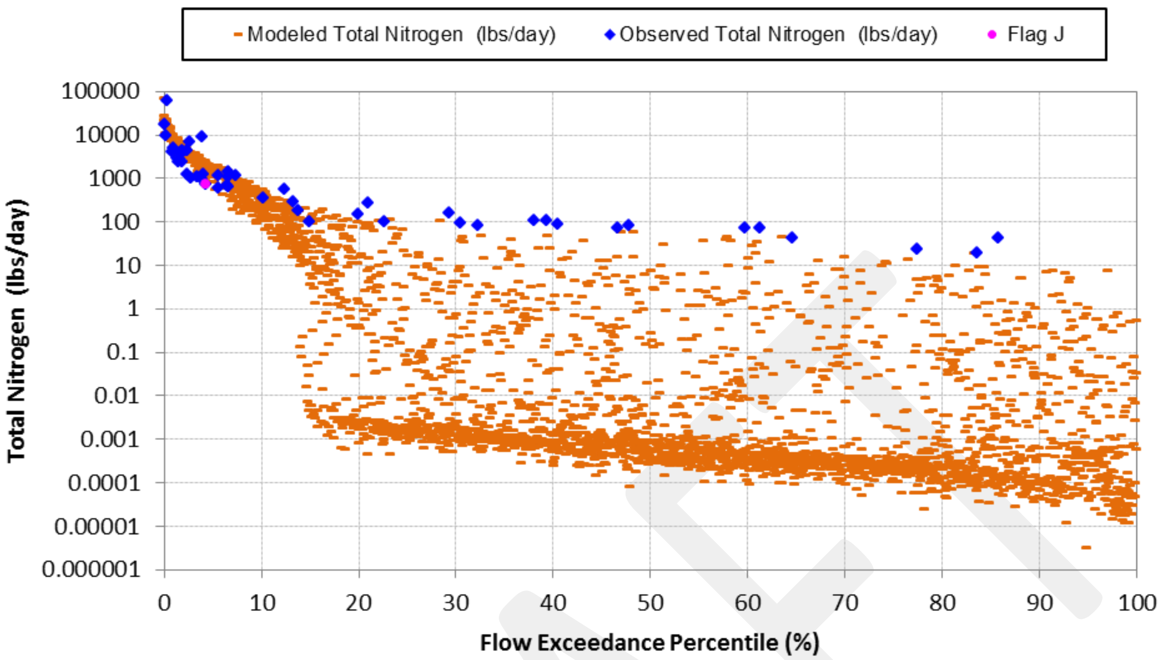

Figure 43. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

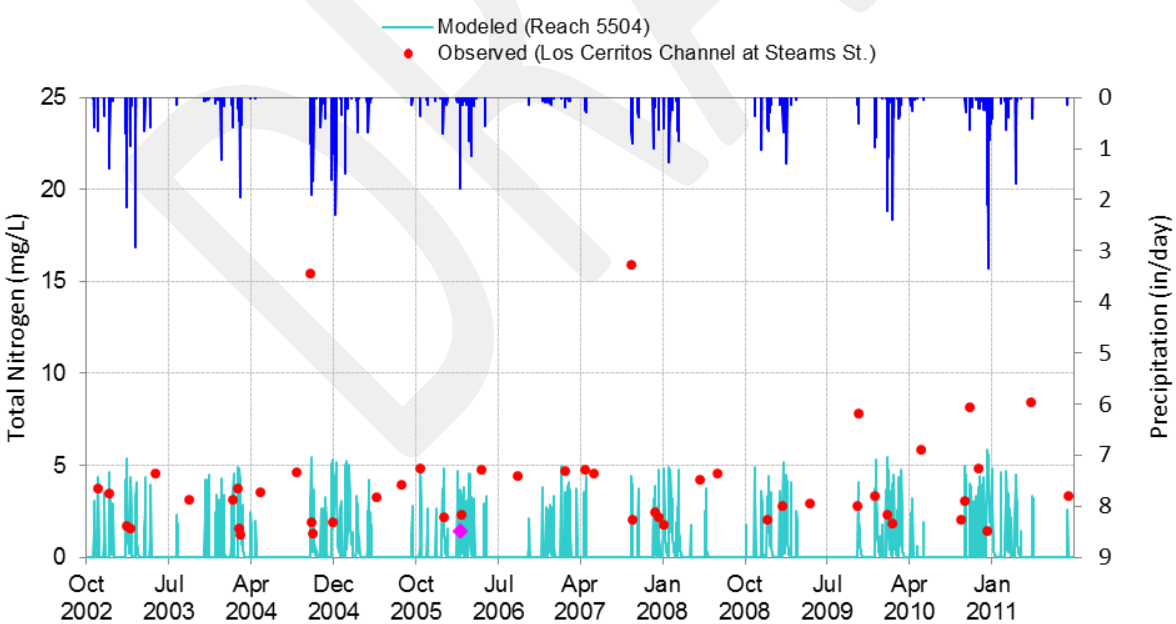

Figure 44. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

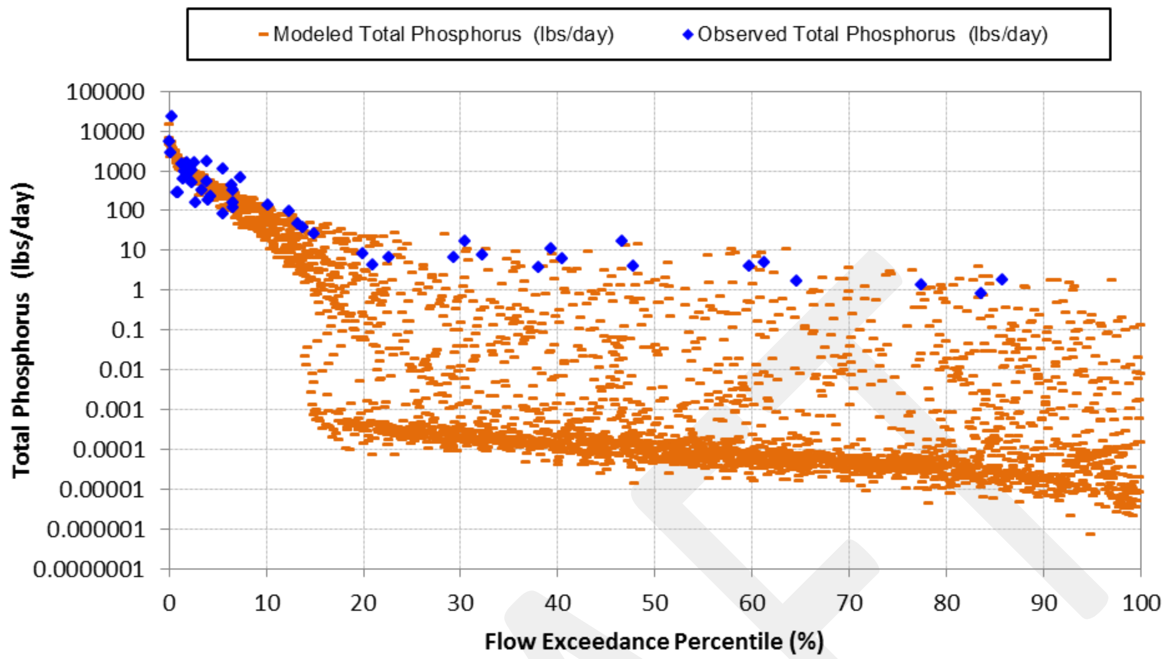

Figure 45. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

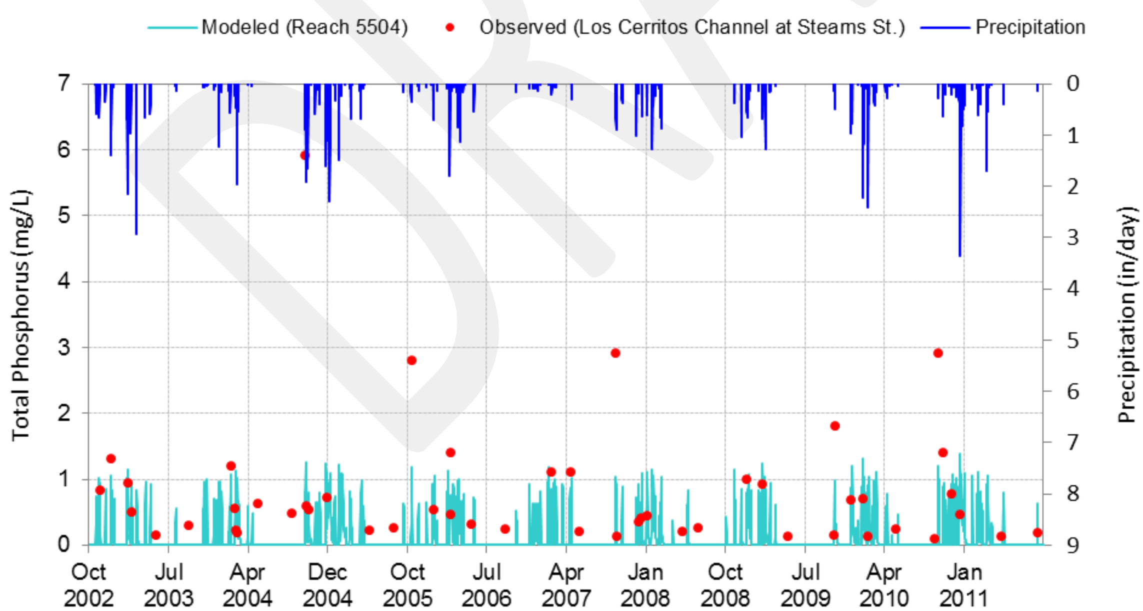

Figure 46. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

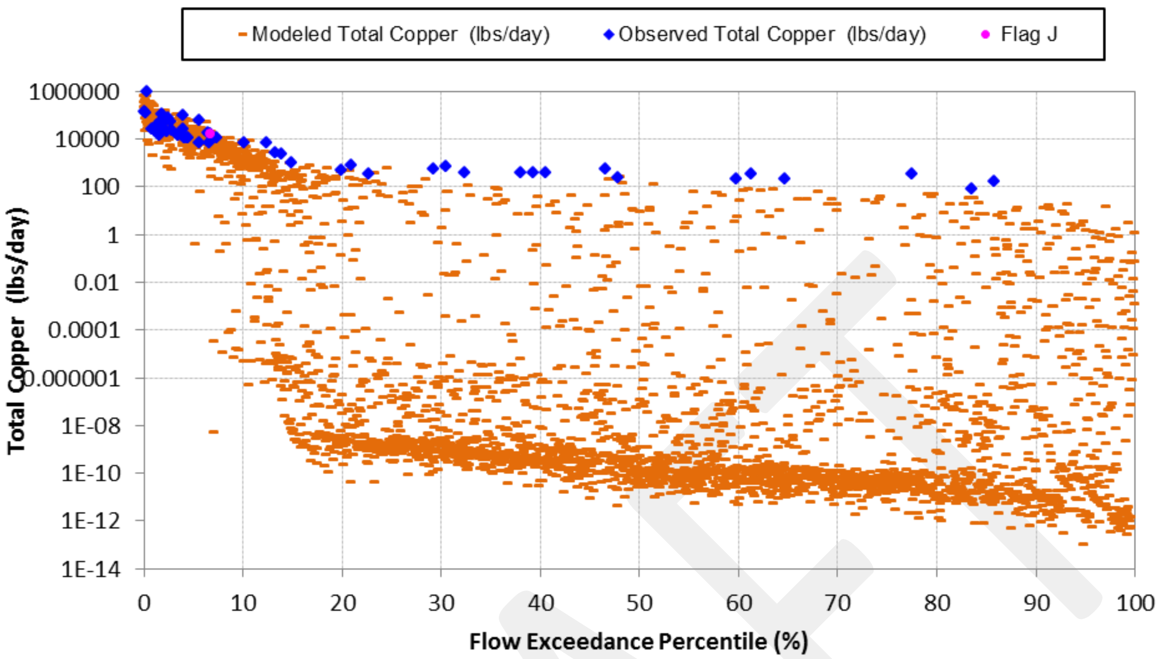

Figure 47. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

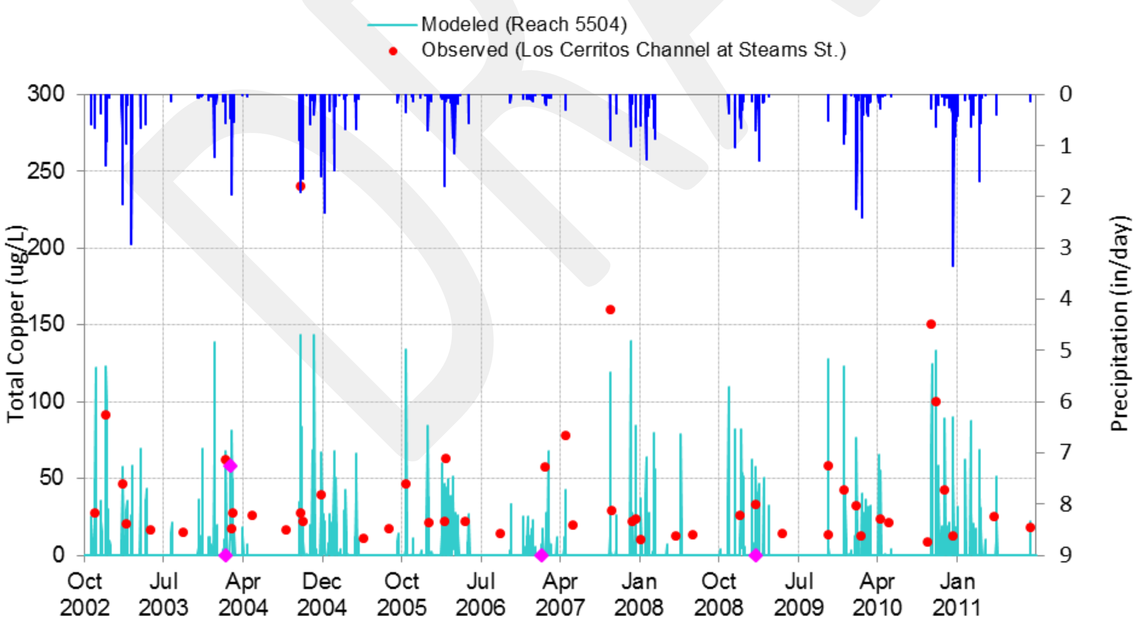

Figure 48. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

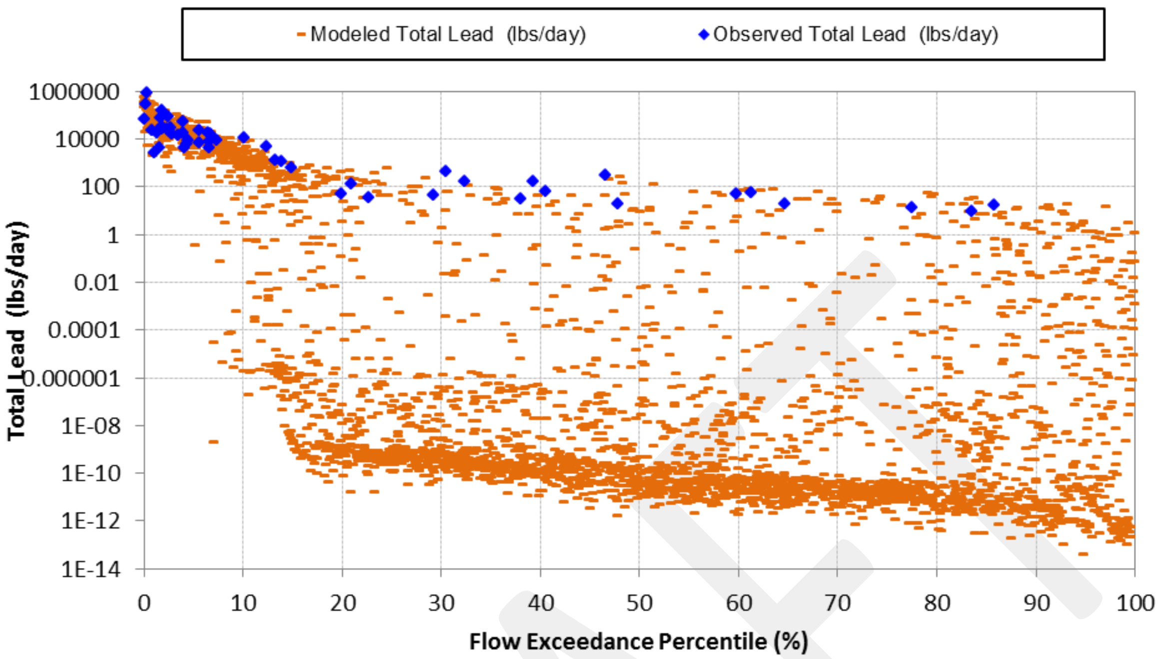

Figure 49. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

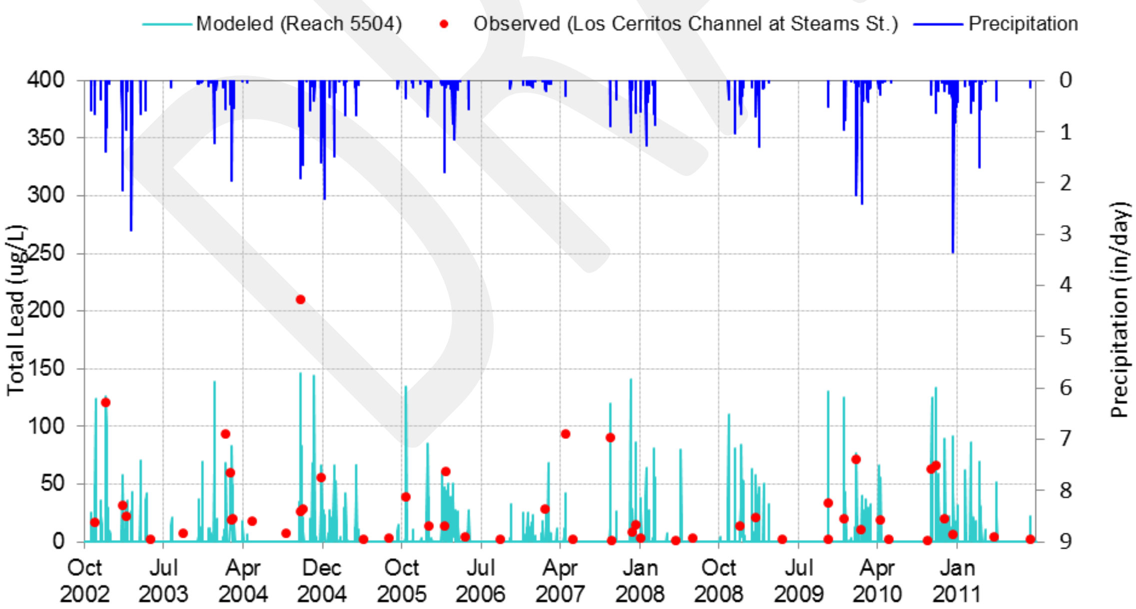

Figure 50. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

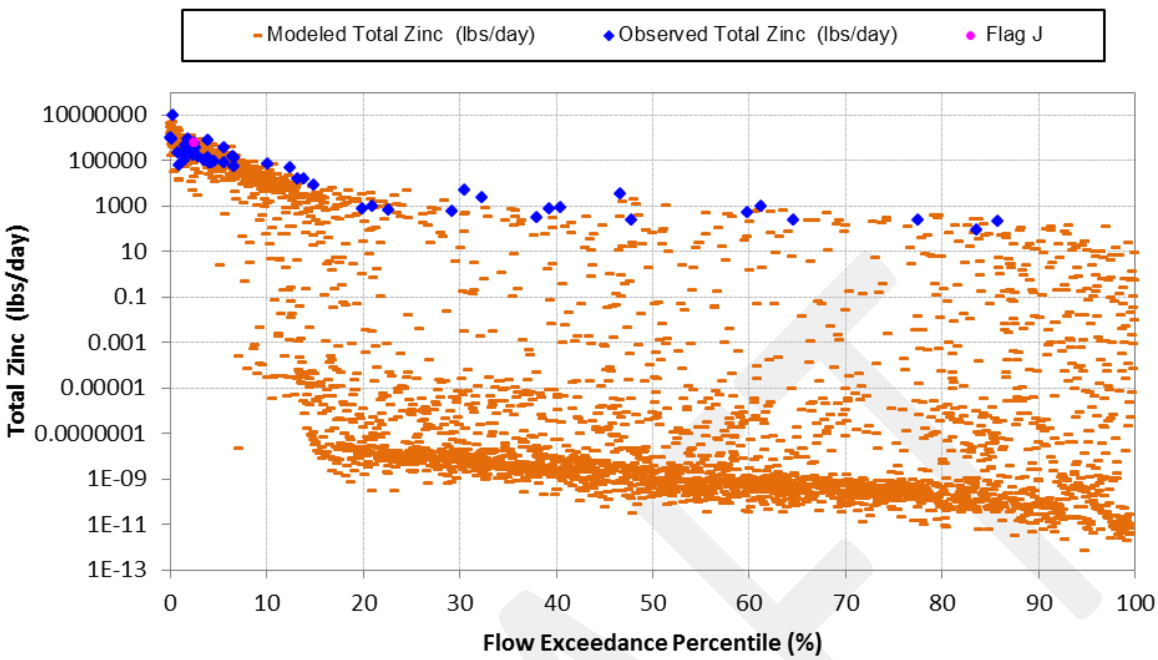

Figure 51. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

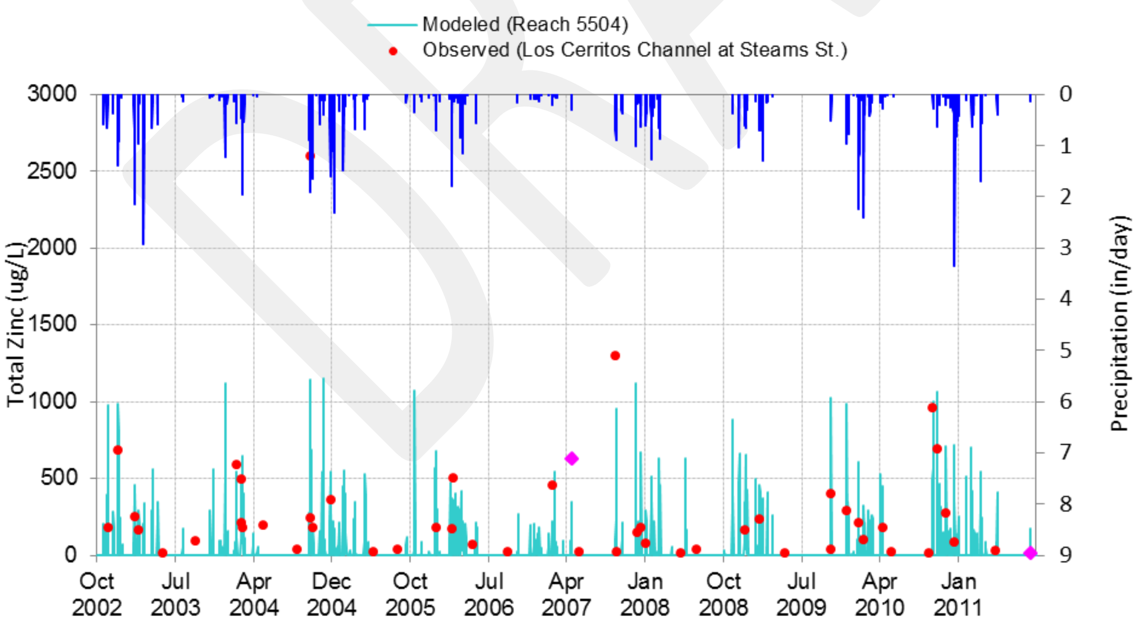

Figure 52. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

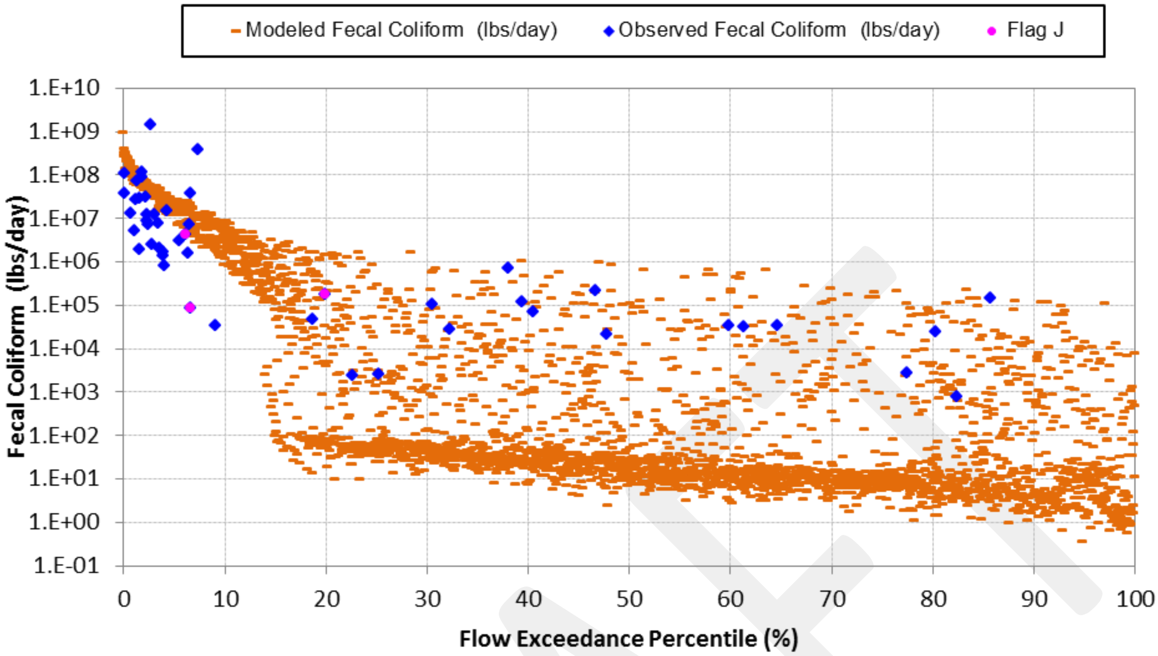

Figure 53. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

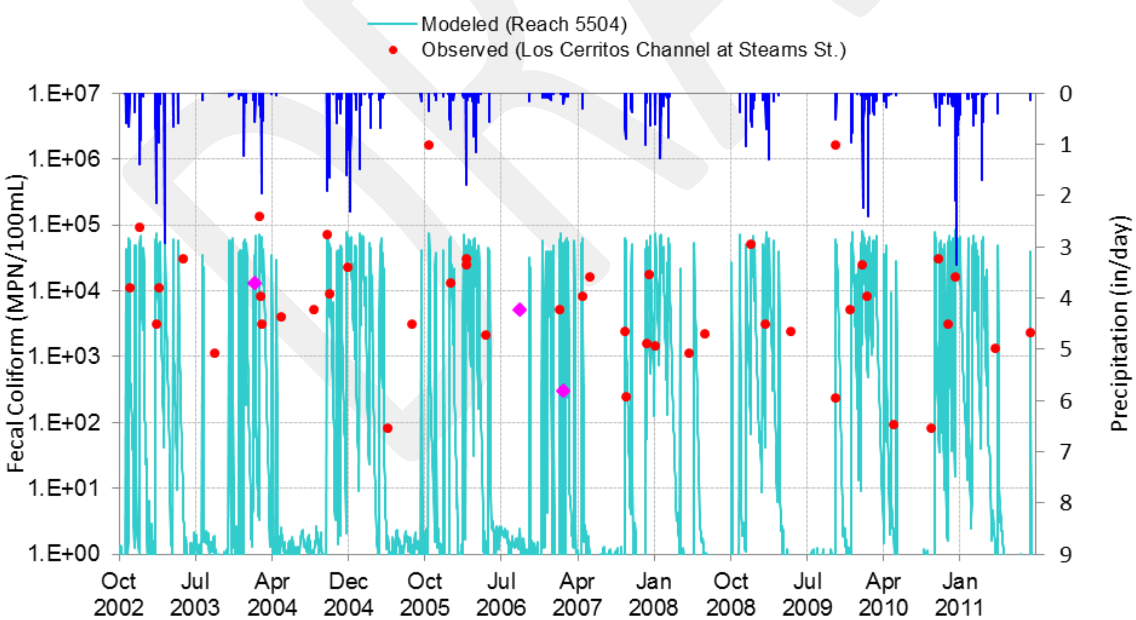

Figure 54. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

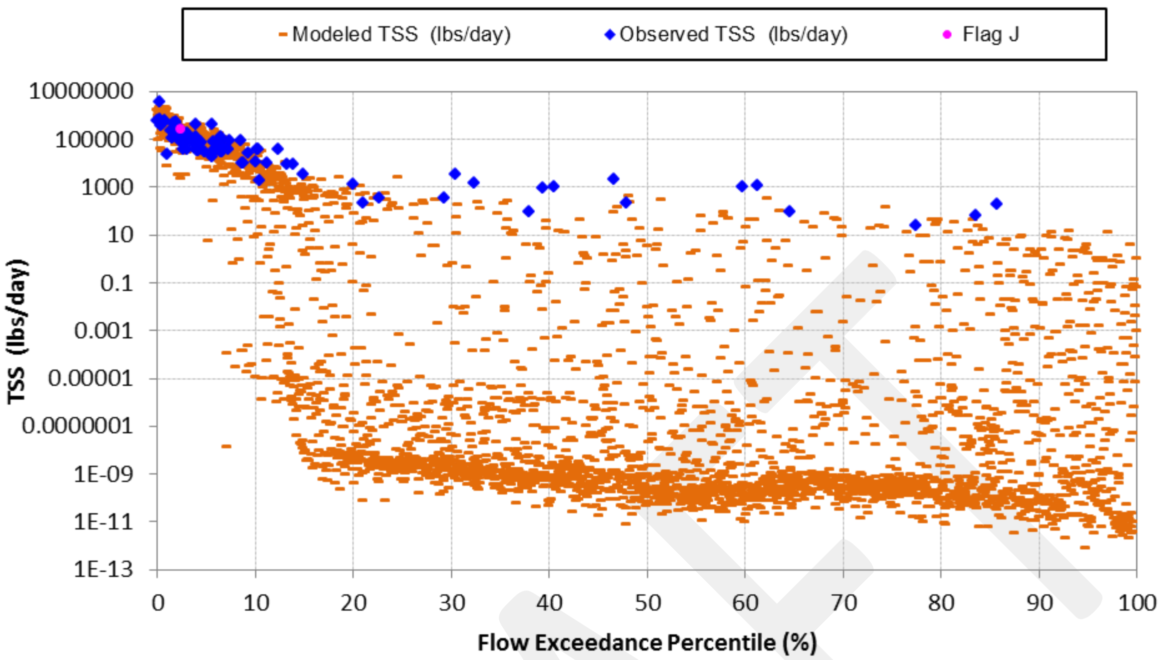

Figure 55. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

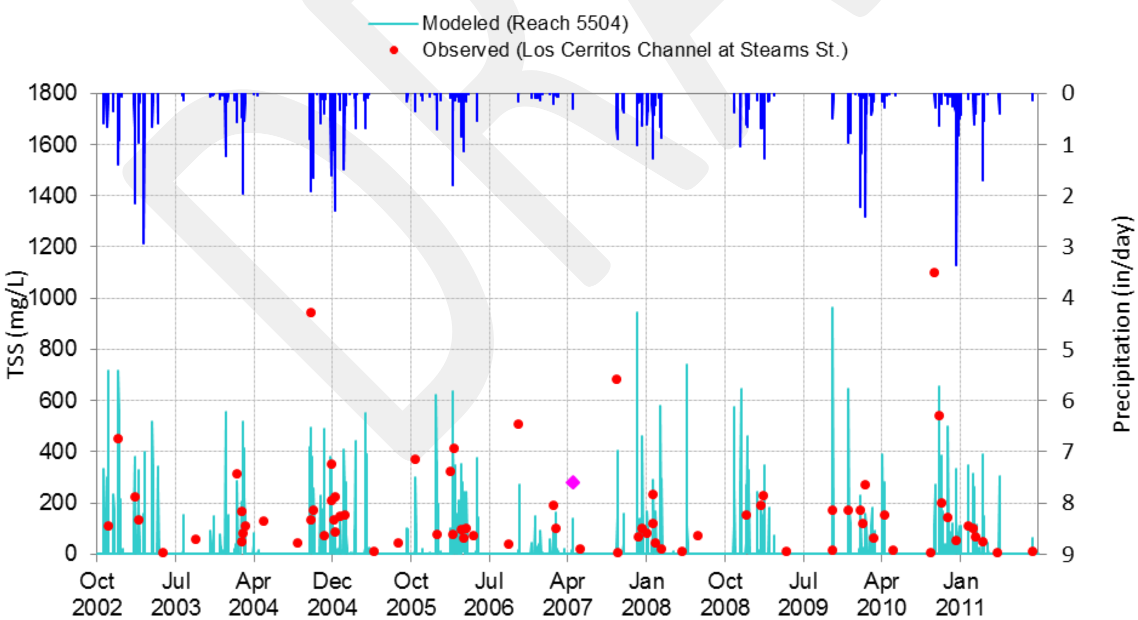

Figure 56. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

Watershed Management Program Appendix 7

A-7-1 Legal Authority Letters

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December 9, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of Artesia to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of Artesia (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Title 6, Chapter 7 of the Artesia Municipal Code ("AMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (AMC § 6-7.09--Requirements for industrial/commercial and construction activities);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (AMC § 6-7.06--Prohibited activities; AMC § 6-7.08--Good housekeeping provisions);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (AMC § 6-7.06--Prohibited activities);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (AMC § 6-7.06--Prohibited activities; AMC § 6-7.08--Good housekeeping provisions; AMC § 6-7.11--Enforcement);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or

orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (AMC § 6-7.11--Enforcement);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (AMC § 6-7.11--Enforcement);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (AMC § 6-7.06--Prohibited activities; AMC § 6-7.11--Enforcement);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (AMC § 6-7.06--Prohibited activities; AMC § 6-7.11--Enforcement);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects; AMC § 6-7.08--Good housekeeping provisions);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects)); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4 (MBMC §

5.84.100--Adoption urban stormwater mitigation plan (SUSMP); AMC § 6-7.08--Good housekeeping provisions; AMC § 6-7.11--Enforcement).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (MBMC Chapter 5.84) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges).
- Administrative Penalties and Citations (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations; AMC Title 1, Chapter 7—Administrative Citations).

B. Nuisance Remedies

- Public nuisance under State law.

- City nuisance abatement procedures (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations; AMC Title 1, Chapter 7—Administrative Citations).

C. Criminal Remedies

- Misdemeanor citations/prosecution (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, AMC Title 1, Chapter 7—Administrative Citations).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

Kevin G. Ennis

Kevin G. Ennis
City Attorney

cc: Mayor and Members of the City Council
William Rawlings, City Manager
Justine Menzel, Deputy Executive Director
Candice K. Lee, Esq.
Andrew Brady, Esq.

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December 6, 2013

Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013-1105

Re: Statement of Legal Authority

Dear Mr. Unger:

This letter is provided to serve as the Statement of Legal Authority for the City of Bellflower (the "City") that must be submitted with its Annual Report pursuant to Part VI.A.2.b. of Order No. R4-2012-0175 for NPDES Permit No. CAS004001. As legal counsel for the City, it is my considered legal opinion the City has all the necessary legal authority to implement and enforce the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order during the reporting period of July 1, 2012 through June 30, 2013, to the extent permitted by State and Federal law, subject to the limitations on municipal action under the California and United States Constitutions.

Per the requirement in Part VI.A.2.b.i., here are citations to the Bellflower Municipal Code ("BMC") for each of the following requirements found in Part VI.A.2.a:

i. *Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.*

BMC Sections: 13.20.090 Control of Pollutants from Industrial and Commercial Facilities, 13.20.100 Control of Pollutants from Industrial Activities, 13.20.110 Control of Pollutants from Construction Activities Requiring General Construction Activity Stormwater Permit, and 13.20.120 Control of Pollutants from Other Construction Activities

ii. *Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

iii. *Prohibit and eliminate illicit discharges and illicit connections to the MS4.*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.070 Illicit Connections

iv. *Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.*

BMC Section: 13.20.060 Illegal Disposal/Dumping

v. *Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);*

BMC Section: 13.20.140 Violation, Inspection, Enforcement

vi. *Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.*

BMC Section: 13.20.140 Violation, Inspection, Enforcement

vii. *Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Co-permittees;*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

viii. *Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation;*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

ix. *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters.*

This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4;

BMC Section: 13.20.140 Violation, Inspection, Enforcement

x. *Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations;*

BMC Sections: 13.20.090 Control of Pollutants from Industrial and Commercial Facilities and 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

xi. *Require that structural BMPs are properly operated and maintained;*

BMC Section: 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

xii. *Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.*

BMC Section: 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

Per the requirement in Part VI.A.2.b.ii., the City's legal procedures available to mandate compliance with applicable municipal ordinances identified in the above section, and therefore with the conditions of the Order, can be found in BMC Section 13.20.140 Violation, Inspection, Enforcement. Here is the relevant text of that provision:

13.20.140 Violation, Inspection, Enforcement.

A. Violation of any provision of this chapter, any stormwater pollution prevention plan or any permit issued pursuant to this chapter shall be a violation per Chapter 1.08.

B. The Director of Community Development, or the Director's designees, may issue notices of violation and administrative orders to achieve compliance with the provisions of this chapter. Failure to comply with the terms and conditions of such a notice of violation or an administrative order shall constitute a violation of this chapter.

C. The violation of any provision of this chapter is hereby declared to be a nuisance, and may be abated by the City in accordance with its authority to abate nuisances.

D. The remedies listed in this chapter are not exclusive of any other remedies available to the City under any applicable Federal, State or local law and it is within the discretion of the City to seek cumulative remedies.

[…]

F. The Director of Community Development, or the Director's designees, may issue notice of violation and administrative orders to any other person who has failed to comply with either a notice of violation or other administrative order an invoice for costs (invoice of cost) for reimbursement of the City's actual costs incurred in issuing and enforcement of any provision of this chapter.

G. The Director of Community Development, or the Director's designees, may require that any person engaged in any activity and/or owning or operating any facility which may cause or contribute to stormwater pollution or contamination, illicit discharges and/or discharge of nonstormwater to the stormwater system, undertake such monitoring activities and/or analysis and furnish such reports as the officer may specify. The burden, including costs, of these activities, analysis and reports shall bear a reasonable relationship to the need for the monitoring, analysis and the benefits to be obtained.

Thus, enforcement actions can be completed administratively or judicially if necessary.

Please contact the undersigned if you have any questions.

Sincerely,

ALESHIRE & WYNDER, LLP

Joseph W. Pannone
City Attorney for the City of Bellflower

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December 3, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013-1105

Re: Statement of Legal Authority

Dear Mr. Unger:

This letter is provided to serve as the Statement of Legal Authority for the City of Cerritos (the "City") that must be submitted with its Annual Report pursuant to Part VI.A.2.b. of Order No. R4-2012-0175 for NPDES Permit No. CAS004001. As legal counsel for the City, I have determined that it has all the necessary legal authority to implement and enforce the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order during the reporting period of July 1, 2012 through June 30, 2013, to the extent permitted by State and Federal law, subject to the limitations on municipal action under the California and United States Constitutions.

Per the requirement in Part VI.A.2.b.i., here are citations to the City's Municipal Code for each of the following requirements found in Part VI.A.2.a:

i. *Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.*

   Municipal Code Sections: 6.32.050 Construction sites requiring building permit and/or grading plan and 6.32.060 Industrial activity sites

ii. *Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.*

   Municipal Code Section: 6.32.030 Illicit discharges and connections

//0.0

iii. *Prohibit and eliminate illicit discharges and illicit connections to the MS4.*

Municipal Code Section: 6.32.030 Illicit discharges and connections

iv. *Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.*

Municipal Code Sections: 6.32.030 Illicit discharges and connections and 6.32.040 Illicit disposal

v. *Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);*

Municipal Code Sections: 6.32.010 Purpose and 6.32.080 Violation—Penalty

vi. *Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.*

Municipal Code Section: 6.32.080 Violation—Penalty

vii. *Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Co-permittees;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

viii. *Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

ix. *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4;*

Municipal Code Section: 6.32.080 Violation—Penalty, subsection (D)

x. *Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

xi. *Require that structural BMPs are properly operated and maintained;*

Municipal Code Section: 6.32.055 Urban runoff mitigation plan for new development

xii. *Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.*

Municipal Code Section: 6.32.055 Urban runoff mitigation plan for new development

Per the requirement in Part VI.A.2.b.ii., the City's legal procedures available to mandate compliance with applicable municipal ordinances identified in the above section, and therefore with the conditions of the Order, can be found in Municipal Code Section 6.32.080 Violation—Penalty. Here is the relevant text of that provision:

6.32.080 Violation—Penalty.

(A) The violation of any provision of this chapter, or failure to comply with any of the requirements of this chapter, shall constitute a misdemeanor; except that notwithstanding any other provision of this chapter, any such violation constituting a misdemeanor under this chapter may, at the sole discretion of the authorized enforcement officer, by charged and prosecuted as an infraction.

(B) In addition to the penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to the public health, safety and welfare, is declared and deemed a nuisance, may be summarily abated and/or restored by the authorized enforcement officer, and/or civil action to abate, enjoin or otherwise compel the cessation of such nuisance.

(1) The cost of such abatement and restoration shall be borne by the owner of the property and the cost thereof shall be invoiced to the owner of the property. If the invoice is not paid with sixty days, a lien shall be placed upon and against the property. If the lien is not satisfied within three months, the property may be sold in satisfaction thereof in a like manner as other real property is sold under execution.

(2) If any violation of this chapter constitutes a seasonal recurrent nuisance, the authorized enforcement officer shall so declare. Thereafter such seasonal and recurrent nuisance shall be abated every year without the necessity of any further hearing.

(3) In any administrative or civil proceeding under this chapter in which the city prevails, the city shall be awarded all costs of investigation, administrative overhead, out-of-pocket expenses, costs of suit and reasonable attorney fees.

(C) Penalties for Failure to Comply with BMPs. The authorized enforcement officer shall enforce this chapter as follows:

(1) For the first failure to comply with any provision of this chapter, the authorized enforcement officer shall issue to the affected person or business a written notice which includes the following information:

(a) A statement specifying the violation committed;

(b) A specified time period within which the affected person or business must correct the failure or file a written notice disputing the notice of failure to comply;

(c) A statement of the penalty for continued noncompliance.

(2) For each subsequent failure to comply with any provision of this chapter, following written notice issued pursuant to subsection (C)(1) of this section, the authorized enforcement officer may levy a penalty of one hundred dollars each day during which a person or business fails to comply with the provisions of this chapter. Each day following written notice shall constitute a separate offense. Said penalty shall be set by the city council resolution.

[…]

Thus, enforcement actions can be completed administratively or judicially if necessary.

Please contact the undersigned if you have any questions.

Sincerely,

ALESHIRE & WYNDER, LLP

Mark W. Steres

Mark W. Steres
City Attorney for the City of Cerritos

WOODRUFF, SPRADLIN & SMART
A Professional Corporation

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December 4, 2013

VIA FIRST CLASS MAIL

Mr. Samuel Unger
Executive Officer
Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Re: Legal Authority Certification for the City of Diamond Bar

Dear Mr. Unger:

The City of Diamond Bar ("City"), through its City Attorney, submits this statement in its capacity as a Permittee pursuant to Part VI.A.2 of RWQCB Order R4-2012-0175 ("Order").

1. Legal Authority Statement

The undersigned City Attorney for the City of Diamond Bar does hereby state that in my opinion the City has or will timely obtain adequate legal authority to comply with the legal requirements imposed upon the City set forth in the regulations to the Clean Water Act, 40 CFR [Code of Federal Regulations] 122.26(d)(2)(i)(A-F), and to the extent permitted by State and Federal law and subject to the limitations on municipal action under the California and United States Constitutions. The City has the authority under the Constitution and statutes of the State of California to enact and enforce ordinances. The City has enacted ordinances to implement and enforce a stormwater control program. These ordinances contain specific enforcement provisions such as the suspension and revocation of permits and stop work orders and/or are enforceable under the generally applicable enforcement provisions of the City's Municipal Code (misdemeanors or infractions; suspension or revocation of permits and stop work orders; and nuisance abatement and recovery of abatement expenses).

2. Status of Implementation

The City has recently amended its ordinances regulating stormwater discharges to ensure that it has the adequate legal authority to implement and enforce its stormwater control program as directed by the "Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)", hereafter the "NPDES Permit". The City

anticipates one additional cleanup amendment will be brought to the City Council this month or in early December of this year.

3. City Departments

The City's Public Works Department, Community Development Department and Code Enforcement Officers are all involved with the regulation of stormwater runoff and runoff related activities, including grading, water quality, erosion control, and litter. One or more of these City departments or department directors are authorized and directed to take the actions contemplated by the regulations, *e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc. The City Attorney has authority under the ordinances and state law to bring criminal and civil enforcement actions.

Please do not hesitate to contact the undersigned should you have any questions or need any additional information.

Sincerely,

WOODRUFF, SPRADLIN & SMART
A Professional Corporation

DAVID A. DEBERRY
City Attorney, City of Diamond Bar

cc: James DeStefano, City Manager
David Liu, Public Works Director
Kimberly Young, Associate Engineer

City of Downey

FUTURE UNLIMITED

YVETTE M. ABICH GARCIA
City Attorney

December 12, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

RE: Legal Authority Certification for the City of Downey

Dear Mr. Unger:

As the City Attorney for the City of Downey, I have reviewed the City's existing ordinances, applicable statutes, and/or applicable contracts and have determined that as of the date of this letter, the City can operate pursuant to the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI.A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001] (the "2012 NPDES Permit"). Enforcement of the City's storm water ordinances can be completed administratively or, if necessary, through the judicial system.

This letter is limited to the matters contained herein, and should not be read as expressing any opinion on any other matter except on the matters expressly set forth herein.

Please call the undersigned if you have any questions.

Sincerely,

CITY OF DOWNEY

Yvette M. Abich Garcia
City Attorney

cc: John L. Hunter & Associates

"Our Youth - Our Future"

CITY OF HAWAIIAN GARDENS

December 15, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

RE: Legal Authority Certification for the City of Hawaiian Gardens

Dear Mr. Unger:

As legal counsel for the City of Hawaiian Gardens, I have reviewed its existing ordinances, applicable statutes, and/or existing contracts and have determined that the City has enacted the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI.A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001].

Please call the undersigned if you have any questions, or you may contact me by e-mail at osandoval@wss-law.com.

Sincerely,

Omar Sandoval

Omar Sandoval, Esq.
Woodruff, Spradlin & Smart
555 Anton Boulevard, Suite 1200
Costa Mesa, California 92626
Main:(714) 558-7000
Fax: (714) 835-7787

cc: John L. Hunter & Associates

COUNTY OF LOS ANGELES
OFFICE OF THE COUNTY COUNSEL
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500 WEST TEMPLE STREET
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County Counsel

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December 16, 2013

Mr. Samuel Unger, P.E., Executive Officer
California Regional Water Quality Control Board – Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013-2343

Attention: Mr. Ivar Ridgeway

Re: Certification By Legal Counsel For Los Angeles County Flood Control District's Annual Report

Dear Mr. Unger:

Pursuant to the requirements of Part VI(A)(2)(b) of Order No. R4-2012-0175 (the "Order"), the Office of the County Counsel of the County of Los Angeles makes the following certification in support of the Annual Report of the Los Angeles County Flood Control District ("LACFCD"):

Certification Pursuant To Order Part VI(A)(2)(b)

"*Each Permittee must submit a statement certified by its chief legal counsel that the Permittee has the legal authority within its jurisdiction to implement and enforce the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and this Order.*"

LACFCD has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and the Order.

Order Part VI(A)(2)(b)(i)

"*Citation of applicable municipal ordinances or other appropriate legal authorities and their relationship to the requirements of 40 CFR §122.26(d)(2)(i)(A-F) and this Order*"

Citations Of Applicable Ordinances Or Other Legal Authorities

Although many portions of State law, the Charter of the County of Los Angeles, the Los Angeles County Code and LACFCD's Flood Control District Code ("Code") are potentially applicable to the implementation and enforcement of these requirements, the primary applicable laws and ordinances are as follows:

Los Angeles County Code, Title 12, Chapter 12.80 STORMWATER AND RUNOFF POLLUTION CONTROL, including:

§12.80.010 - §12.80.360 Definitions

§12.80.370 Short title.

§12.80.380 Purpose and intent.

§12.80.390 Applicability of this chapter.

§12.80.400 Standards, guidelines and criteria.

§12.80.410 Illicit discharges prohibited.

§12.80.420 Installation or use of illicit connections prohibited.

§12.80.430 Removal of illicit connection from the storm drain system.

§12.80.440 Littering and other discharge of polluting or damaging substances prohibited.

§12.80.450 Stormwater and runoff pollution mitigation for construction activity.

§12.80.460 Prohibited discharges from industrial or commercial activity.

§12.80.470 Industrial/commercial facility sources required to obtain a NPDES permit.

§12.80.480 Public facility sources required to obtain a NPDES permit.

§12.80.490 Notification of uncontrolled discharges required.

§12.80.500 Good housekeeping provisions.

§12.80.510 Best management practices for construction activity.

§12.80.520 Best management practices for industrial and commercial facilities.

§12.80.530 Installation of structural BMPs.

§12.80.540 BMPs to be consistent with environmental goals.

§12.80.550 Enforcement—Director's powers and duties.

§12.80.560 Identification for inspectors and maintenance personnel.

§12.80.570 Obstructing access to facilities prohibited.

§12.80.580 Inspection to ascertain compliance—Access required.

§12.80.590 Interference with inspector prohibited.

§12.80.600 Notice to correct violations—Director may take action.

§12.80.610 Violation a public nuisance.

§12.80.620 Nuisance abatement—Director to perform work when—Costs.

§12.80.630 Violation—Penalty.

§12.80.635 Administrative fines.

§12.80.640 Penalties not exclusive.

§12.80.650 Conflicts with other code sections.

§12.80.660 Severability.

§12.80.700 Purpose.

§12.80.710 Applicability.

§12.80.720 Registration required.

§12.80.730 Exempt facilities.

§12.80.740 Certificate of inspection—Issuance by the director.

§12.80.750 Certificate of inspection—Suspension or revocation.

§12.80.760 Certificate of inspection—Termination.

§12.80.770 Service fees.

§12.80.780 Fee schedule.

§12.80.790 Credit for overlapping inspection programs.

§12.80.800 Annual review of fees.

Los Angeles County Code, Title 12, Chapter 12.84 LOW IMPACT DEVELOPMENT STANDARDS, including:

§12.84.410 Purpose.

§12.84.420 Definitions.

§12.84.430 Applicability.

§12.84.440 Low Impact Development Standards.

§12.84.445 Hydromodification Control.

§12.84.450 LID Plan Review.

§12.84.460 Additional Requirements.

Los Angeles County Code, Title 22 PLANNING AND ZONING, Part 6 ENFORCEMENT PROCEDURES, including:

§22.60.330 General prohibitions.

§22.60.340 Violations.

§22.60.350 Public nuisance.

§22.60.360 Infractions.

§22.60.370 Injunction.

§22.60.380 Enforcement.

§22.60.390 Zoning enforcement order and noncompliance fee.

Los Angeles County Code, Title 26 BUILDING CODE, including:

§26.103 Violations And Penalties

§26.104 Organization And Enforcement

§26.105 Appeals Boards

§26.106 Permits

§26.107 Fees

§26.108 Inspections

LACFCD Code Chapter 21 - STORMWATER AND RUNOFF POLLUTION CONTROL including:

§21.01 Purpose and Intent

§21.03 Definitions

§21.05 Standards, Guidelines, and Criteria

§21.07 Prohibited Discharges

§21.09 Installation or Use of Illicit Connections Prohibited

§21.11 Littering Prohibited

§21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity

§21.15 Notification of Uncontrolled Discharges Required

§21.17 Requirement to Monitor and Analyze

§21.19 Conflicts With Other Code Sections

§21.21 Severability

§21.23 Violation a Public Nuisance

California Government Code §6502

California Government Code §23004

California Water Code §8100 *et. seq.*

Relationship Of Applicable Ordinances Or Other Legal Authorities To The Requirements of 40 CFR §122.26(d)(2)(i)(A-F) And The Order

Although, depending upon the particular issue, there may be multiple ways in which particular sections of the County of Los Angeles' ordinances, LACFCD's ordinances, and statutes relate to the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and the Order, the table below indicates the basic relationship with Part VI(A)(2)(a) of the Order:

Order Part VI(A)(2)(a) Items	**Primary Applicable Ordinance/Statute**
i. Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.450 [construction] §12.80.460 [industrial and commercial] §12.80.470 and .480 [industrial and commercial NPDES requirements] §12.84.440 [LID standards] §12.84.445 [hydromodification control] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.340 [violations] §22.60.350 [public nuisance] §22.60.360 [infractions] §22.60.370 [injunction] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.103 [violations and penalties]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§26.104 [enforcement] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
ii. Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited] LACFCD Code: §21.07 Prohibited Discharges
iii. Prohibit and eliminate illicit discharges and illicit connections to the MS4.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.420 [illicit connections prohibited] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.23 Violation a Public Nuisance

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
iv. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.440 [littering and other polluting prohibited] LACFCD Code: §19.07 Interference With or Placing Obstructions, Refuse, Contaminating Substances, or Invasive Species in Facilities Prohibited §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
v. Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows).	Los Angeles County Code: §12.80.490 [notification of uncontrolled discharge] §12.80.570 [obstructing access to facilities] §12.80.580 [compliance inspection] §12.80.610 [violation a nuisance] §12.620 [nuisance abatement] §12.80.635 [violation penalty]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§12.80.640 [penalties not exclusive] §12.84.440 [LID standards] §12.84.445 [hydromodification control] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.340 [violations] §22.60.350 [public nuisance] §22.60.360 [infractions] §22.60.370 [injunction] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.103 [violations and penalties] §26.104 [enforcement] §26.106 [permits] §26.108 [inspections] LACFCD Code: §19.11 Violation a Public Nuisance §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.19 Conflicts With Other Code Sections §21.23 Violation a Public Nuisance
vi. Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.	Same as item v., above
vii. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees.	California Government Code §6502 California Government Code §23004
viii. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation.	California Government Code §6502 California Government Code §23004
ix. Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4.	Los Angeles County Code: §12.80.490 [notification of uncontrolled discharge] §12.80.570 [obstructing access to facilities] §12.80.580 [compliance inspection] §12.80.610 [violation a nuisance] §12.80.620 [nuisance abatement] §12.80.635 [violation penalty] §12.80.640 [penalties not exclusive] §22.60.380 [enforcement.] §26.106 [permits] §26.108 [inspections]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
x. Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations.	Los Angeles County Code: §12.80.450 [construction mitigation] §12.80.500 [good housekeeping practices] §12.80.510 [construction BMPs] §12.80.520 [industrial/commercial BMPs] §12.84.440 [LID standards] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
xi. Require that structural BMPs are properly operated and maintained.	Los Angeles County Code: §12.80.530 [installation of structural BMPs] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.23 Violation a Public Nuisance
xii. Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.	Los Angeles County Code: §12.80.530 [installation of structural BMPs] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance

<u>Order Part VI(A)(2)(b)(ii)</u>

"*Identification of the local administrative and legal procedures available to mandate compliance with applicable municipal ordinances identified in subsection (i) above and therefore with the conditions of this Order, and a statement as to whether enforcement actions can be completed administratively or whether they must be commenced and completed in the judicial system.*"

The local administrative and legal procedures available to mandate compliance with the above ordinances are specified in those ordinances, particularly in:

Los Angeles County Code:

§12.80.550 Enforcement—Director's powers and duties.

§12.80.600 Notice to correct violations—Director may take action.

§12.80.610 Violation a public nuisance.

§12.80.620 Nuisance abatement—Director to perform work when—Costs.

§12.80.630 Violation—Penalty.

§12.80.635 Administrative fines.

§12.80.640 Penalties not exclusive.

§12.84.450 LID Plan Review.

§12.84.460 Additional Requirements.

Title 26, §103 Violations And Penalties

Title 26, §104 Organization And Enforcement

Title 26, §105 Appeals Boards

Title 26, §106 Permits

§22.60.330 General prohibitions.

§22.60.340 Violations.

§22.60.350 Public nuisance.

§22.60.360 Infractions.

§22.60.370 Injunction.

§22.60.380 Enforcement.

§22.60.390 Zoning enforcement order and noncompliance fee.

LACFCD Code:

§21.05 Standards, Guidelines, and Criteria

§21.07 Prohibited Discharges

§21.09 Installation or Use of Illicit Connections Prohibited

§21.11 Littering Prohibited

§21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity

§21.15 Notification of Uncontrolled Discharges Required

§21.17 Requirement to Monitor and Analyze

§21.23 Violation a Public Nuisance

LACFCD attempts to first resolve each enforcement action administratively. However, the above cited ordinances also provide LACFCD with the authority to pursue such actions in the judicial system as necessary.

Very truly yours,

JOHN F. KRATTLI
County Counsel

By Judith Fries

JUDITH A. FRIES
Principal Deputy County Counsel
Public Works Division

JAF:jyj

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December 9, 2013

Lisa Rapp, Director of Public Works
City of Lakewood
5050 Clark Avenue
Lakewood, CA 90712

Re: Order No. R4-2012-0175
NPDES No. CAS004001

Dear Ms. Rapp:

In my capacity as City Attorney for the City of Lakewood (the "City"), I hereby confirm that the City has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR @ 122.26(d)(2)(i)(A-F) and the Order referenced above. Such legal authority is derived from Article 11, Section 7 of the California Constitution, Section 13002 of the California Water Code, and Section 5801 of the Lakewood Municipal Code, which incorporates by reference the pertinent provisions of the Los Angeles County Code.

The City is authorized to take enforcement action by administrative proceedings or in the judicial system.

Very truly yours,

Steven N. Skolnik

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December 9, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of La Mirada to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of La Mirada (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the

extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Chapter 13.12 of the La Mirada Municipal Code ("LMMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (LMMC § 13.12.070—Industrial Site Activity; 13.12.060—Construction sites requiring a building permit and/or grading plan);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (LMMC § 13.12.040 --Illicit discharges and connection.; LMMC § 13.12.050--Illicit disposal);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (LMMC § 13.12.040 --Illicit discharges and connections; LMMC § 13.12.050--Illicit disposal);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (LMMC § 13.12.040 --Illicit discharges and connections.; LMMC §

13.12.050--Illicit disposal; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (LMMC § 13.12.040 --Illicit discharges and connections; LMMC § 13.12.050--Illicit disposal; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (LMMC § 13.12.070—Industrial Site Activity; 13.12.060—Construction sites requiring a building permit and/or grading plan; LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4 (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (LMMC Chapter 13.12) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).
- Administrative Penalties and Citations (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

B. Nuisance Remedies

- Public nuisance under State law.
- City nuisance abatement procedures (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

C. Criminal Remedies

- Misdemeanor citations/prosecution (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

James L. Markman
City Attorney

cc: Mayor and Members of the City Council
Jeff Boynton, City Manager
Gary Sanui, Public Works Director
Marlin Muñoz, Senior Administrative Analyst
Candice K. Lee, Esq.
Andrew Brady, Esq.

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December 11, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of Norwalk to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of Norwalk (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Chapter 18.04 of the Norwalk Municipal Code ("NMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (NMC § 18.04.100--Requirements for industrial/commercial and construction activities);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (NMC § 18.04.070--Prohibited activities);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or

orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (NMC §18.04.110--Enforcement);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (NMC §18.04.110--Enforcement);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (NMC § 18.04.070--Prohibited activities; NMC §18.04.110--Enforcement);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (NMC § 18.04.070--Prohibited activities; NMC §18.04.110--Enforcement);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects; NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their

effectiveness in reducing the discharge of pollutants to the MS4 (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (NMC Chapter 18.04) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (NMC Chapter 1.16--Violations).
- Administrative Penalties and Citations (NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).

B. Nuisance Remedies

- Public nuisance under State law.

- City nuisance abatement procedures (NMC Chapter 1.16—Violations; NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).

C. Criminal Remedies

- Misdemeanor citations/prosecution (NMC Chapter 1.12—Arrest and Citation Procedure).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (NMC Chapter 1.16—Violations; NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

Steven L. Dorsey
City Attorney

cc: Mayor and Members of the City Council
Michael Egan, City Manager
Adriana Figueroa, Administrative Services Manager
Candice K. Lee, Esq.
Andrew Brady, Esq.

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December 13, 2013

Sam Unger, P.E., Executive Officer
California Regional Water Quality
Control Board -- Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013-1105

Subject: Certification of Legal Authority

Dear Mr. Unger:

Alvarez-Glasman & Colvin serves as the City Attorney's Office for the City of Pico Rivera. As the City Attorney for the City of Pico Rivera (the "City"), I am aware of the following legal authority requirements specified in VI.A.2.b, of the MS4 Permit for Los Angeles County, Order No. R4-2012-0175, NPDES Permit No. CAS004001:

Each Permittee must submit a statement certified by its chief legal counsel that the Permittee has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order. Each Permittee shall submit this certification annually as part of its Annual Report beginning with the first Annual Report required under this Order. These statements must include:

i. Citation of applicable municipal ordinances or other appropriate legal authorities and their relationship to the requirements of 40 CFR § 122.26(d)(2)(i)(A)-(F) and of this Order; and

ii. Identification of the local administrative and legal procedures available to mandate compliance with applicable municipal ordinances identified in subsection (i) above and therefore with the conditions of this Order, and a statement as to whether enforcement actions can be completed administratively or whether they must be commenced and completed in the judicial system.

The City has the legal authority to require compliance with the requirements associated with 40 CFR § 122.26(d)(2)(i)(A-F) and applicable provisions of the Order per Chapter 16.04 Storm Water and Urban Runoff Pollution Prevention of the City of Pico Rivera Municipal Code. The City has had such legal authority since 2002.

The City's Municipal Code provides for both administrative enforcement and legal enforcement of violations, which may result in administrative, civil, or criminal penalties. Section 16.04.140 provides that in the event the City serves a person with a notice of violation, and that person fails to comply within the given time period, the City has multiple remedies which are not listed to be exclusive or exhaustive, including: seeking prosecution of violations as a misdemeanor resulting in fines or imprisonment; seeking restitution of costs incurred by the City in the investigation and enforcement of compliance; and prosecution of violations as nuisance abatement resulting in liens and cost recovery.

Should you have any questions regarding this matter, please feel free to contact Deputy City Attorney Teresa Chen at (562) 699-5500.

Sincerely,

ALVAREZ-GLASMAN & COLVIN

Arnold M. Alvarez-Glasman
City Attorney

STEVEN N. SKOLNIK

Attorney at Law
15332 Antioch Street, #436
Pacific Palisades, California 90272
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E-Mail: sskolniklaw@gmail.com

December 9, 2013

Noe Negrete, Director of Public Works
City of Santa Fe Springs
11710 Telegraph Road
Santa Fe Springs, CA 90670

Re: Order No. R4-2012-0175
NPDES No. CAS004001

Dear Mr. Negrete::

In my capacity as City Attorney for the City of Santa Fe Springs (the "City"), I hereby confirm that the City has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR @ 122.26(d)(2)(i)(A-F) and the Order referenced above. Such legal authority is derived from Article 11, Section 7 of the California Constitution, Section 13002 of the California Water Code, and Chapter 52 of the City Code.

The City is authorized to take enforcement action by administrative proceedings or in the judicial system.

Very truly yours,

Steven N. Skolnik

J & M
JONES & MAYER

ATTORNEYS AT LAW

3777 NORTH HARBOR BOULEVARD • FULLERTON, CALIFORNIA 92835
(714) 446-1400 • (562) 697-1751 • FAX (714) 446-1448

December 9, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

Re: Legal Authority Certification for the City of Whittier

Dear Mr. Unger:

As legal counsel for the City of Whittier, I have reviewed its existing ordinances including Chapter 8.36 of the Municipal Code, applicable statutes, and/or existing contracts and have determined that the City can operate pursuant to the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI. A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001] (the $2012 NPDES Permit").

Please call the undersigned if you have any questions.

Sincerely,

Richard L. Adams, II
Assistant City Attorney, City of Whittier

RLA/dm

cc: David Pelser, Director of Public Works
John L. Hunter & Associates

Watershed Management Program Appendix 8

A-8-1 Coordinated Integrated Monitoring Program

INCLUDED AS A SEPARATE SUBMITTAL

COORDINATED INTEGRATED MONITORING PROGRAM FOR LOWER SAN GABRIEL RIVER WATERSHED GROUP

Participants

Artesia
Bellflower
Cerritos
Diamond Bar
Downey
Hawaiian Gardens
La Mirada
Lakewood
Long Beach
Los Angeles County Flood Control District
Norwalk
Pico Rivera
Santa Fe Springs
Whittier

Prepared by:

KINNETIC LABORATORIES INCORPORATED

June 28, 2014

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ACRONYMS

ALERT	Automatic Local Evaluation in Real Time
AMEL	Average Monthly Effluent Limitation
Basin Plan	*Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*
BMP	Best Management Practices
BPJ	Best Professional Judgment
BOD	Biochemical Oxygen Demand 5-day @ 20 °C
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CIMP	Coordinated Integrated Monitoring Program
CL	Control Limit
COD	Chemical Oxygen Demand
CTR	California Toxics Rule
CV	Coefficient of Variation
CWA	Clean Water Act
CWC	California Water Code
Discharger	Los Angeles County MS4 Permittees
DNQ	Detected But Not Quantified
EFA	Effective Filtration Area
ELAP	California Department of Public Health Environmental Laboratory Accreditation Program
Facility	Los Angeles County MS4s
GIS	Geographical Information System
gpd	gallons per day
HUC	Hydrologic Unit Code
IC50	Concentration at which the organism is 50% inhibited
IC/ID	Illicit Connection and Illicit Discharge Elimination
LA	Load Allocations
LARWQCB	Regional Water Quality Control Board, Los Angeles
LID	Low Impact Development
LOEC	Lowest Observed Effect Concentration
MAL	Municipal Action Limits
MCM	Minimum Control Measure
mg/L	milligrams per Liter
MDEL	Maximum Daily Effluent Limitation
µg/L	micrograms per Liter
MEC	Maximum Effluent Concentration
MGD	Million Gallons Per Day
ML	Minimum Level
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
ND	Not Detected
NOEC	No Observable Effect Concentration
NPDES	National Pollutant Discharge Elimination System
NTR	National Toxics Rule
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
Ocean Plan	Water Quality Control Plan for Ocean Waters of California
OC Pest	Organochlorine Pesticides

OP Pest	Organophosphate Pesticides
ORI	Outfall Reconnaissance Inventory
PES	Polyester-reinforced polysulfone
RAP	Reasonable Assurance Program
Regional Water Board	California Regional Water Quality Control Board, Los Angeles Region
RPA	Reasonable Potential Analysis
RWL	Receiving Water Limitations
SIP	State Implementation Policy (Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California)
SMR	Self-Monitoring Reports
SQO	Sediment Quality Objective
SSC	Suspended Sediment Concentration
State Water Board	California State Water Resources Control Board
SVOC	Semivolatile Organic Compounds
TAC	Test Acceptability Criteria
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document
TSS	Total Suspended Solid
TU_c	Chronic Toxicity Unit
USEPA	United States Environmental Protection Agency
WDR	Waste Discharge Requirements
WET	Whole Effluent Toxicity
WG	Watershed Group
WLA	Waste Load Allocations
WMA	Watershed Management Area
WMMS	Watershed Management Modeling System
WMP	Watershed Management Program
WQBELs	Water Quality-Based Effluent Limitations
WQS	Water Quality Standards
%	Percent

Coordinated Integrated Monitoring Program

for the

Lower San Gabriel Watershed Group

1. Introduction

The San Gabriel River is one of seven major watersheds partly or completely within Los Angeles County. Most of the river lies in southeastern Los Angeles County, bordering San Bernardino County, but a portion of this watershed originates in northern Orange County. During dry weather conditions, the lower portion of the San Gabriel River is hydrologically separated from the upper San Gabriel River at a location where waters from the upper San Gabriel River and the Rio Hondo Branch of the Los Angeles River pass through a narrow gap in the hills surrounding the San Gabriel Valley. During the rainy season, significant runoff is intercepted from the upper watershed and used to recharge groundwater. Flows measured just above the Whittier Narrows dam must exceed 260 cfs in order for flow to start to pass through into the lower San Gabriel River.

Due to this natural separation, thirteen cities and the Los Angeles County Flood Control District opted to develop a Watershed Monitoring Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) to address the lower portion of the San Gabriel River. The watershed addressed by this group includes Reaches 1 and 2 of the San Gabriel River Watershed and portions of Coyote Creek that originate from jurisdictions within Los Angeles County. In addition, a small portion of Diamond Bar that discharges to Brea Creek and ultimately, San Jose Creek Reach 1 is also addressed by this CIMP (Figure 1-1).

The Los Angeles Regional Water Quality Control Board (Regional Board) adopted a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. R4-2012-0175 (Permit) on November 8, 2012 that became effective on December 28, 2012. The purpose of the Permit is to ensure the MS4s in Los Angeles County are not causing or contributing to exceedances of water quality objectives established to protect the beneficial uses in the receiving waters. The Permit includes guidance for development of a Monitoring and Reporting Program (MRP- Attachment E) to demonstrate that water quality within the permitted area is compliant with established receiving water limitations (RWLs).

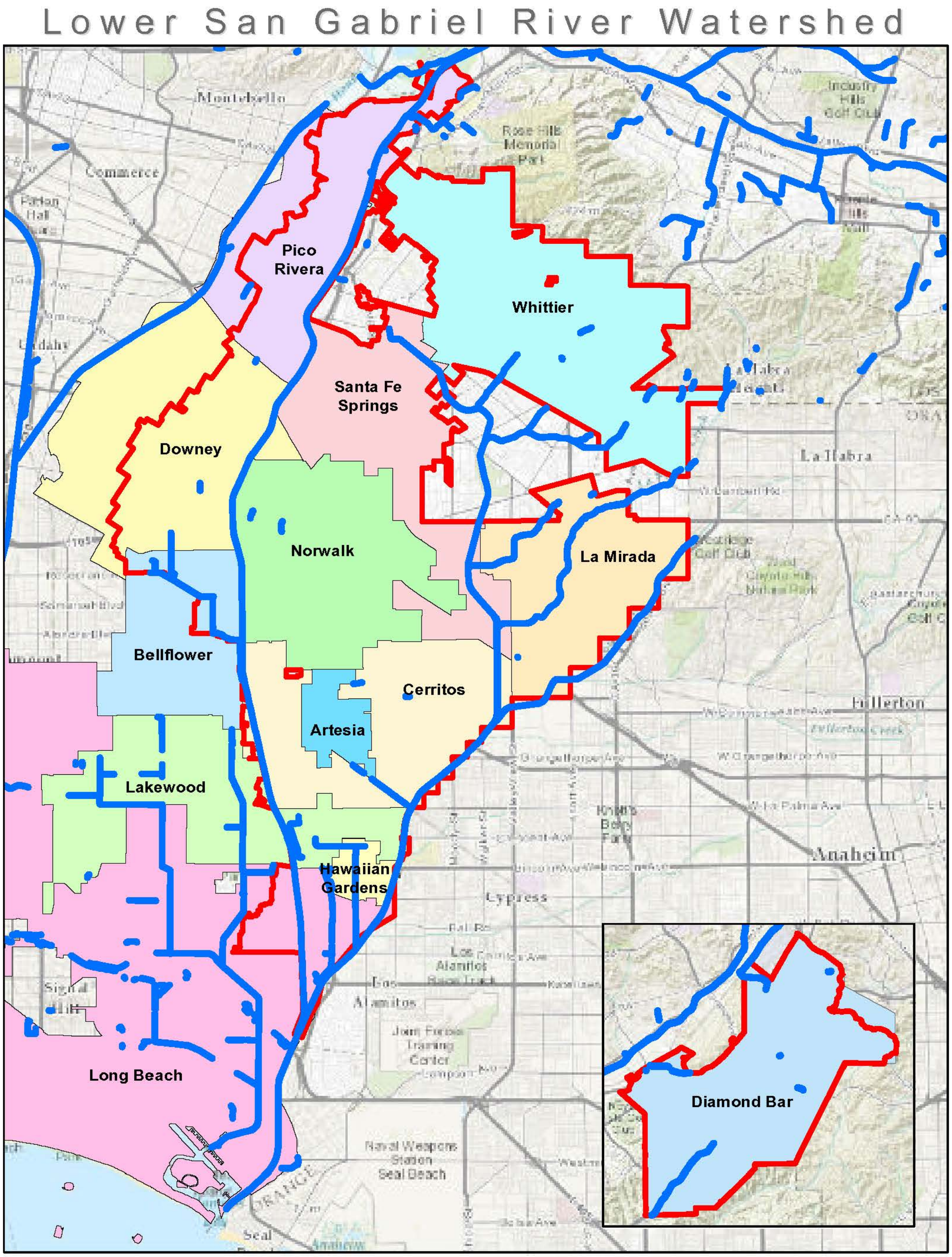

Figure 1-1. Lower San Gabriel River Watershed and Participating Jurisdictions.

The Permit allows development of a Coordinated Integrated Monitoring Program (CIMP) to specify approaches for addressing the objectives of the MRP. The Lower San Gabriel River (LSGR) Watershed Group (WG) chose to develop and implement a CIMP to address the unique conditions of this region. Unlike the upper San Gabriel River Watershed, the LSGR Watershed is largely built out with the exception of portions of the upper North Fork of Coyote Creek (also known as La Canada Verde) that originates in the vicinity of the Whittier Hills. The North Fork of Coyote Creek is a very complex drainage area that includes 11 different water bodies identified by the Regional Board as tributaries in the 2011 Basin Plan Amendments[1].

The LSGR Watershed encompasses approximately 78.5 square miles of Los Angeles County and comprises 11.4% drainage area for the San Gabriel River Watershed. There are 150 stream miles located in the watershed. The LSGR Watershed includes two major branches, Coyote Creek and the lower two reaches of the San Gabriel River. Coyote Creek approximates the jurisdictional boundaries of Orange County and Los Angeles County. Areas north of Coyote Creek are primarily within Los Angeles County while areas to the south of the Creek are largely in Orange County.

Reaches 1 and 2 of the San Gabriel River comprise a narrow drainage area that extends from the Whittier Narrows Dam to San Gabriel River Estuary. The Whittier Narrows is a natural gap formed in the hills along the southern boundary of the San Gabriel Valley. The Whittier Narrows Dam is a flood control and water conservation project managed by the U.S. Army Corps of Engineers. Water that exceeds the infiltration and storage capacity of the facility is released into San Gabriel River Reach 2. This segment of the River has been further modified as a recharge facility (the Montebello Forebay) allowing groundwater recharge. The channel is unlined from the Whittier Narrows Dam to Firestone Boulevard; as such waters entering this area percolate through the unlined channel and typically do not pass through Reach 2 into Reach 1.

Dry weather discharges to San Gabriel River Reach 1 are limited to discharges of tertiary-treated municipal and industrial wastewater from the Los Coyotes Water Reclamation Plant (WRP). The outfall to San Gabriel River Reach 1 is 1,230 feet upstream of the Artesia freeway. During the summer, this water flows into the San Gabriel River Estuary through a low flow channel. The Coyote Creek channel joins the San Gabriel River upstream of the Estuary, but is also contained in a low flow channel until reaching the Estuary.

The CIMP allows the unique characteristics of the LSGR to be addressed while also integrating requirements of the current Los Angeles County MS4 Permit, the City of Long Beach MS4 permit and monitoring required for applicable Total Maximum Daily Loads (TMDLs). This new approach represents an expansion and reorganization of monitoring in order to allow better assessment of the effectiveness of control measures using a watershed-based approach. The program focuses on controlling pollutants that have TMDLs, are 303(d) listed, and have exceeded water quality criteria in the past and may be causing or contributing to exceedances of RWLs.

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[1] LARWQCB 2011. List of Water Bodies added to Tributaries

The CIMP is structured to support the Watershed Management Program's adaptive management process. New information and data resulting from the monitoring program are intended to assist in evaluating the effectiveness of management actions and to regularly re-evaluate the monitoring plan to better identify sources of contaminants. This plan was developed to address five primary objectives listed in Part II.A.1 of the MRP, are as follows:

- Assess the chemical, physical, and biological impacts of discharges from the MS4s on receiving waters.
- Assess compliance with receiving water limitations and water quality-based effluent limitations (WQBELs) established to implement TMDL wet and dry weather load allocations.
- Characterize pollutant loads in MS4 discharges.
- Identify sources of pollutants in MS4 discharges.
- Measure and improve the effectiveness of pollutant controls implemented under the new MS4 permits.

Preparation of a CIMP is intended to allow for development and utilization of alternative approaches as well as providing for coordination of monitoring activities to more cost effectively address the primary objectives listed above. The CIMP proposed for the LSGR Watershed uses an adaptive strategy.

This document provides a brief discussion of the types and locations of monitoring sites, constituents to be monitored at each site, the process of phasing in monitoring sites, and monitoring frequencies. The appendices provide detailed information regarding equipment cleaning and blanking protocol as well as sampling methods and quality control requirements that will be necessary to assure that the monitoring data are valid and suitable for use in making critical decisions regarding program effectiveness and assessment of the effectiveness of control measures.

1.1 Monitoring Objectives

The major elements of the CIMP and primary objectives of each element of the Monitoring Plan include:

- **Receiving Water Monitoring (Wet and Dry Weather)**
  - Are receiving water limitations being met?
  - Are there trends in pollutant concentrations over time or during specified conditions?
  - Are designated beneficial uses fully supported as determined by water chemistry, aquatic toxicity, and bioassessment monitoring?
- **Stormwater Outfall Monitoring**
  - How does the quality of the permittees' discharges compare to Municipal Action Limits?
  - Are the permittees' discharges in compliance with applicable stormwater WQBELs derived from TMDL WLAs?

  - Do the permittees' discharges cause or contribute to an exceedance of the receiving water limitations?
- **Non-Stormwater Outfall Based Monitoring**
  - Are the permittees' discharges in compliance with non-stormwater WQBELs derived from TMDL WLAs.
  - How does the quality of the permittees' discharges compare to Non-Stormwater Action Levels?
  - Do the permittees' discharges cause or contribute to an exceedance of the receiving water limitations?
  - Do the permittees comply with the requirements of the Illicit Connection and Illegal Discharge Program?
- **New Development/Re-development Effectiveness Tracking**
  - Are the conditions established in building permits issued by the Permittees being met?
  - Are stormwater volumes associated with the design storm effectively retained on-site?
- **Regional Studies**
  - How do the permittees plan to participate in efforts to characterize the impact of the MS4 on receiving waters? Include participation in regional studies with the Southern California Stormwater Monitoring Coalition (SMC) and any special studies specified in TMDLs.

2 Water Body-Pollutant Classification

The LSGR Watershed is subject to two TMDLs. The San Gabriel River Metals TMDL was established by USEPA that includes Waste Load Application (WLAs) for MS4 and other dischargers to the San Gabriel River and Coyote Creek. This TMDL includes a dry weather WLA for selenium in San Jose Creek which includes a small portion of the LSGR Watershed. A second TMDL, the Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic TMDL addresses impairments in the sediments, water and biota of the Dominguez Channel, the Ports of Los Angeles and Long Beach and East San Pedro Bay. All jurisdictions subject to the San Gabriel River and Los Angeles River metals TMDLs are required to assess loads of DDTs, PCBs, PAHs and metals associated with sediment discharged from these two watersheds. Although these constituents have not been detected in routine stormwater monitoring, concerns remain that significant loads of toxic chemicals such as DDTs and PCBs may still be transported from urban environments. The stormwater pathway from former manufacturing facilities to the Dominguez Channel and the Harbor waters remains the most probable source of these toxics, but the relative magnitude of contributions from historical use in the urban environment and the importance of these contributions has not been established. Although receiving waters within the LSGR WG are not listed as impaired by these constituents, the LSGR WG is required to assess loads originating from the watershed and implement control measures to address them.

Development of a WMP requires Permittees to develop water quality priorities within each WMA [Section C.5.a (page 58) of the Permit] that will be used to assist in directing implementation of control measures and monitoring to address constituents of concern. These classifications are presented and discussed in Section 2 of the WMP and briefly summarized in this section of the CIMP.

The CIMP was developed to focus on existing water quality conditions. Based on than 10 years of monitoring, data from 2002 to 2012 in Coyote Creek and in upper portions of the San Gabriel River (LACFCD mass emission sites S13 and S14) most of the constituents listed in Table E-2 of the MRP have never been detected and many more have been detected, but have not been found to exceed RWLs. This new program is designed to target constituents that have been identified as constituents of concern in the receiving waters. Available data from historical monitoring were used to classify segments of the LSGR Watershed and establish water body-pollutant combinations into one of the following three categories:

- **Category 1 (Highest Priority):** Water body-pollutant combinations for which water quality-based effluent limitations and/or RWLs are established in Part VI.E and Attachments L through R of the Order.
- **Category 2 (High Priority)**: Pollutants for which data indicate water quality impairment in the receiving water according to the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment.
- **Category 3 (Medium Priority)**: Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable RWLs contained in the Order and for which MS4 discharges may be causing or contributing to exceedances.

Five water bodies were considered while reviewing data potential impairment of the receiving waters (Table 2-1, Table 2-2). These included the San Gabriel River Reaches 1 and 2 (SG1 and SG2), San Jose Creek Reach 1 (SJC1), Coyote Creek (CC) and the North Fork of Coyote Creek (NFC).

Table 2-1. Summary of Wet Weather Water Body/Pollutant Categories for the Lower San Gabriel River Watershed.

WET WEATHER WATER BODY/POLLUTANT CATEGORIES

CATEGORY	ANALYTE	CLASS	SG1	SG2	SJC1	CC	NFC
1-WET	Copper	Metal				**X**	**X**
	Lead	Metal		**X**	**X**	**X**	**X**
	Zinc	Metal				**X**	**X**
2-WET	Ammonia	Nutrient			**X**	**X**	
	Cyanide	General		**X**		**X**	
	Copper	Metal		**X**	**X**		
	Mercury	Metal					**X**
	Zinc	Metal		**X**	**X**		
	Selenium	Metal					**X**
	PAH	SVOA		**X**	**X**		
	Diazinon	OP Pest				**X**	
	E. coli	Micro	**X**	**X**	**X**	**X**	**X**
	pH	General	**X**		**X**	**X**	
	Toxicity				**X**	**X**	
3-WET	Cyanide	General			**X**		**X**
	Lindane	OC Pest		**X**			
	Selenium	Metal	**X**				
	Dissolved Oxygen	General		**X**	**X**	**X**	
	MBAS	General		**X**		**X**	

SAN GABRIEL/SAN JOSE CR.
SG1= San Gabriel River
SG2= San Gabriel River Reach 2
SJC1= San Jose Creek Reach 1

COYOTE CREEK
NFC= North Fork Coyote Creek
CC= Coyote Creek

Shading differentiates water bodies within the San Gabriel River and Coyote Creek Branches of the watershed.

POLLUTANT CLASSES
Nutrients= nitrogen and phosphorus compounds
OC Pest = organochlorine pesticides
OP Pest = organophosphorus pesticides
Micro = microbiological (fecal indicator bacteria)
SVOA = semivolatile organic compounds (acid, base & neutral)

Table 2-2. Summary of Dry Weather Water Body/Pollutant Categories for the Lower San Gabriel River Watershed.

DRY WEATHER WATER BODY/POLLUTANT CATEGORIES

CATEGORY	ANALYTE	CLASS	SG1	SG2	SJC1	CC	NFC
1-DRY	Copper	Metal	X			X	
	Selenium	Metal			X		
2-DRY	Ammonia	Nutrient			X	X	
	Copper	Metal		X	X		
	Lead	Metal				X	
	Mercury	Metal					X
	Nickel	Metal				X	
	Selenium	Metal					X
	Zinc	Metal		X	X	X	
	PAH	SVOC		X	X		
	Diazinon	OP pest				X	
	E. coli	Micro	X	X	X	X	X
	Cyanide	General		X		X	
	Chloride	General			X		
	pH	General	X		X	X	
	TDS	General			X		
	Toxicity				X	X	
3-DRY	Cyanide	General					X
	Copper	Metal					X
	Mercury	Metal					X
	Selenium	Metal	X				
	Zinc	Metal					X
	Chloride	General		X	X	X	
	Sulfate	General		X	X		
	Alpha-endosulfan	OC Pest				X	
	Lindane	OC Pest		X			
	pH	General					X
	Diss. Oxygen	General	X	X	X		
	TDS	General		X			

SAN GABRIEL/SAN JOSE CR.
SG1= San Gabriel River
SG2= San Gabriel River Reach 2
SJC1= San Jose Creek Reach 1

COYOTE CREEK
NFC= North Fork Coyote Creek
CC= Coyote Creek

Shading differentiates water bodies within the San Gabriel River and Coyote Creek Branches of the watershed.

POLLUTANT CLASSES
Nutrients= nitrogen and phosphorus compounds
OC Pest = organochlorine pesticides
OP Pest = organophosphorus pesticides
Micro = microbiological (fecal indicator bacteria)
SVOA = semivolatile organic compounds (acid, base & neutral

3 Monitoring Sites and Approach

The approach presented in this CIMP incorporates all objectives of the MRP and provides a customized approach to address the objectives identified in the MRP for Stormwater Outfall Monitoring based upon the unique characteristics of the Lower San Gabriel River (LSGR) watershed. During dry weather conditions, the LSGR Watershed is effectively separated from the Upper San Gabriel River Watershed as dry weather flows are typically infiltrated. Dry weather flow in Reach 1 is primarily from two Publicly Owned Treatment Works (POTW), the San Jose and Los Coyotes WRPs.

Unique conditions also exist in Coyote Creek since flows (both dry and wet weather) originate from both Los Angeles County and Orange County. The main branch of Coyote Creek approximates the boundary between Los Angeles County and Orange County thus the source of pollutants measured at the S13 Mass Emission can be difficult to evaluate. With the exception of a County "island" located within this drainage area, the North Fork of Coyote Creek is entirely within the bounds of the LSGR Watershed which provides better opportunities for evaluation of long-term performance and the ability to implement control measures as necessary to meet water quality objectives.

An existing monitoring site in the North Fork of Coyote Creek (NFC1) will be used to monitor trends in trace metals subject to the TMDL and responses to implementation of control measures. This monitoring site was proactively installed in the North Fork of Coyote Creek as part of an early action measure designed to obtain initial data specifically to address the San Gabriel River Metals TMDL.

This CIMP addresses monitoring activities required by the MRP - No. CI-6948 for Order R4-2012-0175, NPDES Permit No. CAS004001 for the LSGR Watershed Group. Development of this CIMP focuses on improving the overall effectiveness of the monitoring program by directing resources to address areas with known problems and increasing the cost effectiveness of the program by coordination of sampling efforts.

Final approval of the CIMP is expected late 2014 or early 2015. Monitoring at the existing S13 Mass Emission Site and North Fork of Coyote Creek will continue.

For planning purposes, the new monitoring described in this CIMP and modifications of existing monitoring are intended to commence on July 1, 2015 or 90 days after the approval of the CIMP, whichever is later. Some elements of the CIMP have already been initiated in order to meet schedules established in the Order. Non-stormwater (NSW) outfall screening efforts are underway in order to identify sites with significant flow that require completions of source identification surveys. A majority of the new monitoring program will start in the summer of 2015 and the following wet weather season, and the entire program will be phased in over a three-year period. The CIMP intends to complete source identification surveys for at least 25% of all major outfalls found to convey significant non-stormwater discharges by December 28, 2015.

The approach presented in this CIMP is designed to address objectives of the MRP by incorporating TMDL monitoring requirements and aligning field efforts to increase cost effectiveness. The following sections provide a broad overview of the monitoring program. A comprehensive list of monitoring sites (Table 3-1) and the locations of these sites within the LSGR Watershed (Figure 3-1) are provided to illustrate the coverage provided for each major element. Later sections will provide detailed monitoring requirements for individual elements of the CIMP.

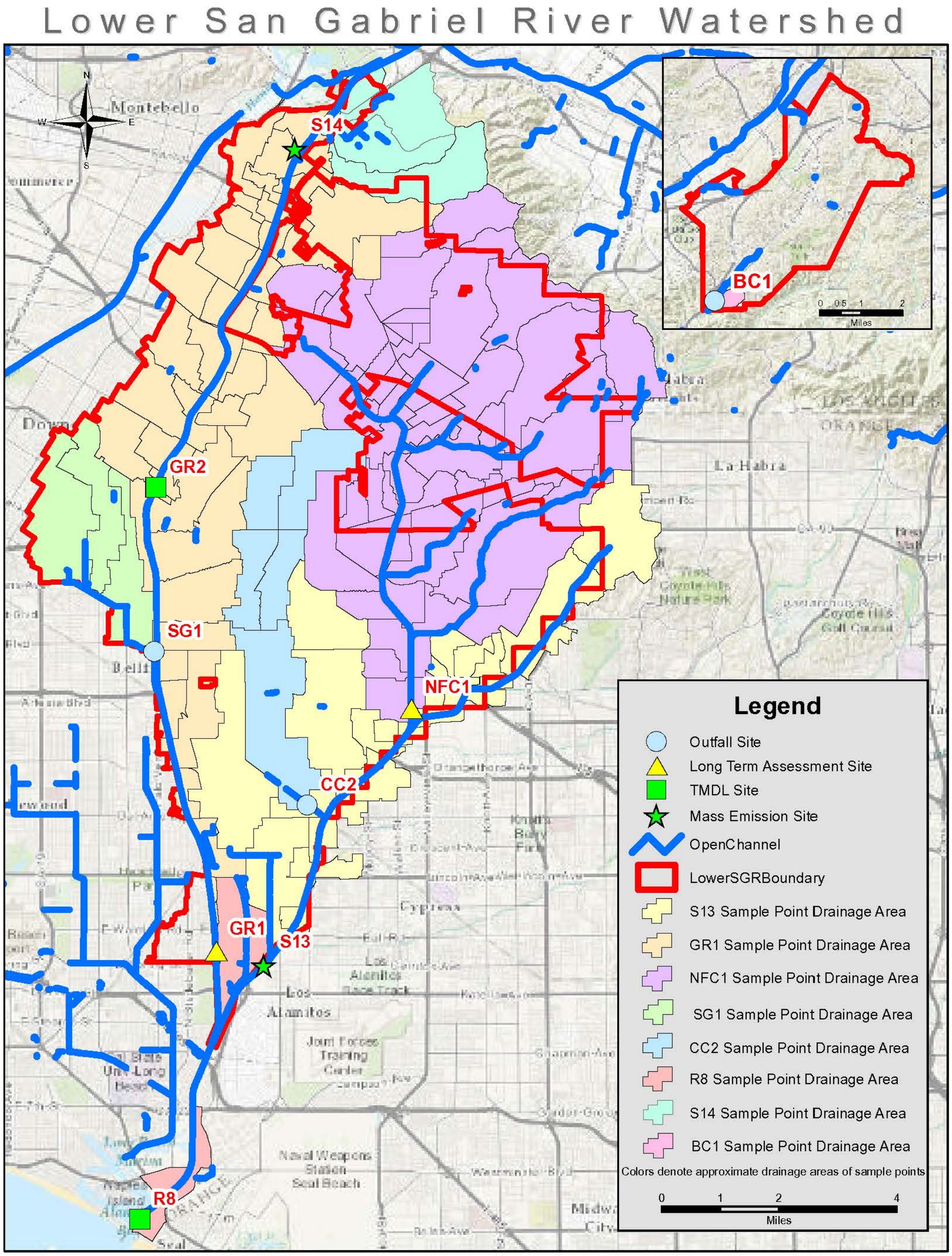

Figure 3-1. Locations of Monitoring Sites in the Lower San Gabriel Watershed.

Table 3-1. Monitoring Site Designation and Monitoring Function.

Site Name	Site Description	Datum NAD83 Latitude (N)	Datum NAD83 Longitude (W)	Type of Site: Receiving Water: LTA Mass Emission	LTA	Metals TMDL	Harbor Toxics TMDL	Stormwater Outfall
S13	Coyote Creek at Spring St. (Existing LACFCD Mass Emission)	33.80983	118.07675	X		X	X	
S14[1]	San Gabriel River Reach 3 (Existing LACFCD Mass Emission)	34.01114	118.06758	X		X		
GR1	San Gabriel River above Spring St. (F42B-R)	33.81167	118.09107		X	X	X	
GR2[2]	San Gabriel River @ Firestone	33.92774	118.10881		X	X		
NFC1	N. Fork Coyote Cr.	33.87307	118.03927			X		
CC2	Artesia/Norwalk Drain @ Bloomfield in Cerritos	33.84925	118.06369					X
SG1	Maplewood Channel @ Alondra Blvd.	33.88717	118.10914					X
BC1	Diamond Bar	33.96061	117.85281					X
R8	Mouth of San Gabriel River (Existing LACSD Site)	33.74701	118.11323				X	

1. S14 will be monitored by LACFCD and USGR EWMP Group will coordinate with LACFCD for the monitoring Sites in light grey represent potential or alternative sampling locations.
2. **GR2** receives no dry-weather runoff and is an alternative LTA and TMDL site that will be activated if Reach 2 wet weather exceedances are detected at GR1 as discussed in Section 3.1.1 (p. 12).

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3.1 Receiving Water Monitoring

The MRP (Part II.E.1) specifies that receiving water monitoring is to be performed at previously designated mass emission stations, additional receiving water sites as necessary, and TMDL receiving water compliance points, as designated in approved TMDL Monitoring Plans. The objectives of the receiving water monitoring include the following:

- Determine whether the receiving water limitations are being achieved,
- Assess trends in pollutant concentrations over time, or during specified conditions,
- Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.

In order to achieve these requirements, two types of receiving water monitoring sites are included in the CIMP. These include:

- **Long-Term Assessment (LTA) Monitoring Sites-** These sites will serve to provide a long-term measure of compliance with receiving water quality criteria and allow for assessment of trends in pollutant concentrations. The LTA sites receive a significant amount of comingled runoff from essentially the entire San Gabriel River Watershed. The LTA sites will serve as a general indicator of the health of the Lower San Gabriel River. The LTA sites will also serve as TMDL monitoring sites.
- **TMDL Receiving Water (TMDL) Monitoring Sites** – These sites are intended to evaluate compliance or progress towards attainment of allocations for TMDLs and ultimately provide data to evaluate when objectives are met and determine when sufficient data exist to reevaluate the 303(d) listing.

3.1.1 Long-Term Assessment (LTA) Sites

The existing Coyote Creek Mass Emission (ME) monitoring station (S13) will continue to serve as a LTA monitoring station for the LSGR WG. This site is located is located adjacent to an existing gauging station in Coyote Creek (Stream Gauge F354-R) below Spring Street. This site has been monitored by the Los Angeles County Flood Control District (LACFCD) since 1997 and will continue to be monitored by the LACFCD. The LSGR WG will coordinate with LACFCD for any TMDL monitoring that is beyond LACFCD's existing monitoring program.

Monitoring will also be continued at the San Gabriel River (S14) ME site. This site also has been monitored by the LACFCD since 1997 and will continue to be monitored by the LACFCD. The Upper San Gabriel River Enhanced Watershed Management Program Group (USGR EWMP Group) will coordinate with LACFCD for monitoring at the S14 ME site. Data will be shared to allow evaluation of long-term trends and to evaluate potential additional sampling requirements at sites downstream of S14.

A new LTA monitoring site (GR1) will be established adjacent to the LACFCD gauging station (F42-BR) located at the bottom of Reach 1 in the San Gabriel River. This site was previously used by the Southern California Coastal Water Research Program to collect stormwater runoff samples as part of special studies. This site will utilize automated stormwater sampling as described in Appendix A for all wet weather monitoring. Cleaning protocol and QA/QC measures listed in Appendices B and C will also apply to collection of stormwater runoff samples. Collection of dry weather water quality samples will be based on grab samples with water being collected directly into the laboratory sample containers which will eliminate any potential contamination from the sampling hoses and composite containers. This will also be consistent with sampling methods used for any required monitoring of non-stormwater discharges. This monitoring station will be used to collect both stormwater and dry weather runoff but it is recognized that dry weather flow in San Gabriel River Reach 1 is dominated by discharges from two Wastewater Treatment Plants (WTPs). Urban sources are not expected to be discernable during the dry season (Figure 3-1).

A third LTA monitoring site (GR2) will be considered for potential installation and monitoring starting in the third year of the program. This site is located in the main channel of the San Gabriel River at Firestone Blvd which marks the division between Reach 1 and Reach 2 of the San Gabriel River downstream of the Montebello Forebay groundwater recharge facility. Installation of a monitoring station at this location will be considered if data from the first two years of monitoring at the GR1 LTA site indicates that RWL are exceeded in at least 2/3 of the wet weather surveys. Monitoring data from the S14 ME, located at the upstream extent of San Gabriel River Reach 2, will also be considered to further assess the potential benefits of installing another receiving water quality monitoring station. If after completing an assessment of data from GR1 located downstream of the site and S14 located upstream of the site, it is determined that additional data from GR2 would help to further address the goals of the program, equipment would be installed and monitoring would start the next storm season.

3.1.2 Total Maximum Daily Load (TMDL) Monitoring Sites

The LSGR WG will conduct monitoring necessary to meet objectives of the Los Angeles County NPDES MS4 permit and incorporate monitoring requirements associated with the two TMDLs. Compliance with the Metals TMDL will be evaluated by the three receiving water monitoring sites. These include the existing ME site in Coyote Creek (S13), the new LTA site being installed at GR1 at the base of the San Gabriel River Reach 1, an existing TMDL site installed in North Coyote Creek (NFC1) in 2013. The NFC1 site has been monitored for the past year to provide additional data for trace metal and sediment loads from a segment of the watershed that is fully within the LSGR WG boundaries and includes significant industrial land use.

The Harbor Toxics TMDL requires monitoring of water and sediments at the mouth of the San Gabriel River during both wet and dry weather conditions. Since flow monitoring and collection of composite samples is not feasible at the mouth of the San Gabriel River, monitoring during wet weather conditions will be accomplished by collection of water and suspended sediments from both the main stem of the San Gabriel River and Coyote Creek. Sampling at both these locations allows quantification of loads from the entire watershed as is intended by the TMDL. Water and suspended sediments will be collected at S13 and GR1 to quantify loads of DDTs, PCBs, and PAHs from the watershed. Monitoring at S13 for this TMDL will be coordinated between the LACFCD and LSGR WG, and monitoring at GR1 will be monitored conducted by the LSGR WG. In general, the LSGR WG will coordinate with LACFCD staff for any TMDL monitoring at S13 that is beyond LACFCD's existing monitoring program. Analytical methods and detection limits used by the County's Ag Laboratory for analysis of stormwater and dry weather discharges at the S13 ME site are listed in Appendix E. Detection limits are consistent with the MRLs listed in Table E-2 of the MRP.

Collection of dry weather water and sediment for the Harbor Toxics TMDL will be conducted by Los Angeles County Sanitation District (LACSD) staff. Dry weather water and bed sediment will be collected from their existing site, R8, located where the Marina Bridge crosses at the mouth of the San Gabriel River. Sampling and analytical methods will be consistent with those specified in the Harbor Toxics TMDL. Analytical methods and data quality objectives are listed in Appendix F.

3.2 Stormwater Outfall Monitoring

Three stormwater outfall monitoring will be included in the monitoring program. These will include CC2, SG1 and BC1. CC2 collects runoff from the large Artesia-Norwalk Drain and discharges to Coyote Creek. SG1 is located near Maplewood and discharges to Reach 1 of the San Gabriel River. This site was monitored for historically by the LACFCD as part of a special study. The third will be located in Diamond Bar (BC1) in a storm drain that discharges to Brea Creek.

Stormwater outfall sites are intended to ensure representative data by monitoring at least one outfall per major subwatershed (HUC 12) drainage area and assuring that drainage areas for each selected outfall are representative of the land uses within the Permitee's jurisdiction. The drainage areas of the outfall monitoring sites are representative of a wide variety of land uses within the LLSG including residential, commercial and industrial. In addition, the selected outfalls have appropriate configurations to facilitate accurate flow measurements and provide conditions necessary for the safety of monitoring personnel.

There are two major HUC 12 equivalent units in the LSGR, the Coyote Creek – San Gabriel River and Brea Creek - Coyote Creek units. Two stormwater outfall monitoring sites, SG1 and CC2, are located in the Coyote Creek- San Gabriel. The BC1 stormwater outfall monitoring site is located in the Brea Creek- Coyote Creek..

There is one mid-size HUC 12 equivalent, La Mirada Creek. Recognizing a need for sampling data, this HUC is already being monitored by the early-action monitoring site, NFC1. This site was installed in the North Fork of Coyote Creek in 2013 in anticipation of this CIMP.

There are two relatively lesser HUC 12 equivalents, Upper and Lower San Jose Creek. These only receive runoff from a portion of City of Diamond Bar and a very small area of Whittier primarily consisting of native habitat.. These areas have similar land use and soil types as the southern portion of Diamond Bar which is located within the Brea –Coyote Creek HUC. The analysis of the runoff collected at the BC1 site will be reviewed and evaluated as equivalent to the runoff to San Jose Creek Reach 1 being monitored by the USGR WG and the S14 ME site in the San Gabriel River. Selenium and Total Dissolved Solids (TDS), constituents of special concern levels will be reviewed in comparison to runoff from the BC1 site will be re tributaries. Collecting samples from these areas is a low priority.

The proposed monitoring sites in this CIMP are considered to provide representative samples for the entire LSGR Watershed. Outfall monitor is part of an ongoing process which started with the aforementioned already installed early-action site NFC1 and will continue on schedule as described in Table 4-1.

3.3 Non-Stormwater Outfall Monitoring

NSW outfall based monitoring will be conducted for outfalls discharging to receiving waters of the LSGR Watershed. This program is intended to focus on major outfalls defined as those that are greater than 36 inches in diameter and those between 12 and 36 inches that are near areas with industrial land uses. Initially, all pipes greater than 12 inches in diameter will be inventoried. Appendix H provides maps of all outfalls to the LSGR Watershed that are 12-inches or greater in diameter. The database from the first survey will be refined to determine which of the 12-inch to 36-inch pipes are near areas with industrial land uses. Discharge pipes less than 36 inches in diameter and determined not to incorporate runoff from industrial land use areas will be excluded from further surveys. Two additional surveys will be conducted to collect outfall characteristics that may be used to determine outfalls with persistent and significant non-stormwater flows. Once outfalls with significant flows have been identified, the source identification may utilize a combination of field tests and limited laboratory testing to assist in determining whether flows are the result of illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt non-stormwater flows, natural flows or unknown.

If monitoring of NSW discharges is necessary, samples will be collected twice a year in conjunction with dry weather monitoring at receiving water monitoring sites. In addition, samples would be collected using grab sampling methods consistent with dry weather sampling at the receiving water quality sites.

3.4 New Development/ReDevelopment Effectiveness Tracking

The MRP requires that Permittees develop a New Development/Re-Development Effectiveness tracking program. Participating agencies have developed mechanisms for tracking information related to new and redevelopment projects that are subject to post-construction best management practice requirements in Part VI.D.7 of the MS4 Permit.

3.5 Regional Studies

The MRP requires participation in regional studies, including participation in the Southern California Monitoring Coalition (SMC) Regional Watershed Monitoring Program (bioassessment) and special studies as specified in approved TMDLs.

The LACFCD currently participates in the SMC Monitoring Program. The LACFCD, on behalf of the LSGR WG, will continue to participate in the Regional Watershed Monitoring Program (Bioassessment Program) being managed by the Southern California Stormwater Monitoring Coalition (SMC). The LACFCD will also continue to coordinate and assist in implementing the bioassessment monitoring requirement of the MS4 permit on behalf of the permittees in Los Angeles County. Initiated in 2008, the SMC's Regional Bioassessment Program is designed to run over a five-year cycle. Monitoring under the first cycle concluded in 2013, with reporting of findings and additional special studies planned to occur in 2014. The SMC Joint Executive Workgroup is currently working on designing the bioassessment monitoring program for the next five-year cycle, which is scheduled to run from 2015 to 2019.

4 Summary of Sampling Frequencies for each CIMP Element

It is proposed that the CIMP will be implemented in a phased process (Table 4-1). Three receiving water stations are proposed for monitoring starting July 1, 2015 or 90 days after the CIMP approval, whichever is later. The existing ME site located at S13 (Coyote Creek) will continue to be operated by the LACFD, and modifications to the existing program will commence on July 1, 2015 or 90 days after the CIMP approval, whichever is later. The LSGR WG will coordinate with LACFCD staff for any TMDL monitoring this that is beyond LACFCD's existing monitoring program. A second receiving water site, GR1, will be installed in the San Gabriel River near Spring Street in 2015-16. The third site, NFC1, was installed in the North Fork of Coyote Creek in 2013 as part of an early action effort to develop contemporary data for this watershed.

Starting July 1, 2015 or 90 days after the CIMP approval, whichever is later, two LTA sites at S13 and GR1 will conduct two water quality testing surveys, one wet and one dry, to incorporate the comprehensive list of water quality parameters listed in Table E-2 of the Attachment E of Regional Board Orders No. R4-2012-0175 (NPDES NO. CAS004001) and R-4-2014-0024 (NPDES No. CAS004003). This full set of analytes will be analyzed in water collected during the first major storm event of the year and during a dry season survey in July when flows are considered to be at historical seasonal lows. The remaining two wet weather events and one dry event will monitor only the prioritized water body-pollutant combinations discussed in Section 1.2 above. If Table E-2 parameters are not detected at the specified Method Detection Limit (MDL) for their respective test method or if the result is below the lowest applicable water quality objective, and is not otherwise identified as a prioritized water body-pollutant combination, the analyte will not be further analyzed. Parameters exceeding the lowest applicable water quality objective will continue to be analyzed beginning year 2 for the remainder of the Order at the receiving water monitoring station where it was detected. The Receiving Water Monitoring Program will also include Aquatic Toxicity Monitoring. Existing data (refer to Aquatic Toxicity section) indicates that bioassay tests using *Ceriodaphnia dubia* are the most appropriate for testing toxicity.

NFC1 was installed in 2013 as part of an early action effort to start collecting data to support the objectives of the San Gabriel River Metals TMDL. This site will continue to be monitored as a TMDL site with three wet weather events and two dry weather monitoring events.

Sampling for the Harbor Toxics TMDL will be initiated during the 2015-16 wet season at both S13 and GR1. Harbor Toxics TMDL dry weather water quality sampling will be conducted by LACSD at R8 and modifications to their existing monitoring program will commence in summer of 2015. Sediment sampling for the Harbor Toxics TMDL will not commence until in the summer of 2016 in order to synchronize with sediment monitoring being conducted by the Harbor Toxics RMP.

The R8 monitoring site proposed for the dry weather monitoring requirement is located at the mouth of the San Gabriel River at the Marina Bridge. This site has been historically monitored by LACSD for water quality, bedded sediment chemistry, benthic community analysis and for sediment toxicity consistent with methods required to assess Part One Sediment Quality Objectives.

Three stormwater outfall monitoring sites will be monitored in the LSGR Watershed. The first two stormwater outfall monitoring sites will be installed and monitored starting in the 2016-17 wet season assuming the CIMP is approved. These will include CC2 (Artesia/Norwalk Drain) and SG1 (Maplewood @ Alondra). CC2 is a large storm drain that discharges to Coyote Creek. SG1 is a site draining to Reach 1 of the San Gabriel River. This site was previously monitored as part of a special study conducted by the Los Angeles County MS4 monitoring program. One additional stormwater outfall monitoring site will be added for the 2017-18 wet season. This stormwater outfall site, BC1, is located in Diamond Bar. The monitoring site will be located at an outfall from a 30" RCP owned by the LACFCD. This site will be sampled either with portable autosampler set to collect time-based samples or by taking manual grab samples.

Table 4-1. Schedule for Implementation of Water Quality Monitoring Activities in the Lower San Gabriel River Watershed.

Task	2014-15	2015-16	2016-17	2017-18
S13 (Coyote Cr. at Spring) Receiving Water/TMDL/ME	Existing Monitoring	X	X	X
GR1 (San Gabriel R. @ Spring) Receiving Water/TMDL/LTA		X	X	X
GR2 (San Gabriel R. @ Firestone) Receiving Water/TMDL				X
NFC1 (N. Fork Coyote Creek) Receiving Water/TMDL	Existing Monitoring	X	X	X
R8 (Mouth of SGR Estuary) Receiving Water/TMDL	Existing Monitoring	X	X	X
Stormwater Outfalls				
CC2 (Artesia/Norwalk)			X	X
SG1 (Maplewood @ Alondra)			X	X
BC1 (Diamond Bar)				X
Non-Stormwater Outfall				
Inventory & Assess[1]	X			
Source ID[2]		X		
Monitoring[3]			X	X

Grey text for tasks and schedules indicate situations that remain uncertain and require further consideration based upon initial monitoring data.

1. Initial Inventory and Screening will be completed in three surveys before the end of 2014. One re-assessment of the Non-Stormwater Outfall Monitoring Program will be conducted prior to December 2017.
2. Investigations designed to track and classify discharges will start during the 2015 dry season. Source tracking and classification work will depend upon the number of sites categorized as having significant flow.
3. Monitoring will be implemented if significant dry weather flows are identified at discharge points that are cannot be identified, are non-essential exempt flows, or identified as illicit flows that are not yet controlled. These sites will be initially monitored twice a year in conjunction with dry weather monitoring of the receiving water site.

5 Chemical/Physical Parameters

This section provides a summary of chemical parameters required to be analyzed at the receiving water monitoring stations a minimum of two dry weather events and three stormwater events each year. The full set of Table E-2 constituents are intended to be analyzed once during the first major storm event of the season at LTA monitoring sites (S13 and GR1). The full set of Table E-2 constituents will also be analyzed at these sites in July during the critical dry weather period. Nevertheless, dry weather discharges to the San Gabriel River from the MS4 are known to be less than 1-2% of the flow in Reach 1 of San Gabriel River. The San Gabriel River Metals TMDL indicated that median flow measurements at the Los Angeles County Department of Public Works gauging station F42B-R, located just above Spring Street, were 114 cfs. The sum of median flows from the two WRPs totaled 115 cfs, slightly higher than the median flow measured at the downstream gaging station. Contributions of urban flows during dry weather simply are not discernable from discharges from the two WRPs. As a result, it is expected that monitoring of dry weather flows at GR1 will be more reflective of discharges from the WRPs.

Results of initial wet weather and dry weather monitoring of Table E-2 constituents at LTA sites will be used to determine if constituents should be added to the list of constituents monitored at each LTA site in the following year. If these constituents continue to exceed RWLs at an LTA site they will be further considered for inclusion at upstream stormwater outfall sites (

Table 5-1). The full set of analytical requirements discussed below is based upon Table E-2 of the Monitoring and Reporting Program and summarized in Table 5-3 through Table 5-9 below.

Analytical requirements for the program are broken out by analytical test requirements since many are associated with an analytical test suite. This is most evident with the semivolatile organic compounds analyzed by EPA Method 625. Although this section identifies recommended methods for each analyte, many of the target constituents can be addressed by alternative methods. Selection of analytical methods is intended to be performance-based to allow laboratories flexibility to utilize methods that meet or exceed MLs listed in the MRP.

The lists of Table E-2 constituents only show Minimum Levels (MLs) required for each analyte under the monitoring program since Method Detection Limits (MDLs) will vary among laboratories. Reporting limits are required to meet the established MLs unless matrix or other interferences are encountered that cannot be eliminated by additional cleanup procedures.

The critical dry weather event is defined as the period when historical in-stream flow records are lowest or during the historically driest month. An analysis of long-term flow records at the F354 gauging station in Coyote Creek (same location as the LACFCD's S13 Mass Emission) found flows to typically reach the most critical condition in July.

Comprehensive monitoring of priority pollutants in the receiving waters at the LTA sites will be conducted during the first year and is intended to assure that all constituents with potential to impact water quality are incorporated into the monitoring program. In addition, any additional constituents found to commonly exceed receiving water limitations at the LTA site will also be incorporated into stormwater outfall monitoring program in order to help identify watershed sources of the pollutants.

Table 5-1 Summary of Wet Weather Water Quality Constituents and Frequency at Mass Emission, LTA and TMDL Monitoring Sites.

CLASS OF MEASUREMENTS	RECEIVING WATERS			
	ME Coyote Creek	LTA San Gabriel River	TMDL	
	S13	GR1	NFC1	GR2[1]
Flow	3	3	3	3
Field Measurements DO, pH, Temp, and Spec. Cond.	3	3	3	3
MRP Table E-2 Constituents[2] (other than those listed below)	1	1	1	1
Aquatic Toxicity	2	2	2	2
Conventionals (Table 5-3) All <u>except</u> total phenols, turbidity, BOD_5, MTBE, and perchlorate, and fluoride.	3	3	3	3
Microbiological Constituents (Table 5-4)				
E. coli	3	3	3	3
Nutrients (Table 5-5)				
Ammonia	3	3	3	3
Metals (Table 5-7**)**				
Copper	3	3	3	3
Lead	3	3	3	3
Mercury	3	3	3	3
Selenium	3	3	3	3
Zinc	3	3	3	3
OP Pesticides (Table 5-8)				
Diazinon	3			

1. GR2 is a tentative TMDL site located between San Gabriel River Reach 1 and 2. This site will only be considered for monitoring if monitoring at S14 and GR1 provide evidence of increasing concentrations between these two sites.

2. All Table E-2 constituents will be measured during the first major storm event of the season and the critical, low flow dry weather event during July of the first year of the CIMP.

Table 5-2 Summary of Dry Weather Water Quality Constituents and Frequency at Mass Emission, LTA and TMDL Monitoring Sites.

CLASS OF MEASUREMENTS	RECEIVING WATERS			
	ME Coyote Creek	LTA San Gabriel River	TMDL	
	S13	GR1	NFC1	GR2[1]
Flow	2	2	2	2
Field Measurements DO, pH, Temp, and Spec. Cond.	2	2	2	2
MRP Table E-2 Constituents[2] (other than those listed below)	1	1	1	1
Aquatic Toxicity	1	1		
Conventionals (Table 5-3) All <u>except</u> total phenols, turbidity, BOD_5, MTBE, and perchlorate, and fluoride.	2	2	2	2
Microbiological Constituents (Table 5-4) *E. coli*	2	2	2	2
Nutrients (Table 5-5) Ammonia	2	2	2	2
OC Pesticides and PCBs (Table **5-6**) Alpha-Endosulfan Lindane	1			2
Metals (Table 5-7**)**				
Copper	2	2	2	2
Lead	2		2	
Mercury	2		2	
Selenium	2	2	2	2
Zinc	2		2	2
OP Pesticides (Table 5-8) Diazinon	2			

1. GR2 is a tentative site expected to be dry during the summer. Constituents are listed are based upon S14 which includes input from a very small segment of the LSGR watershed.

2. All Table E-2 constituents will be measured during the first major storm event of the season and the critical, low flow dry weather event during July of the first year of the CIMP.

5.1 General and Conventional Pollutants

Six of the conventional pollutants listed in Table 5-3 will continue to be analyzed as part of the base monitoring requirements. These include cyanide, TSS, TDS, Total Hardness, MBAS, and chloride. Specific conductance will be analyzed with along field measurements for dissolved oxygen, pH, and temperature. Additional constituents identified as constituents of concern during the first monitored storm event of the season and/or in association with monitoring conducted during the critical low flow event may also be considered for addition to the analytical suite after the first year. In addition, consideration will be given towards incorporation of other general and conventional constituents in this table that may be useful as indicators of contamination or that help interpret and evaluate sources of contaminants.

Table 5-3. Conventional Constituents, Analytical Methods and Quantitation Limits.

CONSTITUENTS CONVENTIONAL POLLUTANTS	METHOD	Target Reporting Limits mg/L
Oil and Grease	EPA1664	5
Total Petroleum Hydrocarbon	EPA 418.1	5
Total Phenols	EPA 420.1	0.1
Cyanide	EPA 335.2,SM 4500-CNE	0.003
Turbidity	EPA 180.1, SM2130B	1
Total Suspended Solids	EPA 160.2, SM2540D	1
Total Dissolved Solids	EPA 160.1, SM2540C	1
Volatile Suspended Solids	EPA 160.4, SM2540E	1
Total Organic Carbon	EPA 415.1 SM 5310B	1
Biochemical Oxygen Demand	EPA 405.1, SM 5210B	3
Chemical Oxygen Demand	EPA 410.1, SM5220D	4
Alkalinity	EPA 310.1, SM2320B	5
Specific Conductance	EPA 120.1, SM2510 B	1
Total Hardness	EPA 130.2, SM2340C	1
MBAS	EPA 425.1, SM5540-C	0.02
Chloride	EPA300.0, SM4110B	2
Fluoride	EPA300.0, SM4110B	0.1
Perchlorate	EPA314.0	4 ug/L
Volatile Organics	**METHOD**	**mg/L**
Methyl tertiary butyl ether (MTBE)	EPA624	1
Field Measurements	**METHOD**	**mg/L**
pH-field instrumentation	EPA 150.1	0 – 14
Temperature-field	In-situ	N/A
Dissolved Oxygen- field [1]	In-situ, SM4500 (OG)	Sensitivity to 5 mg/L

[1]Dissolved Oxygen will only be measured during dry weather surveys.

5.2 Microbiological Constituents

Table E-2 list four microbiological constituents that are used as fecal indicator bacteria (FIB). Since bacteria are not 303(d) listed for the downstream waters of the San Gabriel River Estuary, FIBs used to assess marine waters will not be included in any testing. Only *Escherichia coli* will be monitored at receiving water sites, TMDL sites and stormwater outfall sites.

Table 5-4 provides both upper and lower quantification limits for *E. coli* as well as other FIBs limited to marine waters. Upper quantification limits are provided to assure that measurements result in quantitative values rather than values that are qualified as greater than a fixed value. The intent is to assure that adequate dilutions are used to assure that quantifiable results are obtained.

Table 5-4. Microbiological Constituents, Analytical Methods and Quantitation Limits.

BACTERIA[1]	Method	Lower Limits MPN/100ml	Upper Limits MPN/100ml
Total coliform (marine waters)	SM 9221B	<20	>2,400,000
Fecal coliform (marine waters)	SM 9221B	<20	>2,400,000
Enterococcus (marine waters)	SM 9230C	<20	>2,400,000
E. coli (fresh waters)	SM 9223 COLt	<10	>2,400,000

[1]Microbiological constituents will vary based upon sampling point. Total & fecal coliform and enterococcus will only be measured in marine waters or at locations where either the discharge point or receiving water body will directly impact marine waters. *E. coli* will be analyzed at sites within the freshwater portion of the watershed.

5.3 Nutrients

Nutrients include both nitrogen and phosphorus compounds listed in Table 5-5. Ammonia is the only nutrient that has been 303(d) listed or that has been found to exceed any RWLs in the LSGR region. All nutrients will be analyzed at the three mass emission sites during the first major storm event and the July critical dry weather event. Phosphorus compounds have not been identified as constituents of concern in the watershed and will likely only be analyzed during the first year when sampling includes all Table E-2 constituents.

Table 5-5. Nutrients, Analytical Methods, and Quantitation limits

CONSTITUENT	METHOD	REPORTING LIMIT (mg/L)
Total Kjeldahl Nitrogen (TKN)[1]	EPA 351.1	0.50
Nitrate as Nitrogen (NO3-N)[1,2]	EPA 300.0	0.10
Nitrite as Nitrogen (NO2-N)[1,2]	EPA 300.0	0.05
Total Nitrogen[1]	calculation	NA
Ammonia as Nitrogen (NH3-N)	EPA 350.1	0.10
Total Phosphorus	SM 4500-P E or F	0.1
Dissolved Phosphorus	SM 4500-P E or F	0.1

1. Total Nitrogen is the sum of TKN, nitrate, and nitrite.
2. Nitrate –N and Nitrite-N may be analyzed together using EPA 300

5.4 Organochlorine Pesticides and PCBs

Organochlorine pesticides (OC pesticides) and PCBs have been analyzed in both stormwater and dry weather water samples collected at S13 between 2006 and 2013. Endosulfan I was the only OC pesticide detected. This pesticide was measured at a concentration of 26 ug/L at S13 during a dry weather sampling event. OC pesticides and PCBs are rarely detected in stormwater or dry weather discharges since they are so strongly associated with particulates.

The Harbor Toxics TMDL required testing to be conducted by analyzing these compounds on suspended sediment transported during storm events. A special monitoring program has been proposed to allow better assessment of these compounds while also providing data to support the Harbor Toxics TMDL. Monitoring for these constituents will be conducted at S13 and GR1 to allow quantification of loads from both major branches of the San Gabriel River Watershed.

The Harbor Toxics TMDL requires monitoring of these analytes during two storm events and one dry weather event. Monitoring during the two storm events will use specialized sampling and analytical methods detailed in Section 8.1.2. During dry weather sampling events, suspended sediment concentrations will be too low to allow for direct assessment of chlorinated pesticides and PCBs in the suspended particulate fraction. Monitoring conducted for characterization of dry weather conditions will utilize the same conventional methods (

Table **5-6**) being used in the receiving waters of the Harbor. Detailed information (reporting limits and data quality objectives) on the dry weather testing program are provided in Appendix E.

Dry weather sampling at the mouth of the San Gabriel River will be conducted by the LACSD, and modification to the existing monitoring program will commence in 2015. Data collected by LACSD will be shared with and analyzed by LSGR WG every other year consistent with the monitoring frequency recommended in the Harbor Toxics TMDL, beginning in 2016 when the Harbor Toxics Regional Monitoring Program is scheduled to conduct the first sediment survey.

Table 5-6. Chlorinated Pesticides and PCB analytical methods, and quantitation limits

CHLORINATED PESTICIDES	METHOD	Reporting Limit ug/*L*
Aldrin	EPA 608	0.005
alpha-BHC	EPA 608	0.01
beta-BHC	EPA 608	0.005
delta-BHC	EPA 608	0.005
gamma-BHC (lindane)	EPA 608	0.02
alpha-chlordane	EPA 608	0.1
gamma-chlordane	EPA 608	0.1
4,4'-DDD	EPA 608	0.05
4,4'-DDE	EPA 608	0.05
4,4'-DDT	EPA 608	0.01
Dieldrin	EPA 608	0.01
alpha-Endosulfan	EPA 608	0.02
beta-Endosulfan	EPA 608	0.01
Endosulfan sulfate	EPA 608	0.05
Endrin	EPA 608	0.01
Endrin aldehyde	EPA 608	0.01
Heptachlor	EPA 608	0.01
Heptachlor Epoxide	EPA 608	0.01

Toxaphene	EPA 608	0.5
POLYCHLORINATED BIPHENYLS		
Aroclor-1016	EPA 608	0.5
Aroclor-1221	EPA 608	0.5
Aroclor-1232	EPA 608	0.5
Aroclor-1242	EPA 608	0.5
Aroclor-1248	EPA 608	0.5
Aroclor-1254	EPA 608	0.5
Aroclor-1260	EPA 608	0.5

5.5 Total and Dissolved Trace Metals

A total of 16 trace metals are listed in Table E-2 of the MRP. Analytical methods and reporting limits for these elements are summarized in Table 5-7. Most metals will be analyzed by EPA Method 200.8 using ICP-MS to provide appropriate detection limits. Hexavalent chromium and mercury both require alternative methods.

Hexavalent chromium has been analyzed at TMDL compliance monitoring sites in both the Los Angeles River (S10) and the San Gabriel River (S14) for the past eight to ten years. Analytical methods and detection limits used for the monitoring have been consistent with those required in Table E-2 of the MRP. Hexavalent chromium will be analyzed with all Table E-2 constituents but this trace metal has never been detected a levels greater than the reporting limit so it will not likely be monitored on a regular basis..

Mercury is not commonly detected at either S13 or S14 but is periodically detected once in Coyote Creek at 0.13 ug/L and four times at the S14 in the San Gabriel River. The highest concentration was 0.43 ug/L at S14 but most concentrations reported in both locations have been near the reporting limit of 0.1 ug/L. Total mercury will be analyzed at both S13 and GR1.

Table 5-7. Metals Analytical Methods, and Quantitation Limits.

METALS (Dissolved & Total)	METHOD	Reporting Limit *ug/L*
Aluminum	EPA200.8	100
Antimony	EPA200.8	0.5
Arsenic	EPA200.8	0.5
Beryllium	EPA200.8	0.5
Cadmium	EPA200.8	0.25
Chromium (total)	EPA200.8	0.5
Chromium (Hexavalent)[1]	EPA218.6	5
Copper	EPA200.8	0.5
Iron	EPA200.8	25
Lead	EPA200.8	0.5
Mercury[1]	EPA245.1	0.2
Nickel	EPA200.8	1
Selenium	EPA200.8	1
Silver	EPA200.8	0.25
Thallium	EPA200.8	0.5
Zinc	EPA200.8	1

1. Only total hexavalent chromium and mercury will be analyzed during the initial wet and dry weather screening of Table E-2 constituents.

5.6 Organophosphate Pesticides and Herbicides

Organophosphate pesticides, triamine pesticides and herbicides list in Table E-2 of the MRP are summarized in Table 5-8. Due to the fact that diazinon and chlorpyrifos are no longer available for residential use, these constituents are now rarely detected. Despite the fact that diazinon has not been detected at either S13 or S14 since 2006, diazinon remains on the 303(d) list and will be included in the list of constituents to be analyzed at the mass emission sites.

Although this analyte remains on the list to be analyzed at the ME station, we will recommend reevaluation after the first two years of monitoring. If concentrations remain below the updated California Department of Fish and Game criteria, we will propose to remove this analyte from the monitoring list for the ME site.

Table 5-8. Organophosphate pesticides and herbicides analytical methods, and quantitation limits

ORGANOPHOSPHATE PESTICIDES	METHOD	Reporting Limit ug/L
Atrazine	EPA507,8141A	1
Chlorpyrifos	EPA8141A	0.05
Cyanazine	EPA8141A	1
Diazinon	EPA8141A	0.01
Malathion	EPA8141A	1
Prometryn	EPA8141A	1
Simazine	EPA8141A	1
HERBICIDES		
Glyphosate	EPA547	5
2,4-D	EPA515.3	0.02
2,4,5-TP-SILVEX	EPA515.3	0.2

5.7 Semivolatile Organic Compounds (Acid, Base/Neutral)

Semivolatile organic compounds from Table E-2 of the MRP are listed in Table 5-9 below. Acids consist mostly of phenolic compounds which are uncommon in stormwater samples. Base/neutrals include polynuclear aromatic hydrocarbons (PAHs) which are the only semivolatile organic compounds considered to be constituents of concern. PAHs are included as part of the Harbor Toxics TMDL and will be analyzed at R8 as part of the Harbor Toxics TMDL monitoring requirements.

PAHs will also be analyzed in association with two storm events at the S13 and GR1 using specialized analytical test procedures to allow for the resolution necessary to quantify total loads of PAHs. The methods are discussed in Section 8.1.2.

Table 5-9. Semivolatile organic compounds analytical methods, and quantitation limits.

SEMIVOLATILE ORGANIC COMPOUNDS	METHOD	Reporting Limit
ACIDS		**ug/L**
2-Chlorophenol	EPA625	2
4-Chloro-3-methylphenol	EPA625	1
2,4-Dichlorophenol	EPA625	1
2,4-Dimethylphenol	EPA625	2
2,4-Dinitrophenol	EPA625	5
2-Nitrophenol	EPA625	10
4-Nitrophenol	EPA625	5
Pentachlorophenol	EPA625	2
Phenol	EPA625	1
2,4,6-Trichlorophenol	EPA625	10
BASE/NEUTRAL		**ug/L**
Acenaphthene	EPA625	1
Acenaphthylene	EPA625	2
Anthracene	EPA625	2
Benzidine	EPA625	5
1,2 Benzanthracene	EPA625	5
Benzo(a)pyrene	EPA625	2
Benzo(g,h,i)perylene	EPA625	5
3,4 Benzofluoranthene	EPA625	10
Benzo(k)fluoranthene	EPA625	2
Bis(2-Chloroethoxy) methane	EPA625	5
Bis(2-Chloroisopropyl) ether	EPA625	2
Bis(2-Chloroethyl) ether	EPA625	1
Bis(2-Ethylhexl) phthalate	EPA625	5
4-Bromophenyl phenyl ether	EPA625	5
Butyl benzyl phthalate	EPA625	10
2-Chloroethyl vinyl ether	EPA625	1
2-Chloronaphthalene	EPA625	10
4-Chlorophenyl phenyl ether	EPA625	5
Chrysene	EPA625	5
Dibenzo(a,h)anthracene	EPA625	0.1
1,3-Dichlorobenzene	EPA625	1
1,4-Dichlorobenzene	EPA625	1
1,2-Dichlorobenzene	EPA625	1
3,3-Dichlorobenzidine	EPA625	5
Diethyl phthalate	EPA625	2
Dimethyl phthalate	EPA625	2
di-n-Butyl phthalate	EPA625	10
2,4-Dinitrotoluene	EPA625	5
2,6-Dinitrotoluene	EPA625	5
4,6 Dinitro-2-methylphenol	EPA625	5
1,2-Diphenylhydrazine	EPA625	1
di-n-Octyl phthalate	EPA625	10
Fluoranthene	EPA625	0.05
Fluorene	EPA625	0.1

SEMIVOLATILE ORGANIC COMPOUNDS	METHOD	Reporting Limit
Hexachlorobenzene	EPA625	1
Hexachlorobutadiene	EPA625	1
Hexachloro-cyclopentadiene	EPA625	5
Hexachloroethane	EPA625	1
Indeno(1,2,3-cd)pyrene	EPA625	0.05
Isophorone	EPA625	1
Naphthalene	EPA625	0.2
Nitrobenzene	EPA625	1
N-Nitroso-dimethyl amine	EPA625	5
N-Nitroso-diphenyl amine	EPA625	1
N-Nitroso-di-n-propyl amine	EPA625	5
Phenanthrene	EPA625	0.05
Pyrene	EPA625	0.05
1,2,4-Trichlorobenzene	EPA625	1

6 Adaptive Management

The CIMP will be reviewed on an annual basis to make any necessary adjustments to the monitoring sites, constituents, frequency of sampling or sampling procedures. The CIMP is intended to require modifications based upon annual monitoring results. Annual changes may include expanded toxicity testing, the addition of constituents monitored at LTA sites, addition of new constituents to stormwater outfall sites, addition or relocation of monitoring sites as well as a range of other program adjustments necessary to improve the ability of the program to monitor water quality improvements and identify major sources of contaminants in needed of targeted control measures.

Water body / pollutant categories and the frequency of exceedance of available RWLs are central to the monitoring approach. Pre-determined triggers will be used to determine if new constituents should be incorporated into the program or if monitoring of a constituent should be discontinued. Monitoring constituents will be adjusted based upon the following guidelines:

- Any constituent exceeding the minimum, appropriate water quality criteria listed in Appendix G during the wet and dry weather screening of E-2 constituents will be added to the monitoring list for the subject receiving water site and season.
- If an E-2 constituent exceeds receiving water criteria in two consecutive surveys, the constituent will be added to the monitoring list at the closest upstream stormwater outfall monitoring site.
- If sampling of an E-2 constituent is added to a stormwater outfall monitoring and the constituent is not detected in excess of the lowest applicable water quality criterion for two consecutive years, monitoring of the constituent at the stormwater outfall site will be discontinued.
- Water body/ pollutant category 2 will be downgraded if data indicates that the pollutant meets delisting criteria.

- Pollutants in water body/classification 3 will be removed from the list of monitored constituents at a site if they are not detected at levels that exceed the minimum, appropriate water quality criteria for a period of two consecutive years.

Monitoring data will be evaluated each year to determine if any modifications are necessary. This will include an assessment of additional monitoring that may be necessary to identify sources of TMDL constituents.

7 Aquatic Toxicity Testing and Toxicity Identification Evaluations

Aquatic toxicity testing supports the identification of best management practices (BMPs) to address sources of toxicity in urban runoff. The following outlines the approach for conducting aquatic toxicity monitoring and evaluating results. Control measures and management actions to address confirmed toxicity caused by urban runoff are addressed by the WMP, either via currently identified management actions or those that are identified via adaptive management of the WMP.

The approach to conducting aquatic toxicity monitoring is presented in Figure 7-1, which describes a general evaluation process for each sample collected as part of routine sampling conducted twice per year in wet weather and once per year in dry weather. Monitoring begins in the receiving water and the information gained is used to identify constituents for monitoring at outfalls to support the identification of pollutants that need to be addressed in the WMP. The sub-sections below describe the process and its technical and logistical rationale.

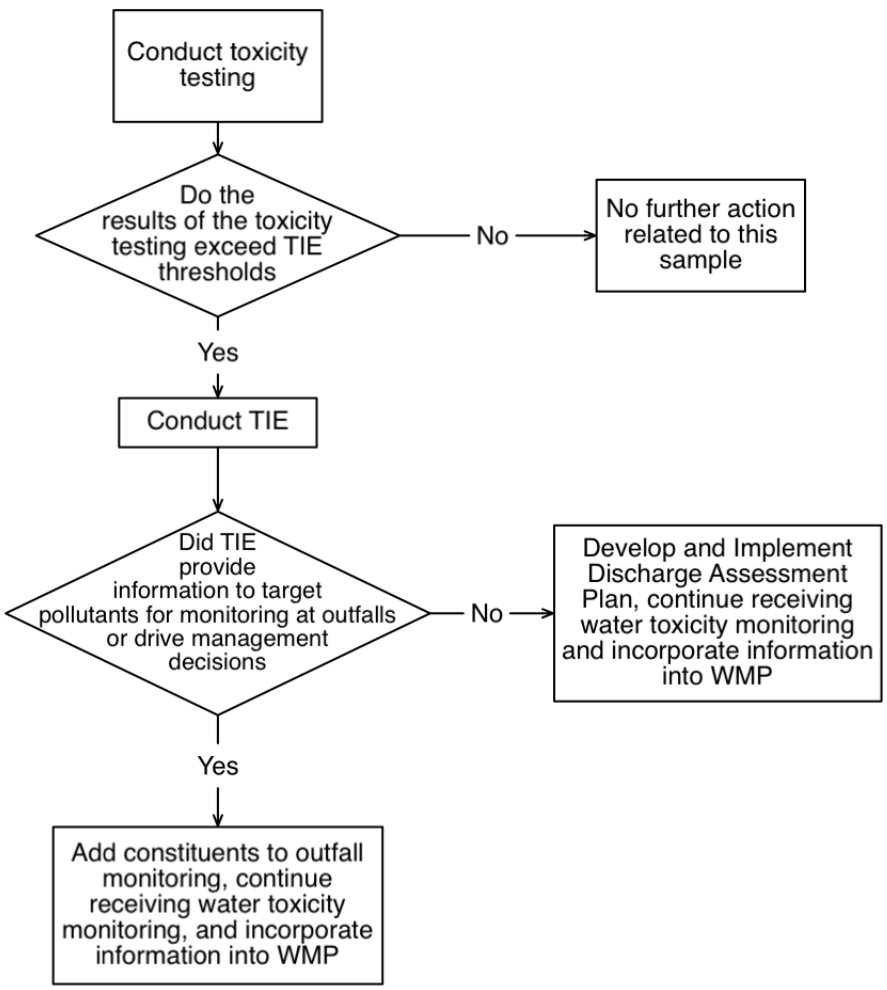


Figure 7-1. Generalized Aquatic Toxicity Assessment Process

7.1 Sensitive Species Selection

The Permit Monitoring and Reporting Program (MRP) (page E-32) states that sensitivity screening to select the most sensitive test species should be conducted unless "a sensitive test species has already been determined, or if there is prior knowledge of potential toxicant(s) and a test species is sensitive to such toxicant(s), then monitoring shall be conducted using only that test species." Previous relevant studies conducted in the watershed should be considered. Such studies may have been completed via previous MS4 sampling, wastewater NPDES sampling, or special studies conducted within the watershed.

As described in the MRP (page E-31), if samples are collected in receiving waters with salinity less than 1 part per thousand (ppt), or from outfalls discharging to receiving waters with salinity less than 1 ppt, toxicity tests should be conducted on the most sensitive test species in accordance with species and short-term test methods in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002; Table IA, 40 CFR Part 136). Salinities of both dry and wet weather discharges from the Lower San Gabriel River are considered to meet the freshwater criteria. The freshwater test species identified in the MRP are:

- A static renewal toxicity test with the fathead minnow, *Pimephales promelas* (Larval Survival and Growth Test Method 1000.04).
- A static renewal toxicity test with the daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.05).
- A static non-renewal toxicity test with the green alga, *Selenastrum capricornutum* (also named *Raphidocelis subcapitata*) (Growth Test Method 1003.0).

The three test species were evaluated to determine if either a sensitive test species had already been determined, or if there is prior knowledge of potential toxicant(s) and a test species is sensitive to such toxicant(s). In reviewing the available data in the Los Angeles River, Los Cerritos Channel, and the San Gabriel River watersheds, organophosphate pesticides and/or metals have been identified as problematic and are generally considered the primary aquatic life toxicants of concern found in urban runoff. Pyrethroid pesticides are known to be present in urban runoff and potentially contribute to toxicity in these waters. Tests specific to pyrethroid pesticides are simply less common. Given the knowledge of the presence of these potential toxicants in the watershed, the sensitivities of each of the three species were considered to evaluate which is the most sensitive to the potential toxicants in the watersheds.

Ceriodaphnia dubia has been reported as a sensitive test species for historical and current use of pesticides and metals, and studies indicate that it is more sensitive to the toxicants of concern than *P. promelas* or *S. capricornutum*. In its aquatic life copper criteria document, the USEPA reports greater sensitivity of *C. dubia* to copper (species mean acute value of 5.93 µg/l) compared to *Pimephales promelas* (species mean acute value of 69.93 µg/l; EPA, 2007). *C. dubia's* relatively higher sensitive to metals is common across multiple metals. Researchers at the University of California, Davis also reviewed available species sensitivity values in developing pesticide criteria for the Central Valley Regional Water Quality Control Board. The UC Davis researchers reported higher sensitivity of *C. dubia* to diazinon and bifenthrin (species mean acute value of 0.34 µg/l and 0.105 µg/l) compared to *P. promelas* (species mean acute value of 7804 µg/l and 0.405 µg/l; Palumbo et al., 2010a, b). Additionally, a study of the City of Stockton urban stormwater runoff found acute and chronic toxicity to *C. dubia*, with no toxicity to *S. capricornutum* or *P. promelas* (Lee and Lee, 2001). The toxicity was attributed to organophosphate pesticides, indicating a higher sensitivity of *C. dubia* compared to *S. capricornutum* or *P. promelas*. *P. promelas* is generally less sensitive to metals and pesticides but has been found to be more sensitive to ammonia than *C. dubia*. However, as ammonia is not typically a constituent of concern for urban runoff and ammonia is not consistently observed above the toxic thresholds in the watershed, *P. promelas* is not considered a particularly sensitive species for evaluating the impacts of urban runoff in receiving waters in the watershed.

Selenastrum capricornutum is a species that is sensitive to herbicides; however, while sometimes present in urban runoff, measured concentrations are typically very low. Herbicides have not been identified as a potential toxicant in the watershed. *S. capricornutum* is also not considered the most sensitive species as it is not sensitive to either pyrethroids or organophosphate pesticides and is not as sensitive to metals as *C. dubia*. The *S. capricornutum* growth test can also be affected by high concentrations of suspended and dissolved solids, color and pH extremes, which can interfere with the determination of sample toxicity. As a result, it is common to manipulate the sample by centrifugation and filtration to remove solids in order to conduct the test. This process may affect the toxicity of the sample. In a study of urban highway stormwater runoff (Kayhanian et. al, 2008), the green alga response to the stormwater samples was more variable than both the *C. dubia* and the *P. promelas* and in some cases the alga growth was considered to be potentially enhanced due to the presence of stimulatory nutrients.

As *C. dubia* is identified as the most sensitive to known potential toxicant(s) typically found in receiving waters and urban runoff in the freshwater potions of the watershed and has demonstrated toxicity in programs within the watershed (CWH and ABC Laboratories, 2013), *C. dubia* is selected as the most sensitive species. The species also has the advantage of being easily maintained in in-house mass cultures. The simplicity of the test, the ease of interpreting results, and the smaller volume necessary to run the test, make the test a valuable screening tool. The ease of sample collection and higher sensitivity will support assessing the presence of ambient receiving water toxicity or long term effects of toxic stormwater over time. As such, toxicity testing will be conducted using *C. dubia*.

An alternative species of water fleas, *Daphnia magna*, may be used if the water being tested has elevated hardness. *C. dubia* test organisms are typically cultured in moderately hard waters (80-100 mg/L CaCO3) and can have increased sensitivity to elevated water hardness greater than 400 mg/L CaCO3), which is beyond their typical habitat range. Because of this, *Daphnia magna* may be substituted in instances where hardness in site waters exceeds 400 mg/L ($CaCO_3$). *Daphnia magna* is more tolerant to high hardness levels and is a suitable substitution for *C. dubia* in these instances (Cowgill and Milazzo, 1990).

7.2 Testing Period

As wet weather conditions in the region generally persist for less than the acute and chronic testing periods (typically 48 hours and 7 days, respectively), the shorter of the two testing methods, in the case of *C. dubia* acute testing measuring survival, will be used for wet weather toxicity testing. Because storm events are short duration, chronic tests performed on wet weather samples are not representative of the conditions found in the receiving water. Acute toxicity tests are consistent with the relatively shorter exposure periods of species in the watershed to potential toxicants introduced by urban runoff during storm events. Acute testing to assess survival endpoints will be conducted in accordance with *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA, 2002b).

Chronic toxicity tests will be used to assess both survival and reproductive/growth endpoints for *C. dubia* in dry weather samples. Chronic testing will be conducted on undiluted samples in accordance with *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (USEPA, 2002a).

7.3 Toxicity Endpoint Assessment and Toxicity Identification Evaluation Triggers

Acute and chronic toxicity test endpoints will be analyzed, per the MRP, using the Test of Significant Toxicity (TST) t-test approach specified by the USEPA (USEPA, 2010). The Permit specifies that the chronic in-stream waste concentration (IWC) is set at 100% receiving water for receiving water samples and 100% effluent for outfall samples. Using the TST approach, a t-value is calculated for a test result and compared with a critical t-value from USEPA's TST Implementation Document (USEPA, 2010). Follow-up triggers are generally based on the Permit specified statistical assessment as described below.

For acute *C. dubia* toxicity testing, if a statistically significant 50% difference in mortality is observed between the sample and laboratory control, a toxicity identification evaluation (TIE) will be performed. TIE procedures are discussed in detail in the following section. Experience conducting TIEs in receiving waters in the region supports using a 50% mortality trigger to provide a reasonable opportunity for a successful TIE. During TMDL monitoring in the Calleguas Creek Watershed (CCW) in 2003 and 2004, TIEs were initiated on samples exceeding the 50% threshold (the majority of which displayed 100% mortality). In that study, toxicity degraded in approximately 40% of the samples on which TIE procedures were conducted making the TIE unsuccessful (and effectively useless in pinpointing specific toxicants). Similar degradation of toxicity has been noted in tests conducted on stormwater samples from the nearby Los Cerritos Channel. The Los Angeles Regional Water Quality Control Board approved monitoring program for the CCW Toxicity TMDL utilizes a 50% threshold for TIE initiation. Additionally, a 50% mortality threshold is utilized in the Ventura County MS4 Permit.

For chronic *C. dubia* toxicity testing, a TIE will be performed if a statistically significant 50% difference in mortality is observed between the sample and laboratory control. If a statistically significant 50% difference is observed in a sub-lethal endpoint between the sample and laboratory control, a confirmatory sample will be collected from the receiving water within two weeks of obtaining the results of the initial sample. If a statistically significant 50% difference in mortality or sub-lethal endpoint is again observed between the sample and laboratory control on the confirmatory sample, a TIE will be performed.

TIE procedures will be initiated as soon as possible after the toxicity trigger threshold is observed to reduce the potential for loss of toxicity due to extended sample storage. If the cause of toxicity is readily apparent or is caused by pathogen related mortality or epibiont interference with the test, the result will be rejected, if necessary, a modified testing procedure will be developed for future testing.

In cases where significant endpoint toxicity effects in excess of 50% are observed in the original sample, but the follow-up TIE positive control "signal" is found to not be statistically significant, the cause of toxicity will be considered non-persistent. No immediate follow-up testing is required on the sample. However, future test results will be evaluated to determine if implementation of concurrent TIE treatments are needed to provide an opportunity to identify the cause of toxicity.

7.4 Toxicity Identification Evaluation Approach

The results of toxicity testing will be used to trigger further investigations to determine the cause of observed laboratory toxicity. The primary purpose of conducting TIEs is to support the identification of management actions that will result in the removal of pollutants causing toxicity in receiving waters. Successful TIEs will direct monitoring at outfall sampling sites to inform management actions. As such, the goal of conducting TIEs is to identify pollutant(s) that should be sampled during outfall monitoring so that management actions can be identified to address the pollutant(s).

The TIE approach as described in USEPA's 1991 Methods for Aquatic Toxicity Identification is divided into three phases although some elements of the first two phases are often combined. Each of the three phases is briefly summarized below:

- Phase I utilizes methods to characterize the physical/chemical nature of the constituents which cause toxicity. Such characteristics as solubility, volatility and filterability are determined without specifically identifying the toxicants. Phase I results are intended as a first step in specifically identifying the toxicants but the data generated can also be used to develop treatment methods to remove toxicity without specific identification of the toxicants.
- Phase II utilizes methods to specifically identify toxicants.
- Phase III utilizes methods to confirm the suspected toxicants.

A Phase I TIE will be conducted on samples that exceed a TIE trigger described in Section7.4. Water quality data will be reviewed to future support evaluation of potential toxicants. A range of sample manipulations may be conducted as part of the TIE process. The most common manipulations are described in Table 7-1. Information from previous chemical testing and/or TIE efforts will be used to determine which of these (or other) sample manipulations are most likely to provide useful information for identification of primary toxicants. TIE methods will generally adhere to USEPA procedures documented in conducting TIEs (USEPA, 1991, 1992, 1993a-b).

Table 7-1. Phase I and II Toxicity Identification Evaluation Sample Manipulations

TIE Sample Manipulation	Expected Response
pH Adjustment (pH 7 and 8.5)	Alters toxicity in pH sensitive compounds (i.e., ammonia and some trace metals)
Filtration or centrifugation	Removes particulates and associated toxicants
Ethylenediamine-Tetraacetic Acid (EDTA)	Chelates trace metals, particularly divalent cationic metals
Sodium thiosulfate (STS) addition	Reduces toxicants attributable to oxidants (i.e., chlorine) and some trace metals
Piperonyl Butoxide (PBO)	Reduces toxicity from organophosphate pesticides such as diazinon, chlorpyrifos and malathion, and enhances pyrethroid toxicity
Carboxylesterase addition(1)	Hydrolyzes pyrethroids
Temperature adjustments(2)	Pyrethroids become more toxic when test temperatures are decreased
Solid Phase Extraction (SPE) with C18 column	Removes non-polar organics (including pesticides) and some relatively non-polar metal chelates
Sequential Solvent Extraction of C18 column	Further resolution of SPE-extracted compounds for chemical analyses
No Manipulation	Baseline test for comparing the relative effectiveness of other manipulations

1 Carboxylesterase addition has been used in recent studies to help identify pyrethroid-associated toxicity (Wheelock et al., 2004; Weston and Amweg, 2007). However, this treatment is experimental in nature and should be used along with other pyrethroid-targeted TIE treatments (e.g., PBO addition).

2 Temperature adjustments are another recent manipulation used to evaluate pyrethroid-associated toxicity. Lower temperatures increase the lethality of pyrethroid pesticides. (Harwood, You and Lydy, 2009)

The LSGR WG will identify the cause(s) of toxicity using a selection of treatments in Table 7-1 and, if possible, using the results of water column chemistry analyses. After any initial assessments of the cause of toxicity, the information may be used during future events to modify the targeted treatments to more closely target the expected toxicant or class of toxicants. Moreover, if the toxicant or toxicant class is not initially identified, toxicity monitoring during subsequent events will confirm if the toxicant is persistent or a short-term episodic occurrence.

As the primary goals of conducting TIEs is to identify pollutants for incorporation into outfall monitoring, narrowing the list of toxicants following Phase I TIEs via Phase II/III TIEs is not necessary if the toxicant class determined during the Phase I TIE is sufficient for 1) identifying additional pollutants for outfall monitoring and/or 2) identifying control measures. Thus, if the specific pollutant(s) or classes of pollutants (e.g., metals that are analyzed via EPA Method 200.8) are identified then sufficient information is available to incorporate the additional pollutants into outfall monitoring and to start implementation of control measures to target the additional pollutants.

Phase II TIEs may be utilized to identify specific constituents causing toxicity in a given sample if the results of Phase I TIE testing and a review of available chemistry data fails to provide information necessary to identify constituents that warrant additional monitoring activities or management actions to identify likely sources of the toxicants and lead to elimination of the sources of these contaminants. Phase III TIEs will be conducted following any Phase II TIEs.

TIEs will be considered inconclusive if 1) the toxicity is persistent (i.e., observed in the positive control), and 2) the cause of toxicity cannot be attributed to a class of constituents (e.g., insecticides, metals, etc.) that can be targeted for monitoring.

The TIE is considered conclusive if:

- a combination of causes that act in a synergistic or additive manner are identified
- toxicity can be removed with a treatment or combination of the TIE treatments
- analysis of water quality data collected during the same event identifies the pollutant or analytical class of pollutants

Note that the MRP (page E-33) allows a TIE Prioritization Metric (as described in Appendix E of the Stormwater Monitoring Coalition's Model Monitoring Program) for use in ranking sites for TIEs. Information is currently not available to determine whether a prioritization metric will be warranted. If toxicity results indicate the need for development of a prioritization metric, a strategy will be developed and structured through the CIMP adaptive management process. The suggested prioritization approach will be developed through the CIMP adaptive management process described in the CIMP annual report.

7.5 Discharge Assessment

The Watershed Management Group will prepare a brief Discharge Assessment Plan if TIEs conducted on consecutive sampling events are inconclusive. The discharge assessment will be conducted after consecutive inconclusive TIEs, rather than after one, because of inherit variability associated with the toxicity and TIE testing methods.

The Discharge Assessment Plan will consider the observed potential toxicants in the receiving water and associated urban runoff discharges above known species effect levels and the relevant exposure periods compared to the duration of the observed toxicity. The Discharge Assessment Plan will reexamine the following issues:

- Is additional receiving water toxicity monitoring necessary to better evaluate the spatial extent of receiving water toxicity?
- Should different test species be considered? If a species is proposed that is different than the species utilized when receiving water toxicity was observed, justification for the substitution will be provided.
- Is the number and location of monitoring sites suitable for understanding their impacts to the observed receiving water toxicity?
- What program adjustments are necessary to facilitate a better understanding of the cause of toxicity? Examine the number of monitoring events to be conducted, a schedule for conducting the monitoring, and a process for evaluating the completion of the assessment monitoring.

The Discharge Assessment Plan will be submitted to Los Angeles Regional Water Board for comment within 60 days of receipt of notification of the second consecutive inconclusive result. If no comments are received within 30-days, it will be assumed that the approach is appropriate for the given situation and the Plan should be implemented within 90-days of submittal.

7.6 Follow Up on Toxicity Testing Results

The MRP (page E-33) indicates the following actions should be taken when a toxicant or class of toxicants is identified through a TIE:

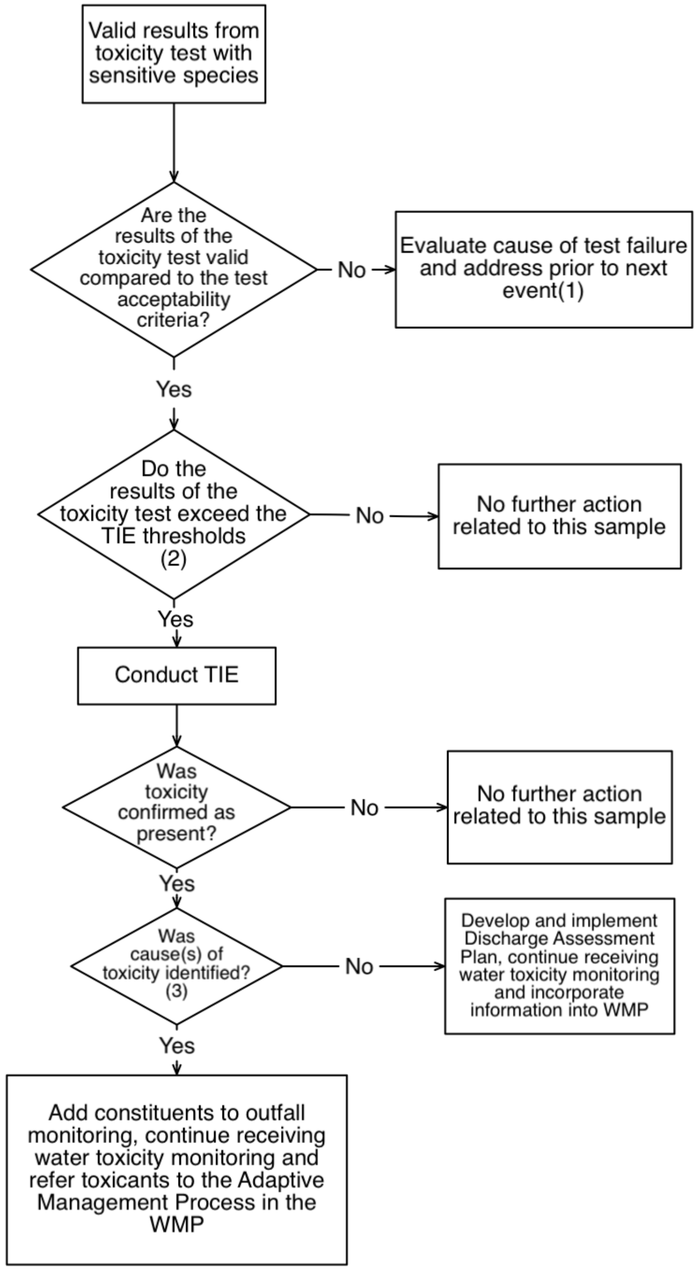
1. Group Members shall analyze for the toxicant(s) during the next scheduled sampling event in the discharge from the outfall(s) upstream of the receiving water location.
2. If the toxicant is present in the discharge from the outfall at levels above the applicable receiving water limitation, a toxicity reduction evaluation (TRE) will be performed for that toxicant.

The list of constituents monitored at outfalls identified in the CIMP will be modified based on the results of the TIEs. Monitoring for those constituents will occur as soon as feasible following the completion of a successful TIE (i.e., the next monitoring event that is at least 45 days following the toxicity laboratory's report transmitting the results of a successful TIE).

The requirements of the TREs will be met as part of the adaptive management process in the WMPs rather than the CIMP. The identification and implementation of control measures to address the causes of toxicity are tied to management of the stormwater program, not the CIMP. It is expected that the requirements of TREs will only be conducted for toxicants that are not already addressed by an existing Permit requirement (i.e., TMDLs) or existing or planned management actions.

7.7 Summary of Aquatic Toxicity Monitoring

The approach to conducting aquatic toxicity monitoring as described in the previous sections is summarized in detail in Figure 7-2. The intent of the approach is to identify the cause of toxicity observed in receiving water to the extent possible with the toxicity testing tools available, thereby directing outfall monitoring for the pollutants causing toxicity with the ultimate goal of supporting the development and implementation of management actions.



1. Test failure includes pathogen or epibiont interference which should be addressed prior to the next toxicity sampling event. Additionally, lab control organisms may fail to meet test standards. As a result of test failure, toxicity samples will be collected during the next wet weather event, or as soon as possible following notification of test failure for dry event samples
2. The TIE threshold is >50% mortality in an acute (wet weather) or chronic (dry weather) sample. If a >50% effect in a sub-lethal endpoint for a chronic test is observed a follow up sample will be initiated within two weeks of the completion of the initial sample collection. If the follow up sample exhibits a greater than 50% effect, a TIE will be initiated.
3. The goal of conducting the Phase I TIE is to identify the cause of toxicity so that outfall monitoring can incorporate the toxicant(s) into the list of constituents monitored during outfall monitoring. Thus, if the specific toxicant(s) or the analytical classes of toxicants (i.e., metals that are analyzed via EPA Method 200.8) are identified, sufficient information is available to inform the addition of pollutants to the list of pollutants monitoring during outfall monitoring.

Figure 7-2. Detailed Aquatic Toxicity Assessment Process

8 Receiving Water Monitoring

Two long-term receiving water monitoring sites will be monitoring in the LSGR WG. Receiving water quality monitoring at the Coyote Creek ME site, S13, (Figure 3-1) will continue to be conducted by the LACFCD. The LSGR WG will coordinate with the LACFCD for additional TMDL monitoring to also to be conducted at S13. Additional monitoring will be conducted by the LSGR WG at both the San Gabriel River LTA site, GR1. Flow-weighted composite samples will be collected during each monitoring event and will be analyzed for constituents listed in

Table 5-1.

Flow-rated composite samples will be collected and analyzed at each of the receiving water quality monitoring sites three times a year during the wet season and two times a year during dry weather conditions. Dry weather flows at GR1 are heavily dominated by discharges from the two WRPs. Discharges of tertiary treated effluent from the WRPs accounts for more than 98% of the flow measured in Reach 1 of the San Gabriel River during the summer. As part of their NPDES monitoring requirements, LACSD staff collect and monitor water from four sites within Reach 1 to characterize conditions in the watershed. The same sites are monitored.

Screening for Table E-2 constituents listed in the MRP will be conducted during the first significant storm of the year at both sites and during a critically dry weather period at S13. Larger sampling volumes are required to incorporate all analytical tests and associated QA/QC needed for Table E-2 constituents, bioassay tests and to provide sufficient volumes should TIEs be required.

Monitoring at receiving water quality sites will be require specific conditions be met in order to be considered a valid stormwater monitoring event.:

meet the criteria for stormwater The wet season is defined as ranging from October 1 through April 15. Storm events are further defined in the MRP as:

- Wet Season defined as October 1 through April 15
- Events preceded by less than 0.1 inches of rainfall within the watershed over a three day period and
- Rainfall of at least 0.25 inches.

The San Gabriel River Metals TMDL further differentiates dry weather and wet weather flow by the 90th percentile flow condition. Separate flow limits are established for the San Gabriel River and Coyote Creek watersheds.

- San Gabriel River - Maximum flow rates greater than 260 cfs measured at the USGS gauging station 11085000.

- Coyote Creek - Maximum daily flow rates of 156 cfs at the LACFCD flow gauging station F354-R.

Due to the size of the watershed, it is possible that conditions for wet weather flow monitoring could be met in one of the two targeted segments of the LSGR WG but not the other. When possible, monitoring will target events where appropriate sampling conditions are expected to be met in bot segments of the watershed. Professional judgment will be used to determine if conditions are likely to be achieved in both segments.

The MRP defines dry weather (for rivers, streams or creeks) as periods when flow is no more than 20% greater than base flow conditions. In the case of the Estuary, dry weather conditions are further defined by rainfall being less than 0.1 inches of rain on the day of the sampling and having experienced no less than three days of dry weather after a rain event of 0.1 inches or greater within the watershed, as measured from at least 50 percent of Los Angeles County controlled rain gauges within the watershed.

As noted in the previous section, it has been determined that adequate data exist to determine which of the three freshwater species are considered to be most sensitive during both storm events and dry weather periods. Available literature and local data indicate that the most sensitive bioassay test species is *Ceriodaphnia dubia*. The prior section on Aquatic Toxicity Testing and TIEs goes into detail as to species selection and the overall approach recommended for measuring toxicity in the receiving waters and strategies to eliminate any sources of toxicity. During wet weather conditions, bioassay tests will be performed based upon exposure to 100 percent test waters over a 48-hour time period since this time exposure is deemed to be more consistent with the duration of typical storm events. Since exposure times during the dry season are much long, dry weather testing will utilize 7-day chronic toxicity tests that assess both survival and reproductive endpoints for *C. dubia*. Chronic testing will also be conducted on 100 percent undiluted samples.

Table 8-1 provides sample volumes necessary for toxicity tests (both wet and dry weather) as well as minimum volumes necessary to fulfill Phase I TIE testing if necessary. As detailed in the previous section, the sublethal endpoints will be assessed using EPA's TST procedure to determine if there is a statistically significant 50% difference between sample controls and the test waters and ultimately determine if further testing should be is necessary.

Table 8-1. Toxicity Test Volume Requirements for Aquatic Toxicity Testing as part of the Lower San Gabriel River Coordinated Integrated Monitoring Program.

Test Organism	Toxicity Test Type	Test Concentration	Volume Required for Initial Screen (L)	Minimum Volume Required for TIE (L)[1]
Freshwater Tests for Samples with Salinity < 1.0 ppt				
Daphnid Water Flea *(Ceriodaphnia dubia*)	48-Hour Acute Survival 7-day Chronic Survival and Reproduction	100% only	1.5	10
Sample Receipt Water Quality	--	--	1.0	--
Total volume required per event for samples with salinity < 1.0 ppt;			2.5	a

[1] Minimum volumes for TIE are for Phase 1 characterization testing only. The additional volume collected for potential TIE testing can be held in refrigeration (4°C in the dark, no head space) and shipped to the laboratory at a later date if needed.

Note: The NPDES permit targets a 36-hr holding time for initiation of testing but allows a maximum holding time of 72-hr if necessary.

8.1 Receiving Water TMDL Monitoring

The following sections provide a summary of TMDLs applicable to the LSGR, any interim or final Waste Load Allocations applicable to each TMDL, and monitoring requirements required to evaluate compliance with the two TMDLs that impact the LSGR WG. These include the San Gabriel River Metals TMDL and the Harbor Toxics TMDL.

8.1.1 Total Maximum Daily Loads for Metals and Selenium: San Gabriel River and Impaired Tributaries (Metals TMDL).

Attachment A to Resolution No. R13-004

The Basin Plan Amendment for the San Gabriel River and Los Cerritos Channel Metals TMDLs established schedules for meeting established water quality goals in these watersheds. In addition, intermediate goals were established to demonstrate progress towards meeting the goals. Overall, monitoring is intended to achieve the following three objectives:

- Determine attainment of numeric targets;
- Determine compliance with the waste load and load allocations;
- Monitor the effect of implementation actions on water quality.

Monitoring was intended to be conducted in both the receiving waters and at outfalls. Use of existing Mass Emission sites was suggested for effective coordination with existing MS4 NPDES monitoring requirements and monitoring of stormwater outfalls was suggested as the most effective way to directly assess attainment of WLAs. NPDES monitoring support of the Los Angeles County MS4 permit and the five WTPs operated by the Los Angeles County Sanitation District (LACSD) have resulted in the majority of receiving water quality data in the San Gabriel River watershed. This monitoring has shown that most water quality exceedances occur during wet weather. Dry weather waste load allocations (WLAs) are limited to copper in Coyote Creek. WLAs were assigned to the San Gabriel River Reach 1 due to the Estuary. San Jose Creek Reach 1 was listed for selenium but that listing is considered to be in error due to an inadequate number of samples. Selenium is has also been identified as originating naturally from old marine sediments.

During wet weather, numeric targets have been established for three metals: lead, copper and zinc. Lead is the only metal with allocations established for both San Gabriel River Reach 2 and Coyote Creek (Table 8-3 and Table 8-4).

Table 8-2. Dry Weather Copper and Selenium Waste Load Allocations for San Jose Creek Reach 1, San Gabriel River Reach 1 and Coyote Creek.

	San Jose Creek Reach 1	San Gabriel River Reach 1	Coyote Creek
Copper	-	18 µg/l	0.941 kg/day
Selenium	5 µg/l	-	-

Table 8-3. Numeric Target (Total Recoverable) and Waste Load Allocations for San Gabriel River.

Condition	Total Lead –Total Allocations		Total Lead –MS4 WLAs[2]	
Wet Weather	166 µg/L*6.8×10^8 liters(1)	106.2 kg/day	0.49*166 µg/L*6.8×10^8 liters(2)	51.8 kg/day

1. The numeric target for total recoverable lead in San Gabriel River Reach 2 is 166 µg/L. TMDL limits are based upon daily storm volume. The total allocation is based upon a flow of 260 cfs (6.8×10^8 liters/day).
2. The MS4 system comprises 49% of the total watershed therefore 49% of the load is allocated to the MS4.

Table 8-4. Numeric Target (Total Recoverable) and Waste Load Allocations for Coyote Creek.

Condition	Total Copper[1]		Total Lead		Total Zinc	
Wet Weather[3]	27 µg/L	9.41 kg/day	106 µg/L	36.9 kg/day	158 µg/L	55.0 kg/day

1 Copper, lead, and zinc numeric targets (µg/L, total) are hardness dependent and were calculated based on a mean Total Hardness of 105 µg/L.
2 For dry weather allocation, EPA used median urban runoff of 19 cfs, as measured at LACDPW Station F354-R.
3 For wet weather, a flow rate of 156 cfs (3.8×10^8 liters/day) was applied. For mass-based allocations, the load was determined by the daily storm volume and the percentage of the watershed represented by the MS4 (91.5% of the Coyote Creek watershed).

All receiving water sites, ME, LTA, and TMDL will monitor for the Metals TMDL according to

Table 5-1 and

Table 5-2. These sites will be used to determine if RWLs are being met.

Additional monitoring has been initiated at NFC1 in Northern Coyote Creek to provide a better measure of sources of metals from the portion of the watershed located within Los Angeles County and the Lower San Gabriel River Watershed.

8.1.2 Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL (Harbor Toxics TMDL)

Attachment A to Resolution No. R11-008

Basin Plan Amendment (Resolution No. R11-008) indicates that responsible parties identified in the existing metals TMDLs for San Gabriel River Watershed are responsible for conducting water and sediment monitoring at the mouth of the San Gabriel River Estuary to determine the Rivers' contribution to the impairments in the Greater Harbor waters.

- **Water Column Monitoring**

The Basin Plan Amendment indicates that water samples and total suspended solids samples are to be collected from at least one site during two wet weather events and one dry weather event each year. The first large storm event of the season is to be included as one of the wet weather monitoring events. Water samples and total suspended solid samples are to be analyzed for metals, DDT, PCBs, and PAHs. Sampling is intended to collect sufficient volumes of water to allow for filtration of suspended solids for analysis of the listed pollutants in the bulk sediment. General water chemistry (temperature, dissolved oxygen, pH, and electrical conductivity) and a flow measurement is also be required at each sampling event. General chemistry measurements may be taken in the laboratory immediately following sample collection if auto samplers are used for sample collection or if weather conditions are unsuitable for field measurements.

Quantification of loads from the San Gabriel River Watershed during wet weather requires sampling at two LTA monitoring sites, S13 and GR1 (

Table 9-1). Sampling at both sites allows for quantitative assessment of flow, pollutant concentrations, and loads necessary to address the Harbor Toxics objectives. During dry weather, concentrations of these constituents will be measured at the mouth of the Estuary at R8 consistent with the TMDL requirements.

- **Sediment Monitoring**

The Basin Plan Amendment also requires collection of sediment samples from at least one site every two years for analysis of general sediment quality constituents and the full chemical suite as specified in SQO Part 1. Sediment monitoring will be performed at R8 using sampling and analytical methods specified in Appendix F. The sampling schedule will be coordinated with sampling conducted in the Harbor waters by the Harbor Toxics Regional Monitoring Program in order to provide complementary data.

8.1.2.1 Wet Weather Suspended Sediment Sampling Approach

A number of different approaches have been attempted to enable collection of stormwater samples based upon flow-weighted composites and then extract the suspended sediments for analysis. The various approaches have met with varied level of success and typically require extensive labor to extract the sediment for analysis. Regardless of the approach used, none are based upon standard methods.

We are recommending an alternative approach for assessing the loads of toxic contaminants being discharged to the Harbor environment. This approach will utilize High Resolution Mass Spectrometry (HRMS) to analyze for organochlorine pesticides (EPA1699), PCBs (EPA 1668) and PAHs (CARB429m). Test methods for these organic toxic compounds target the required analytes but also enable assessment of each compound included in the Part 1 Sediment Quality Objectives (SQOs). These compounds include chlordane which is 303(d) listed in both the Los Angeles River Estuary sediments and in San Pedro Bay sediments.

During the first three years of Harbor Toxics monitoring, analyses will be conducted on whole water samples. These test methods provide detection limits that are roughly 100 times more sensitive than conventional low resolution tests. In addition, these extremely low detection limits can be achieved with as little as 3-6 liters of stormwater from each monitoring location.

Use of this approach is expected to greatly enhance the ability to consistently obtain appropriate samples for measuring and comparing loads of toxic pollutants associated with each major stormwater discharge. This will assure that all key toxics can be quantified at levels suitable for estimation of mass loads to the Harbor waters. For purposes of load calculations, it would be assumed that 100% of these toxics were associated with suspended solids. Separate analyses of TSS/SSC would be used to normalize the data. After three years (six storm events) the data will be reevaluated to assess whether a modified or alternative approach is required.

Similar approaches have been used by the San Francisco Estuary Institute (SFEI) staff (Gilbreath, Pearce and McKee, 2012) to measure the performance of a rain garden. Autosamplers were used to collect stormwater influent and treated effluent to assess removal efficiency for pesticides, PCBs, mercury, and copper subject to TMDLs. HRMS was used to quantify PCB removal. HRMS methods are also being used in Virginia to assist in identification of sources of PCBs in MS4 and industrial stormwater discharges (Gilinsky, 2009).

8.1.2.2 Sampling and Analytical Procedures-Wet Weather

Stormwater samples for the Harbor Toxics Monitoring Program will be collected using automated stormwater sampling methods and equipment cleaning protocol specified in Appendices A and B. A separate autosampler and intake hose will be installed at each site. Existing flow metering equipment at each site will be used to pace the sampler to obtain a flow-weighted composite sample.

Based on TSS measurements at four mass emission sites in LA County (Table 8-6), use of a TSS concentration of 100 mg/L is expected to provide a conservative basis for estimating reporting limits for OC pesticides, PCBs, and PAHs in suspended sediments based upon 2-liter samples. However, an additional liter of stormwater will be provided for each organic analytical suite for a total of nine liters. An accurate measure of suspended sediments is critical to this sampling approach. TSS will be analyzed; however, SSC will be used as the standard for calculating the concentrations of target constituents in suspended sediments and total contaminant loads associated with those sediments. Each of the measures of suspended solids will require 1-liter samples. Any additional water (up to another six liters) will be provided to the laboratory in 2.5-L amber glass bottles.

This approach requires a maximum of 17 liters of stormwater for analysis of organic constituents and sediment tests required for the Harbor Toxics TMDL. Analyses could be performed on a minimum of eight liters of water but field duplicates would need to be provided from another site. The following configuration of sample containers and sample volumes will provide the laboratory with the maximum degree of flexibility to assure that detection limits are met and suitable water volumes are available to complete analysis of field duplicates for each analytical suite.

- Six 2.5-L amber glass containers (filled to two liters)
- Three 1-L amber glass containers
- Two 1-L HDPE containers for suspended sediment

Since detection limits will depend upon the concentration of suspended sediment in the sample, the laboratory analyzing the suspended sediment concentrations will be asked to provide a rush analysis to provide information that can be used to direct processing of the samples for the organic compounds. Processing of sample waters provided to the laboratory will depend upon the results of the SSC analysis.

- If Suspended Sediment Concentrations (SSC) are less than 150 mg/L, an additional liter of water will be extracted for each subsequent HRMS analysis. If TSS concentrations are between 150 and 200 mg/L, one of the additional liter samples may be used to increase the volume of sample water for just PAHs or the two additional liters may be used as a field duplicate for one of the analyses.

- If SSC concentrations are greater than 200 mg/L, two of the three additional liters may be used as a field duplicate for one analysis. If available, the additional water provided in 2.5 L containers will also be considered for use as field replicates.

- Attainment of PAH target detection limits will be the most impacted by insufficient sediment content in the samples. If the initial SSC sample indicates that sediment content is less than 50 mg/L, additional measures will be taken to improve PAH reporting limits with respect to suspended sediment loads. This would include use of extra sample water to bring up the total sample volume (up to a maximum of 4 liters) or reduction the final extract volume.

- Given adequate sample volumes and normal levels of suspended sediment, a field duplicate will be analyzed for each analysis. Field duplicates for the three HRMS analyses may come from different monitoring sites in the Los Angeles and San Gabriel River watersheds depending on available volumes. Parties conducting the testing at each site will coordinate testing to enhance the opportunity to incorporate at least one field duplicate sample for each test.

Target reporting limits (

Table 8-8 and Table 8-9) were established based upon bed sediment reporting limits listed in the *Coordinated Compliance and Reporting Plan for the Greater Los Angeles and Long Beach Harbor Waters* (Anchor QEA, 2013).

Table 8-8 and Table 8-9 provide a summary of the detection limits attainable in water samples using HRMS analytical methods. Estimated detection limits are provided for concentrations of the target constituents in suspended sediments given the assumption that 2-liter sample volumes will be used for each test, suspended sediment content is 100 mg/L and that 100 percent of the target constituents are associated with the suspended sediment. This provides a conservative assumption with respect to evaluating the potential impacts of concentrations of OC pesticides, PCBs, and PAHs in suspended sediment on concentrations in bed sediment. Additionally,

Table 8-8 and Table 8-9 present relevant TMDL targets and reporting limits suggested in the SWAMP QAPP (SWRCB, 2008) and the SQO Technical Support Manual (SCCWRP, 2009). The following is a comparison between the estimated detection limits for OC pesticides, PCBs, and PAHs in the suspended sediments. The approach used to assess concentrations of trace metals in suspended sediments is based upon use of the routine monitoring information. Table 8-10 examines the possible limitations of this approach if trace metal concentrations are extremely low, approaching detection limits.

- For OC pesticides (

- Table 8-8), estimated detection limits in the suspended sediment are comparable or lower than Harbor Toxics TMDL targets limits for bed sediments

- For PCBs (

- Table 8-8), estimated detection limits in the suspended sediment are below TMDL targets limits for bed sediments. Additionally, estimated detection limits in the suspended sediment are at or below target bed sediment reporting limits for the Harbor Toxics sediment monitoring program and below target reporting limits presented in the SWAMP QAPP (SWRCB, 2008) and the SQO Technical Support Manual (SCCWRP, 2009).

- Most PAH compounds (Table 8-9), are expected to be detectable in the suspended sediment at concentrations similar to target bed sediment reporting limits for the Harbor Toxics monitoring program, target reporting limits presented in the SWAMP QAPP (SWRCB, 2008), and maximum reporting limits cited in the SQO technical Support Manual (SCCWRP, 2009). Only two compounds, naphthalene and phenanthrene, are expected to have detection limits roughly three times the target bed sediment reporting limits for the Harbor Toxics TMDL. Both of these analytes are light weight PAHs that are not considered to be major analytes of concern in stormwater.

- Table 8-10 summarizes the reporting limits applicable to total recoverable metals. Estimated equivalent concentrations in suspended solids are very conservatively estimated based upon 100 percent of the metals being associated with suspended particulates as measured values approach project detection limits. In reality, this is not a likely condition. When concentrations of total recoverable metals approach the very low detection limits used in this program, sediment loads will also be extremely low and the concentrations of metals in the dissolved phase will become a more significant fraction of the total metals concentrations. If concentrations of total cadmium and mercury are extremely low, comparison with TMDL targets in bed sediments could be limited

Initial monitoring results will be compared against interim sediment Waste Load Allocations (WLAs) established for the respective receiving waters (Table 8-11). For the Los Angeles River, interim WLAs for the Los Angeles River Estuary would apply and for the San Gabriel River watershed, interim allocations for the Nearshore Waters of San Pedro Bay will apply.

8.1.2.3 Water Sampling and Analytical Procedures-Dry Weather

Suspended sediment concentrations during periods of dry weather are extremely low and not suitable for use of methods intended to quantify the concentrations of toxics associated with particulates. Dry weather samples will be collected as grab samples using methods consistent with the procedures specified in the Harbor Toxics Monitoring and Reporting Plan (Anchor, QEA 2013).

Dry weather sampling will be scheduled to be conducted during a time period when flows are historically at the minimum levels.

Water samples will be collected by Los Angeles County Sanitation District (LACSD) personnel and submitted for the following parameters:

- Total Suspended Solids (TSS) and Suspended Sediment Concentrations (SSC)
- Dissolved and total metals

- Organochlorine pesticides (including DDT and its derivatives, chlordane compounds, dieldrin, and toxaphene)
- Polychlorinated biphenyl (PCB) congeners

Analytical methods for each of these constituents will be consistent with methods listed in Section 5 for Table E-2 constituents and methods specified in Appendix F. Appendix F specifies analytical methods and detection limits for analyses of both water and sediment. In addition, data quality objectives are specified for all analytical tests. Analytical methods will also be consistent with methods used in the Harbor waters with the exception of metals which require chelation/extraction methods in saline waters.

In situ measurements will include temperature, dissolved oxygen, pH and salinity. *In situ* measurements will be taken with a calibrated water quality sonde (Hach Quanta or equivalent).

8.1.2.4 Sediment Sampling and Analytical Procedures-Dry Weather

Compliance with the Harbor Toxics TMDL requires collection of sediments from the mouth of the San Gabriel River Estuary every two years for analysis of general sediment quality constituents and the full chemical suite as specified in Sediment Quality Objectives (SQO) Part 1. Sediment will be collected and analyzed for all constituents listed in Table 8-5 in order to calculate the chemical indices necessary for SQO calculations.

Table 8-5. Summary of Chemical Analyses Required for Calculation of Chemical Indices required for Phase I -Sediment Quality Objectives (SQOs).

Chemical Name	Chemical Group	Chemical Name	Chemical Group
Total Organic Carbon	General	Alpha Chlordane	Pesticide
Percent Fines	General	Gamma Chlordane	Pesticide
		Trans Nonachlor	Pesticide
Cadmium	Metal	Dieldrin	Pesticide
Copper	Metal	o,p'-DDE	Pesticide
Lead	Metal	o,p'-DDD	Pesticide
Mercury	Metal	o,p'-DDT	Pesticide
Zinc	Metal	p,p'-DDD	Pesticide
		p,p'-DDE	Pesticide
		p,p'-DDT	Pesticide
Acenaphthene	PAH	2,4'-Dichlorobiphenyl	PCB congener
Anthracene	PAH	2,2',5-Trichlorobiphenyl	PCB congener
Biphenyl	PAH	2,4,4'-Trichlorobiphenyl	PCB congener
Naphthalene	PAH	2,2',3,5'-Tetrachlorobiphenyl	PCB congener
2,6- dimethylnaphthalene			
Fluorene	PAH	2,3',4,4'-Tetrachlorobiphenyl	PCB congener
1-methylnaphthalene	PAH	2,2',4,5,5'-Pentachlorobiphenyl	PCB congener
2-methylnaphthalene	PAH	2,3,3',4,4'-Pentachlorobiphenyl	PCB congener
1-methylphenanthrene	PAH	2,3',4,4',5-Pentachlorobiphenyl	PCB congener
Phenanthrene	PAH	2,2',3,3',4,4'-Hexachlorobiphenyl	PCB congener
Benzo(a)anthracene	PAH	2,2',3,4,4',5'-Hexachlorobiphenyl	PCB congener
Benzo(a)pyrene	PAH	2,2',4,4',5,5'-Hexachlorobiphenyl	PCB congener
Benzo(e)pyrene	PAH	2,2',3,3',4,4',5-Heptachlorobiphenyl	PCB congener
Chrysene	PAH	2,2',3,4,4',5,5'-Heptachlorobiphenyl	PCB congener
Dibenz(a,h)anthracene	PAH	2,2',3,4',5,5',6-Heptachlorobiphenyl	PCB congener
Fluoranthene	PAH	2,2',3,3',4,4',5,6-Octachlorobiphenyl	PCB congener
Perylene	PAH	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	PCB congener
Pyrene	PAH	Decachlorobiphenyl	PCB congener

8.1.2.5 Quality Control Measures

Quality control measures for all HRMS analyses will include field equipment blanks to assess background contamination due to the field equipment and sample handling. One field equipment blank will be analyzed from one set of field equipment prior each monitoring event during the first year. Data will be evaluated at the end of the year to determine if field equipment blanks should be reduced to one per season. For the field blank, two liters of HPLC grade water provided by the laboratory will be pumped through the entire autosampler and intake hose for each analytical test (OC pesticides, PCBs and PAHs). The blank water will be pumped into precleaned sample containers and refrigerated until the stormwater sampling is completed. If the storm does not occur immediately after blanking, the equipment blank will be transmitted under Chain of Custody to the laboratory in order the meet the requirement for extraction of aqueous samples within 7 days of collection. Extracts will be held until stormwater samples are received unless storm does not develop within a period of 30 days after extraction (samples are required to be analyzed within 40 days of extraction). If a successful storm event is monitored immediately after the equipment blank is taken, the equipment blank and stormwater samples will be submitted to the laboratory together. Given adequate sample volumes, field duplicates will also be analyzed to assess variability associated with the sampling and subsampling processes.

Laboratory quality control measures will include analysis of method blanks, initial calibrations, analysis of Ongoing Precision and Recovery (OPR) samples and use of labeled compounds to assess recoveries and matrix interferences. Method blanks will be based upon processing of laboratory water volumes identical to those used for the field samples. Initial calibrations are run periodically but daily calibration checks are conducted to verify stability of the calibration. OPR tests will be conducted with each batch of samples. OPR samples are blanks spiked with labelled isotopes that are used to monitoring continued performance of the test. Labelled isotopes are added to each field sample and analyzed to measure recovery in the sample matrix. Estimated Detection Limits (EDLs) will be calculated for each analyte associated with each field sample. For each analyte 'x', the EDL is calculated by the following formula:

$$EDL_x = \frac{(Na)*(Qis)*(Rah)}{(Ais)*(RRF)*(wv)}$$

Where:

Na = Analyte peak to peak noise height.

Qis = Concentration of internal standard.

Rah = Area of Height Ratio

Ais = Area of internal standard

RRF = initial calibration average relative response factor for the congener of interest.

wv = sample weight/volume.

2.5 = Minimum signal to noise ratio.

Quality control measures for water samples taken during dry weather periods will be consistent with all measures applied for sampling suspended sediment, trace metals, organochlorine pesticides and PCBs as part of the Receiving Water Monitoring Program.

8.1.2.6 Summary

In summary, target reporting limits for all but one of the organic compounds of interest are below or comparable to relevant TMDL targets and the overwhelming majority are below bed sediment reporting limits identified in the Harbor Toxics Monitoring Program (Anchor, 2013), the SWAMP QAPP (SWRCB, 2008), the SQO Technical Support Manual (SCCWRP, 2009) and available Effects Range Low (ERL) values used to assess direct effects on Harbor sediments. . In the case of metals, some limitations may exist for two elements, cadmium and mercury, in extreme conditions.

However, neither sediment in both eastern San Pedro Bay nor the Los Angeles River Estuary are cited as being impaired by these two metals.

The sampling approach is based upon collection and analysis of whole water samples to estimate concentrations of target pollutants associated with suspended sediments in flow-rated composite samples of stormwater. Use of this approach is expected to result in very low detection limits that will allow for quantification of total contaminant loads for each constituent of concern. It will also allow for reasonable estimates of the concentrations of target compounds in the suspended sediment and provide for direct comparisons with targets established in the receiving waters for bed sediments. This approach meets the overall objectives of the program while also enhancing the chances of successfully monitoring multiple storm events in the targeted watersheds and providing data necessary to evaluate relative loads from each watershed during multiple storms each year. The proposed methods are also expected to allow incorporation of quality control measures necessary to evaluate potential sources of contamination and evaluate variability associated with both field sampling and analytical processes.

Sampling of dry weather discharges from the Los Angeles River and at the mouth of the Lower San Gabriel River Estuary will be based upon surface grab samples. Samples will be analyzed for suspended sediment, trace metals, organochlorine pesticides and PCBs as part of the Receiving Water Monitoring Program

Table 8-6. Measurements of Suspended Sediments for Calculation of Harbor Toxics Pollutant Loads.

SAMPLE MEDIUM	CONSTITUENT	METHOD	TARGET REPORTING LIMIT
Water	Total Suspended Solids (TSS)	SM 2540D	1.0 mg/L
	Suspended Sediment Concentration (SSC)	ASTMD 3977, Method B	1.0 mg/L

Table 8-7. Summary of TSS Measurements (mg/L) at Four Mass Emission Monitoring Sites in Los Angeles County.

Site	Site ID	2nd Quartile	Median	3rd Quartile
Los Angeles River - Wardlow	S10	65	143	291
Coyote Creek	S13	33	55	117
Ballona Creek	S01	NA	158	NA
Los Cerritos Channel	LCC1	96	155	260

NA = not available

Table 8-8. Recommended Methods, Estimated Detection Limits, Target Reporting Limits, and Relevant TMDL Targets for Organochlorine Pesticides and Total PCBs

Constituent and Analytical Method	Water Detection Limit (1)	Equivalent Suspended Sediment Detection Limit (2)	Harbor Toxics Target Bed Sediment Reporting Limits	SWAMP QAPP (2008) Reporting Limit	SQO Technical Support Manual (2009) Reporting Limit	Harbors Toxics TMDL Sediment Target (Indirect Effects)	Harbors Toxics TMDL Sediment Target (Direct Effects)
	pg/L	ng/g – dry wt					
Chlordane Compounds (EPA 1699)							
alpha-Chlordane	40	0.2	2	1	0.5	1.3 (Total Chlordane)	0.5 (Total Chlordane)
gamma-Chlordane	40	0.2	2	1	0.54		
Oxychlordane	40	0.2	1	1	NA		
trans-Nonachlor	40	0.2	2	1	4.6		
cis-Nonachlor	40	0.2	1	2	NA		
Other OC Pesticides (EPA 1699)							
2,4'-DDD	40	0.2	2	2	0.5	1.3 (Total DDT)	1.58 Total DDT)
2,4'-DDE	80	0.4	2	2	0.5		
2,4'-DDT	80	0.4	3	3	0.5		
4,4'-DDD	40	0.2	2	2	0.5		
4,4'-DDE	80	0.4	2	2	0.5		
4,4'-DDT	80	0.4	5	5	0.5		
Total DDT	80	0.4	---	---	0.5		
Total PCBs (EPA 1668)	5-20	0.025-0.1	0.2[3]	0.2	3.0	3.2	22.7

1. Water EDLs based upon 2 liters of water.

2. Suspended Sediment detection limits based upon estimate of 100 mg/L suspended solids.

3. Harbor Toxics high resolution analytical methods include a target of 0.2 ng/g for all congeners except PCB-189 which has a target of 10 ng/g.

Table 8-9. Recommended Methods, Estimated Detection Limits, Target Reporting Limits, and Relevant TMDL Targets for PAHs

Constituent	Water Detection Limit (1)	Equivalent Suspended Sediment Detection Limit (2)	Harbor Toxics Target Bed Sediment Reporting Limits	SWAMP QAPP (2008) Reporting Limit	SQO Technical Support Manual (2009)Reporting Limit	Harbors Toxics TMDL Sediment Target (Direct Effects)
	pg/L	**ng/g – dry wt**				
Low Molecular Weight PAHs						
1-Methylnaphthalene	5	25	20	20	20	
1-Methylphenanthrene	5	25	20	20	20	
2-Methylnaphthalene	5	25	20	20	20	201
2,6-Dimethylnaphthalene	5	25	20	20	20	
Acenaphthene	5	25	20	20	20	
Anthracene	5	25	20	20	20	
Biphenyl	5	25	20	20	20	
Fluorene	5	25	20	20	20	
Phenanthrene	12.5	62.5	20	20	20	240
Naphthalene	12.5	62.5	20	20	20	
				LOW MOLECULAR WT PAHS		**552**
High Molecular Weight PAHs						
Benzo(a)anthracene	5	25	20	20	80	261
Benzo(a)pyrene	5	25	20	20	80	430
Benzo(e)pyrene	5	25	20	20	NA	
Chrysene	5	25	20	20	80	384
Dibenz(a,h)anthracene	5	25	20	20	80	260
Fluoranthene	5	25	20	20	80	
Perylene	5	25	20	20	80	
Pyrene	5	25	20	20	80	665
				HIGH MOLECULAR WT PAHS		**1700**
				TOTAL PAHs		**4700**

1. Water EDLs based upon 2 liter of water and CARB 429m. Detection limits are based upon a final extract of 500 µL. If the SSC is low, either an additional liter of water can be extracted to decrease the detection limit by 1/3 or the final extract volume can be reduced. Depending on sample characteristics, the extract volume can be reduced to as little as 50-100 µL which would drop EDLs by a factor of 0.1 to 0.2 times the listed EDLs.

2. Suspended Sediment detection limits based upon estimate of 100 mg/L suspended solids.

Table 8-10. Recommended Methods, Estimated Detection Limits, Target Reporting Limits, and Relevant TMDL Targets for Metals.

Constituent and Analytical Method	Water Detection Limit (ML)	Equivalent Suspended Sediment Detection Limit (1)	Harbor Toxics Target Bed Sediment Reporting Limits	SWAMP QAPP (2008) Reporting Limit	SQO Technical Support Manual (2009) Reporting Limit	Harbors Toxics TMDL Sediment Target (Direct Effects)
	ug/L	µg/g – dry wt				
Total Metals						
Cadmium	0.25	2.5	0.01	0.01	0.09	1.2
Copper	0.50	5.0	0.01	0.01	52.8	34
Lead	0.50	5.0	0.01	0.01	25.0	46.7
Mercury	0.20	2.0	0.03	0.03	0.09	0.15
Zinc	1	10	0.1	0.1	60	150

1. Suspended Sediment EDLs based upon estimate of 100 mg/L suspended solids.

Table 8-11. Interim Concentration-Based Sediment Waste Load Allocations

Waterbody	Pollutant (µg/g – dry wt)					
	Copper	Lead	Zinc	DDT	PAHs	PCBs
Los Angeles River Estuary	53.0	**46.7**	183.5	0.254	4.36	0.683
San Pedro Bay Near/Off Shore Zones	76.9	66.6	263.1	0.057	**4.022**	0.193

BOLDED values indicate cases where the interim allocations are equal to the final allocations

9 Stormwater Outfall Monitoring

Three outfall monitoring sites (Figure 9-1) have been assessed for potential monitoring. The first two sites, CC2 and SG1, are scheduled for installation and monitoring in year 2 of the monitoring program, 2016-17. Monitoring at the third site, BC1, in Diamond Bar will be sampled starting in year 3 of the program (2017-18). Complete stormwater monitoring stations (Appendix A) will be installed at both CC2 and SG1 to provide for automated collection of flow-weighted composite stormwater samples. These sites will also have rain gauges to augment rainfall information for the LSGR Watershed. Sampling at BC1 will be accomplished either by taking manual grab samples or by use of a portable autosampler configured to collect time-weighted composite samples. This location will be further evaluated during the first year of the program to determine the suitability of this site for the temporary installation of a small security enclosure for monitoring equipment.

These sites were selected to provide good spatial representation of the watershed in terms of HUC12 boundaries, jurisdictional boundaries and land uses within the LSGR WG. An assessment of the factors relative to site selection was addressed in Section 3.2. The schedule for installation and monitoring of each stormwater outfall is summarized in Table 4-1 (p18).

Constituents monitored at each stormwater outfall monitoring site are outlined in

Table 9-1 and include water body/pollutant priorities under Categories 1, 2 and 3. These include all constituents with established TMDLs, that are 303(d) listed or that have been found to exceed receiving water limitations on at least one occasion. Constituents monitored at each stormwater outfall monitoring site in Coyote Creek will also include any Table E-2 analytes detected at S13. Similarly, Table E-2 constituents exceeding water quality criteria at GR1 will be incorporated into sampling requirements for SG1, the stormwater outfall sites in the San Gabriel River Reach 1. Aquatic Toxicity will be addressed in accordance with the process outlined in Section 7. Any constituents identified detected at levels of concern from Table E-2 will be considered for addition to monitoring requirements for the stormwater outfall sites in the following year after being detected twice during storm events monitored at S13 and GR1. Constituents exceeding RWLs in San Jose Creek Reach 1, which is a TMDL monitoring site that will be monitored by the USGR EWMP Group, will also be incorporated into stormwater outfall monitoring at BC1.

Justification for adding and deleting constituents from the stormwater outfall monitoring program will follow the process established in a Coordinated Monitoring Program (CMP) for a monitoring program in the adjacent Los Angeles River Watershed (Los Angeles River Metals CMP, March 2008). Any Table E-2 constituents incorporated into ongoing monitoring program at the receiving water monitoring site will be added to the upstream stormwater outfall monitoring requirements in the following year after two consecutive exceedances of wet weather receiving water quality limitations. Similarly, it is not intended that constituents continue to be monitored at stormwater outfall sites if they are not detected on a regular basis. Constituents will be removed from the list if they are not detected at levels of concern for two consecutive stormwater monitoring events.

Lower San Gabriel River Watershed

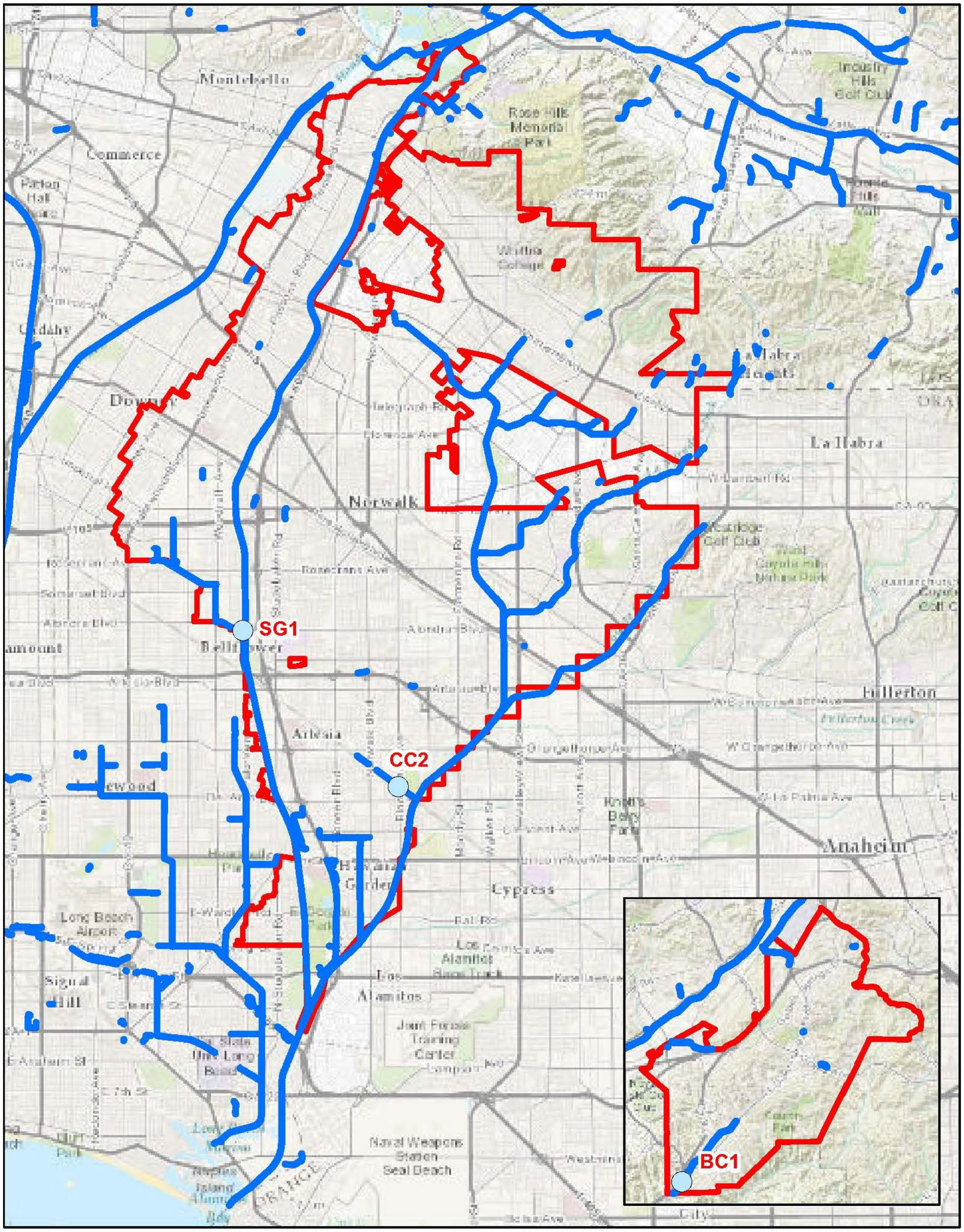


Figure 9-1. Locations of the Three Stormwater Outfall Monitoring Sites in the LSGR WG.

The sampling frequency and mobilization requirements for Stormwater Outfall Monitoring sites will be consistent with monitoring conducted at the S13 (Coyote Creek), GR1 (San Gabriel River Reach 1), and NFC1 (N. Fork Coyote Creek) Receiving Water Monitoring Sites during the wet season. A total of three events will be monitored at each outfall site once they are installed. Monitoring will be concurrent with receiving water monitoring in order to allow for comparison of pollutant loading rates associated with each segment relative to ultimate pollutant loads measured at the ME and LTA sites.

Stormwater monitoring at the stormwater outfall monitoring sites, GR1 (San Gabriel River Reach 1), and NFC1 (N. Fork Coyote Creek) will be conducted by LSGR staff while monitoring at S13 will be coordinated with LACFCD staff.

Monitoring at the outfalls will therefore be restricted to the same wet weather definitions as used for the S13, GR1, and NFC1 stations. These include:

- Wet Season defined as October 1 through April 15
- Events preceded by less than 0.1 inches of rainfall within the watershed over a three day period.
- Rainfall of at least 0.25 inches and
- San Gabriel River - Maximum flow rates greater than 260 cfs measured at the USGS gauging station 11085000.
- Coyote Creek - Maximum daily flow rates of 156 cfs at the LACFCD flow gauging station F354-R.

Due to the size of the watershed, it is possible that conditions for wet weather flow monitoring could be met in just one of the two targeted segments of the LSGR WG.

Table 9-1 Summary of Water Quality Constituents to be Monitored at Stormwater Outfall Monitoring Sites.

CLASS OF MEASUREMENTS	STORMWATER OUTFALLS (Wet Weather Only)		
	San Gabriel River	Coyote Creek	San Jose Creek
	SG1	CC2	BC1
Flow	3	3	3
Field Measurements DO, pH, Temp, and Spec. Cond.	3	3	3
Conventionals (Table 5-3) All except total phenols, turbidity, BOD_5, MTBE, and perchlorate, and fluoride.	3	3	3
Microbiological Constituents (Table 5-4)			
E. coli	3	3	3
Nutrients (Table 5-5)			
Ammonia	3	3	3
Metals (Table 5-7**)**			Note 1
Cadmium			3
Copper	3	3	3
Lead	3	3	3
Total Mercury		3	
Total Selenium	3	3	3
Zinc	3	3	3

1. Cadmium, copper and zinc will be monitored at BC1 based upon monitoring required in San Jose Creek Reach 1, which is a TMDL site that will be monitored by the USGR EWMP Group

10 Non-Stormwater (NSW) Outfall Monitoring

Ultimately, the NSW program is intended to establish a process for identifying outfalls that serve as potential sources of contaminants. Sites where initial screening indicates the potential for discharges of a magnitude considered to have the potential to cause or contribute to exceedances of receiving water limitations will require further efforts to classify the discharges and determine appropriate actions, if any.

Detailed objectives of the screening and monitoring process (Section IX.A, page E-23 of the MRP) include the following:

1. Develop criteria or other means to ensure that all outfalls with significant non-stormwater discharges are identified and assessed during the term of this Order.

2. For outfalls determined to have significant non-stormwater flow, determine whether flows are the result of illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt non-stormwater flows, natural flows, or from unknown sources.

3. Refer information related to identified IC/IDs to the IC/ID Elimination Program (Part VI.D.10 of the Order) for appropriate action.

4. Based on existing screening or monitoring data or other institutional knowledge, assess the impact of non-stormwater discharges (other than identified IC/IDs) on the receiving water.

5. Prioritize monitoring of outfalls considering the potential threat to the receiving water and applicable TMDL compliance schedules.

6. Conduct monitoring or other investigations to identify the source of pollutants in non-stormwater discharges.

7. Use results of the screening process to evaluate the conditionally exempt non-stormwater discharges identified in Parts III.A.2 and III.A.3 of the Order and take appropriate actions pursuant to Part III.A.4.d of the Order for those discharges that have been found to be a source of pollutants. Any future reclassification will occur per the conditions in Parts III.A.2 or III.A.6 of the Order.

8. Conduct monitoring or assess existing monitoring data to determine the impact of non-stormwater discharges on the receiving water.

9. Maximize the use of Permittee resources by integrating the screening and monitoring process into existing or planned CIMP efforts.

In cases where flow is determined to be significant, the program will take further action to determine if the flows are illicit, exempt, conditionally exempt essential, conditionally exempt non-essential, or if the source(s) of the discharge cannot be identified (unknown). Illicit discharges require immediate action and, if they cannot be eliminated, monitoring will be implemented until such time that the illicit discharge can be eliminated. Discharges classified as conditionally exempt non-essential or unknown also require ongoing monitoring.

The following sections summarize the elements of the program and processes to ultimately eliminate major sources of non-stormwater discharges.

10.1 Non-Stormwater Outfall Screening and Monitoring Program

The NSW Outfall Screening and Monitoring Program will begin with three screening surveys starting in the summer of 2014 to identify outfalls or other discharges that are considered to be significant and persistent sources of non-stormwater flow to receiving waters.

The initial survey will focus on completing an inventory of all outfalls to receiving waters. Outfalls greater than 12-inches in diameter (or equivalent) will be photographed and documented. The second and third surveys will include outfalls between 12 to 36 inches in diameter (or equivalent) near areas with industrial land uses and outfalls greater than 36 inches in diameter (or equivalent).

Information from all three screening surveys will be consolidated to assist in the identification and ranking of outfalls considered to have significant NSW discharges. Multiple lines of evidence will be considered when assessing the significance of a discharge. The relative magnitude of the discharges, persistence of the flow, visual and physical characteristics recorded at each site, and land uses associated with the drainage will be primary consideration for determination of significant flows.

Upon determination of significant NSW discharges, source identification will be initiated. A combination of field observations, flow measurements and field water quality measurements will be used to classify outfalls into one of the following three categories that will determine further actions (Figure 10-1):

1. **Suspect Discharge** – Outfalls with persistent high flows during at least two out of three visits and with high severity on one or more physical indicators (odors, oil deposits, etc.). Outfalls in this category require prioritization and further investigation.

2. **Potential Discharge** - Flowing or non-flowing outfalls with presence of two or more physical indicators. Outfalls in this category are considered to be low priority but will be continue to be monitored periodically to determine if the sites are subject to less frequent, discharges or determine if actions can be taken to reduce or eliminate the factors that lead to the site being considered a potential source of contaminants.

3**. Unlikely Discharge** - Non-flowing outfalls with no physical indicators of an illicit discharge. Outfalls within this classification would be not be subject to any further screening.

Subsequent source investigations conducted for discharges with significant flow may utilize field water quality instrumentation and/or simple field test kits to assist in further classifying discharges. Collection of water samples for limited laboratory testing may be incorporated into the program as requirements for more complex, accurate and scientifically supportable data become necessary to characterize non-stormwater discharges and provide scientifically supportable data to track the source of these discharges. The Center for Watershed Protection and Pitt (2004) provide an evaluation of twelve analytes for assistance in determining the source of NSW discharges (Table 10-2). Three of the analytes can be measured with *in-situ* instrumentation. Others can be analyzed relatively inexpensively by use of field test kits or can be analyzed in an ELAP-certified laboratory. In addition, three to five of the listed tests are often considered sufficient to screen for illicit discharges. Ammonia, MBAS, fluoride (assuming tap water is fluorinated), and potassium are considered to confidently differentiate between sewage, wash water, tap water and industrial wastes. Incorporation of *in-situ* measurement of temperature, pH, TDS/salinity, turbidity and dissolved oxygen can further assist in characterizing and tracking the source(s) of an NSW discharge.

Table 10-1. Outline of the NSW Outfall Screening and Monitoring Program.

Element	Description	Timing of Completion
1. Outfall Screening	The Permittees will implement a screening process to determine which outfalls exhibit significant NSW discharges and those that do not require further investigation. Data will be recorded on Outfall Reconnaissance Investigation (ORI) forms and in the associated database.	Commence in Summer 2014 and complete by end of 2014
2. Identification of outfalls with significant NSW discharge (Part IX.C of the MRP)	Data from the Outfall Screening process will be used to categorize MS4 outfalls on the basis of discharge flow rates, field water quality and physical observations.	Concurrent with Outfall Screening December 15, 2014 with Annual CIMP Report
3. Inventory of Outfalls with NSW discharge (Part IX.D of the MRP)	Develop an inventory of all major MS4 outfalls, identify outfalls with known NSW discharges and identify outfalls with no flow requiring no further assessment.	Concurrent with Outfall Screening December 15, 2014 with Annual CIMP Report
4. Prioritized source investigation (Part IX.E of the MRP)	Use the data collected during the Outfall Screening process to further prioritize outfalls for source investigations.	Prioritization for Source Investigation will be occur after completion of Outfall Screening
5. Identify sources of significant NSW discharges (Part IX.F of the MRP)	For outfalls exhibiting significant NSW discharges, Permittees will perform source investigations per the established prioritization.	Complete source investigations for 25% of the outfalls with significant NSW discharges by December 28, 2015 and 100% by December 28, 2017.
6. Monitoring NSW discharges exceeding criteria (Part IX.G of the MRP)	Monitor outfalls determined to convey significant NSW discharges comprised of either unknown or conditionally exempt non-essential discharges or illicit discharges that cannot be abated.	Monitoring will commence within 90 days of completing the source investigations or after the Executive Officer approves this CIMP, whichever is later. Commencement of outfall monitoring may be adjusted to allow sampling to be coordinated with dry weather receiving water quality monitoring.

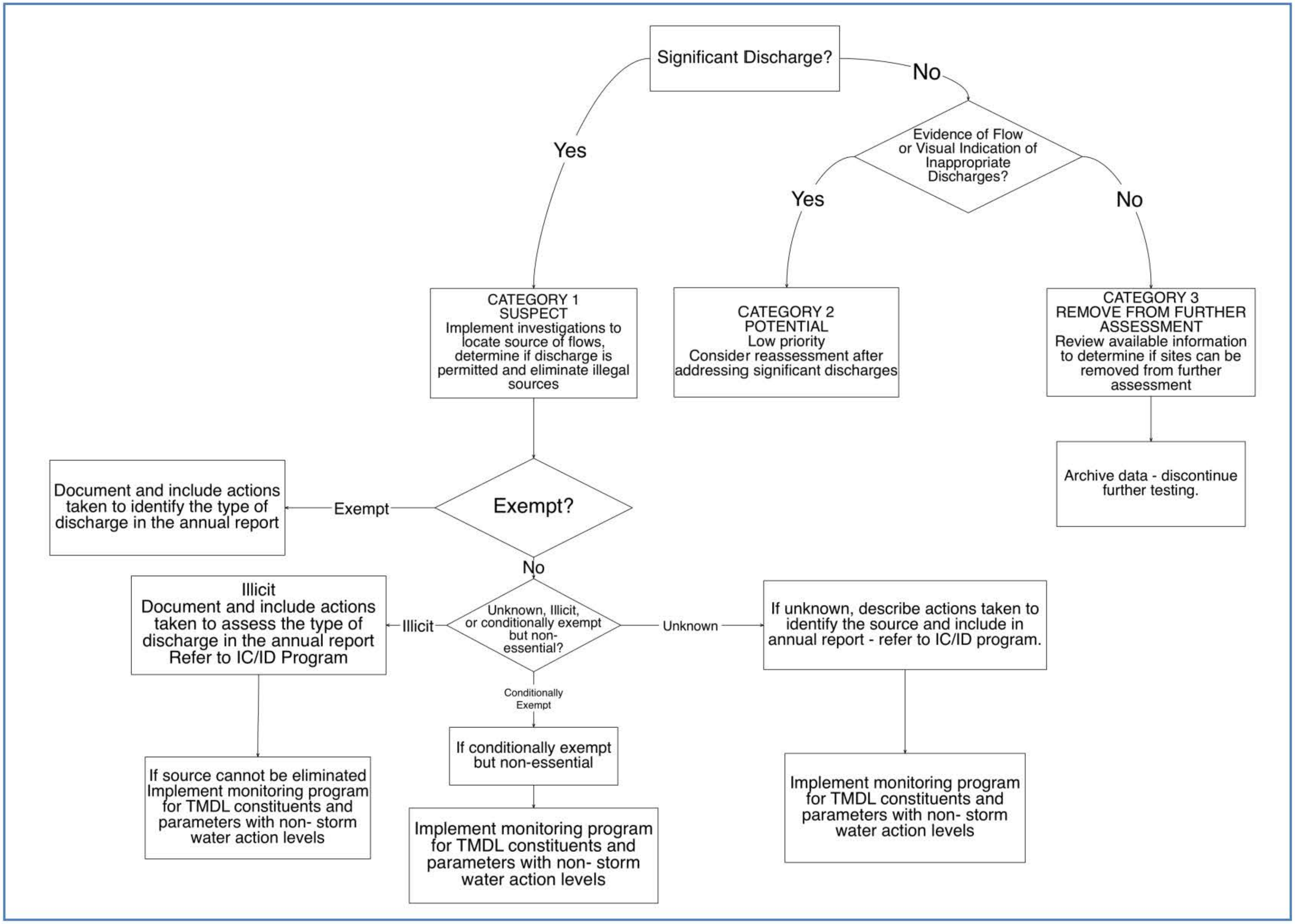


Figure 10-1. Flow Diagram of NSW Outfall Program after Classifying Outfalls during Initial Screening.

Table 10-2. Potential Indicator Parameters for Identification of Sources of NSW Discharges.

Indicator Parameters	
Ammonia	*E. coli*
Boron	Fluoride
Chlorine	Hardness
Color	pH - Field
Conductivity-Field	Potassium
Detergents – Surfactants (MBAS or fluorescence)	Turbidity

Based upon CWP and Pitt 2004. *Illicit Discharge Detection and Elimination A Guidance Manual for Program Development and Technical Assessments*

10.2 Identification of Outfalls with Significant Non-Stormwater Discharges

The screening program is necessary to collect information necessary to identify outfalls with potentially significant NSW discharges. The outfall screening includes collection of information necessary to provide an accurate inventory of the major outfalls, assess flow from each outfall and in the receiving waters, determine the general characteristics of the receiving waters (e.g. is flow present, does the flow from the outfall represent a large proportion of the flow, is it an earthen or lined channel), and record general observations indicative of possible illicit discharges. The initial screening survey(s) will also be used to refine the inventory information required in Section 10.3

The outfall screening process has already been initiated in order to meet the established schedule for completion of 25% of the source identification work. Once the screening process is completed Permittees are required to identify MS4 outfalls with "significant" NSW discharges. The MRP (Section IX.C.1) indicates that significant NSW discharges may be determined based upon one or more of the following characteristics:

a. Discharges from major outfalls subject to dry weather TMDLs.

b. Discharges for which existing monitoring data exceeds Non-Stormwater Action Levels (NALs) identified in Attachment G of the Order.

c. Non-stormwater discharges that have caused or have the potential to cause overtopping of downstream diversions.

d. Discharges exceeding a proposed threshold discharge rate as determined by the Permittee.

The relative magnitude of the discharges, persistence of the flow, visual and physical characteristics recorded at each site, and land uses associated with the drainage will be the primary factors used to determine if flows are significant. Characteristics of the receiving waters (flow, channel characteristics –hard or soft-bottom, etc.) at the discharge location will also be considered when determining the relative significance of NSW discharges. The most important consideration is whether the discharge has the potential to cause or contribute to exceedance of receiving water quality limitations. Factors that provide the best insight with respect to these impacts will receive the greatest weight when establishing the list of "significant" NSW discharges.

10.3 Inventory of MS4 Outfalls with Non-Stormwater Discharges

Part VII.A of the MRP requires that the CIMP plan(s) include a map(s) and/or database of the MS4 that includes the elements listed in Table 10-3. Most required elements are complete and being submitted with this CIMP. Elements requiring further development include the Effective Impervious Area, information on the length of open channels and underground pipes equal to or greater than 18 inches, and the drainage areas associated with each outfall. Subbasins used for the WMMS model are currently associated with each outfall within that subbasin. If an outfall is identified as a significant source of NSW discharges, drainage areas for each targeted outfall will be refined and updated in the database. Additional information such as documenting presence of significant NSW discharges, links to a database documenting water quality measurements at sites with significant NSW discharges will be updated annually and submitted with the CIMP annual report.

Table 10-3. Basic Database and Mapping Information for the Watershed.

Database Element	Status	
	Complete	Schedule
1. Surface water bodies within the Permittee(s) jurisdiction	X	
2. Sub-watershed (HUC 12) boundaries	X	
3. Land use overlay	X	
4. Effective Impervious Area (EIA) overlay (if available)		Will provide if available
5. Jurisdictional boundaries	X	
6. The location and length of all open channel and underground pipes 18 inches in diameter or greater (with the exception of catch basin connector pipes)	X[1]	
7. The location of all dry weather diversions	X	
8. The location of all major MS4 outfalls within the Permittee's jurisdictional boundary. Each major outfall shall be assigned an alphanumeric identifier, which must be noted on the map	X[2]	
9. Notation of outfalls with significant non-stormwater discharges (to be updated annually)	X	ongoing
10. Storm drain outfall catchment areas for each major outfall within the Permittee(s) jurisdiction	X[3]	ongoing
11. Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:[4]		
a. Ownership		ongoing
b. Coordinates	X	
c. Physical description	X	
d. Photographs of the outfall, where possible to provide baseline information to track operation and maintenance needs over time	X	
e. Determination of whether the outfall conveys significant non-stormwater discharges		ongoing
f. Stormwater and non-stormwater monitoring data		ongoing

1. Locations are identified but the length of all open channel and underground pipes are not fully documented.
2. Attributes in the shapefile contain a Unique ID for all outfalls greater than 12" in diameter.
3. Catchments for each outfall are included as the area of the subbasins associated with each outfall. Several outfalls may drain these subbasins. Data will be developed as needed to resolve the drainage areas specific to each outfall.
4. Efforts are ongoing to define ownership and maintenance responsibility. As data become available, information regarding the conveyance of NSW and associated water quality data will be added to the database. Information will be updated based upon the three screening surveys.

As a component of the inventory and screening process, Permittees are required to document the physical attributes of MS4 outfalls determined to have significant non-stormwater discharges. Table 10-4 summarizes the minimum physical attributes required to be recorded and linked to the outfall database. These data will be maintained using the Outfall Reconnaissance Inventory (ORI) field form and associated database developed by CWP and Pitt (2004). Data entry can be accomplished by completing the ORI form while conducting the screening survey. Current forms are shown in the Appendix D but may be modified as the parameters and database are modified to provide different information more relevant to the NSW program.

Table 10-4. Minimum Physical Attributes Recorded during the Outfall Screening Process.

Database Element
a. Date and time of last visual observation or inspection
b. Outfall alpha-numeric identifier
c. Description of outfall structure including size (e.g., diameter and shape)
d. Description of receiving water at the point of discharge (e.g., natural, soft-bottom with armored sides, trapezoidal, concrete channel)
e. Latitude/longitude coordinates
f. Nearest street address
g. Parking, access, and safety considerations
h. Photographs of outfall condition
i. Photographs of significant non-stormwater discharge (or indicators of discharge) unless safety considerations preclude obtaining photographs
j. Estimation of discharge rate
k. All diversions either upstream or downstream of the outfall
l. Observations regarding discharge characteristics such as turbidity, odor, color, presence of debris, floatables, or characteristics that could aid in pollutant source identification
m. Observations regarding the receiving water such as flow, channel type, hard/soft bottom. (added minimum attribute.

10.4 Prioritized Source Identification

After completion of the initial reconnaissance survey and the two additional screening surveys, sites will be ranked based upon both initial flow observations from the reconnaissance inventory and the classifications assigned during each of the screening surveys. Source investigations will be scheduled to be conducted at sites categorized as Suspected Illicit discharges.

The MRP (IX.E.1) states that prioritization of source investigations should be based upon the following items in order of importance.

a. Outfalls discharging directly to receiving waters with WQBELs or receiving water limitations in the TMDL provisions for which final compliance deadlines have passed.

b. All major outfalls and other outfalls that discharge to a receiving water subject to a TMDL shall be prioritized according to TMDL compliance schedules.

c. Outfalls for which monitoring data exist and indicate recurring exceedances of one or more of the Action Levels identified in Attachment G of this Order.

d. All other major outfalls identified to have significant non-stormwater discharges.

Additional information from the screening process will be used to refine priorities. Sites with evidence of higher, more frequent flow, presence of odors or stains will be assigned higher priorities for source investigations.

10.5 Identify Source(s) of Significant Non-Stormwater Discharges

The screening and source identification component of the program is intended to identify the source or sources of contaminants contributing to an NSW discharge. The prioritized list of major outfalls with significant NSW discharges will be used to direct investigations starting with outfalls deemed to present the greatest risk to the receiving water body.

The Order requires the WMG to develop a source identification schedule based on the prioritized list of outfalls exhibiting significant NSW discharges. Source investigations will be conducted for no less than 25% of the outfalls in the inventory by December 2015 and 100% of the outfalls in the inventory by December 2017.

Part IX.A.2 of the MRP requires Permittees to classify the source investigation results into one of four endpoints: illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt non-stormwater flows, natural flows, or from unknown sources. If source investigations indicate the source is illicit or unknown, the Permittee will document actions to eliminate the discharge and implement monitoring if the discharge cannot be eliminated.

If the source of a discharge is found to be attributable to natural flows or authorized conditionally exempt NSW discharge, the Permittee must identify the basis for the determination (natural flows) and identify the NPDES permitted discharger. If the source is found to be a conditionally exempt but non-essential discharge, monitoring is required to determine whether the discharge should remain conditionally exempt or be prohibited.

Source investigations will be conducted using a variety of different approaches depending upon the initial screening results, land use within the area drained by the discharge point, and the availability of drainage maps. Any additional water quality sampling may be conducted as necessary.

- Tracking of dry weather flows from the location where they are first observed in an upstream direction along the conveyance system.
- Collection of additional water samples for analysis of NWS indicators for assistance in differentiating major categories of discharges such as tap water, groundwater, wash waters and industrial wastewaters.
- Compiling and reviewing available resources including past monitoring and investigation data, land use/MS4 maps, aerial photography, existing NPDES discharge permits and property ownership information.

If source tracking efforts indicate that the discharge originates from a jurisdiction upstream of the boundaries of the LSGR WG, the appropriate jurisdiction and the Regional Board will be notified in writing of the discharge within 30 days of the determination. All existing information regarding documentation and characterization of the data, contribution determination efforts, and efforts taken to identify its source will be included.

Investigations will be concluded if authorized, natural, or essential conditionally exempt flows are found to be the source of the discharge. If the discharge is determined to be due to non-essential conditionally exempt, illicit, or unknown discharges, further investigations will be considered to assess whether the discharge can be eliminated. Alternatively, if the discharges are either non-essential conditionally exempt or of an unknown source, additional investigations may be conducted to demonstrate that it is not causing or contributing to receiving water impairments.

10.6 Monitor Non-Stormwater Discharges Exceeding Criteria

As required in the MRP (Part II.3.3), outfalls with significant NSW discharges that remain unaddressed after source identification will be monitored. The objectives of the non-stormwater outfall based monitoring program include the following:

a. Determine whether a Permittee's discharge is in compliance with applicable NSW WQBELs derived from TMDL WLAs,

b. Determine whether a Permittee's discharge exceeds NSW action levels, as described in Attachment G of the Order,

c. Determine whether a Permittee's discharge contributes to or causes an exceedance of receiving water limitations

d. Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the Order.

After completion of source investigations, outfalls found to convey NSW discharges that could not be abated and were identified as illicit, conditionally exempt but non-essential or unknown will be monitored. Monitoring will be initiated within 90 days of completing the source investigations or as soon as the first scheduled dry weather survey. Conducting NSW monitoring at the same time as receiving water dry weather monitoring will be more cost effective and allow evaluation of whether the NSW discharges are causing or contributing to any observed exceedances of water quality objectives in the receiving water.

Monitoring of NSW discharges is expected to undergo substantial changes from year to year as the result of ongoing actions taken to control or eliminate these discharges. As NSW discharges are addressed, monitoring of the discharges will no longer be required. In addition, if monitoring demonstrates that discharges do not exceed any WQBELs, non-stormwater action levels, or water quality standards for pollutants identified on the 303(d) list after the first year, monitoring of the pollutants meeting all receiving water limitations will be no longer be necessary. Due to potential frequent adjustments in the number and location of outfalls requiring monitoring and pollutants requiring monitoring, the annual CIMP report is expected to communicate adjustments in the number and locations of monitored discharges, pollutants being monitored and justifications for any adjustments.

10.7 Monitoring Parameters and Frequency

The MRP (Section IX.G.1) specifies the minimum parameters for monitoring of NSW discharges. Determination of monitoring parameters at each site requires consideration of a number of factors applicable to each site. Monitoring parameters will include:

- Flow,
- Pollutants assigned a WQBEL or receiving water limitation to implement TMDL Provisions for the respective receiving water, as identified in Attachments L - R of the Order,
- Other pollutants identified on the CWA section 303(d) List for the receiving water or downstream receiving waters,
- Pollutants identified in a TIE conducted in response to observed aquatic toxicity during dry weather at the nearest downstream receiving water monitoring station (S13 or GR1) during the last sample event or, where the TIE conducted on the receiving water sample was inconclusive, aquatic toxicity. If the discharge exhibits aquatic toxicity, then a TIE shall be conducted.
- Other parameters in Table E-2 identified as exceeding the lowest applicable water quality objective at LCC1 (the nearest downstream receiving water station) per Part VI.D.1.d.

The MRP (Part IX.G.2-4) specifies the following monitoring frequency for NSW outfall monitoring:

- For outfalls subject to a dry weather TMDL, the monitoring frequency shall be per the approved TMDL monitoring plan or as otherwise specified in the TMDL or as specified in an approved CIMP.

- For outfalls not subject to dry weather TMDLs, approximately quarterly for first year.

- Monitoring can be eliminated or reduced to twice per year, beginning in the second year of monitoring if pollutant concentrations measured during the first year do not exceed WQBELs, NALs or water quality standards for pollutants identified on the 303(d) List.

While a monitoring frequency of four times per year is specified in the Permit, it is inconsistent with the dry weather receiving water monitoring requirements. The receiving water monitoring requires two dry weather monitoring events per year. Additionally, during the term of the current Permit, outfalls are required to be screened at least once and those with significant NSW discharges will be subject to a source investigation. As a result, the LSGR WG recommends that NSW outfall monitoring events be conducted twice per year. The NSW outfall monitoring events will be coordinated with the dry weather receiving water monitoring events to provide better opportunities to determine if the NSW discharges are causing or contributing to any observed exceedances of water quality objectives in the receiving water.

Any monitoring required will be performed using grab samples (refer to Appendix A for field sampling procedures) rather than automated samplers. Bacteria, which are expected to be the limiting factor at many sites during dry weather, require collection by grab methods and delivery to the laboratory within 6 hours. Based upon the much reduced variability experienced in measurements of dry weather flows associated with ongoing monitoring programs, measured concentrations of other analytes are not expected to vary significantly over a 24-hour period.

11 New Development/Re-Development Effectiveness Tracking

Each permittee will maintain an electronic database to track qualifying new development and redevelopment projects which are subject to the Planning and Land Development Program of the Permit (Section VI.D.7.d.iv). The electronic database contains the information listed in Table 11-1, which includes details about the project and the design of onsite and offsite best management practices (BMPs). Table 11-1 also provides a description of the required information.

Table 11-1. Information Required in the New Development/Redevelopment Tracking Database.

	Required Information	Description
General Site Information	Project Name and Developer Name	Brief name of project and developer information (e.g. name, address, and phone number).
	Project Location and Map	Coordinates and map of the project location. The map should be linked to the GIS storm-drain map required in part VII.A of the Permit.
	Documentation of issuance of requirements to the developer	Date that the project developer was issued the Permit requirements for the project (e.g. conditions of approval).
	Date of Certificate of Occupancy	Date that the Certificate of Occupancy was issued.
On-site BMP Sizing Information	85^{th} percentile storm event (inches per 24 hours)	85^{th} percentile storm depth for the project location calculated using the *Analysis of 85^{th} Percentile 24-hour Rainfall Depths Within the County of Los Angeles.*
	95^{th} percentile storm event (inches per 24 hours)	95^{th} percentile storm depth for the project location calculated using the *Analysis of 85^{th} Percentile 24-hour Rainfall Depths Within the County of Los Angeles*. Only applies if the project drains directly to a natural drainage system[2] and is subject to hydromodification control measures.
	Project design storm (inches per 24 hours)	The design storm for each BMP as calculated using the *Analysis of 85^{th} Percentile 24-hour Rainfall Depths Within the County of Los Angeles*.
	Projects design volume (gallons or MGD)	The design storm volume (design storm multiplied by tributary area and runoff coefficient) for each BMP.
	Percent of design storm volume to be retained on site	The percentage of the design volume which on-site BMPs will retain.
	Other design criteria required to meet hydromodification requirements for projects that directly drain to natural water bodies	Information relevant to determine if the project meets hydromodification requirements as described in the Permit e.g., peak flow and velocity in natural water body, peak flow from project area in mitigated and unmitigated condition, etc.). Only applies if the project drains directly to a natural drainage system.
	One -year, one-hour storm intensity as depicted on the most recently issued isohyetal map published by the Los Angeles County Hydrologist for flow-through BMPs	If flow-through BMPs (e.g., sand filters, media filters) for water quality are used at the project, provide the one-year, one-hour storm intensity at the project site from the most recent isohyetal map issued by LA County.
Off-site BMP Information	Location and maps of off-site mitigation, groundwater replenishment, or retrofit sites	If any off-site mitigation is used, provide locations and maps linked to the GIS storm-drain map required in part VII.A of the Permit.
	Design volume for water quality mitigation treatment BMPs	The calculated design volume, If water quality mitigation is required.
	Percent of design storm volume to be infiltrated at an off-site mitigation or groundwater replenishment project site	The percentage of the design volume which off-site mitigation or groundwater replenishment will retain.
	Percent of design storm volume to be retained or treated with biofiltration at an off-site retrofit project	The percentage of the design volume which off-site biofiltration will retain or treat.

[2] A natural drainage system is defined as a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

12 Reporting

Reporting will normally consist of Annual CIMP Reports and semi-annual data reports. Discharge Assessment Plans will be only submitted if TIEs are found to produce inconsistent results during two consecutive tests. These include the following reports:

Annual CIMP Reports

Annual CIMP monitoring reports are required to be submitted to the Regional Water Board Executive Officer by December 15th of each year in the form of three compact disks (CD) The annual reporting process is intended to meet the following objectives.

Summary information allowing the Regional Board to assess:

a. Each Permittee's participation in one or more Watershed Management Programs.

b. The impact of each Permittee(s) stormwater and non-stormwater discharges on the receiving water.

c. Each Permittee's compliance with receiving water limitations, numeric water quality-based effluent limitations, and non-stormwater action levels.

d. The effectiveness of each Permittee(s) control measures in reducing discharges of pollutants from the MS4 to receiving waters.

e. Whether the quality of MS4 discharges and the health of receiving waters is improving, staying the same, or declining as a result watershed management program efforts, and/or TMDL implementation measures, or other Minimum Control Measures.

f. Whether changes in water quality can be attributed to pollutant controls imposed on new development, re-development, or retrofit projects.

Data Submittals

Analytical data reports are required to be submitted to the Regional Board on a semi-annual basis in accordance with the Southern California Municipal Storm Water Monitoring Coalition's Standardized Data Transfer Formats. These reports are required to be subject to verification and validation prior to submittal. They are to cover monitoring periods of July 1 through December 31 for the mid-year report and January 1- June 30 for the end of year report. These data reports should summarize:

- Exceedances of applicable WQBELs, receiving water limitations, or any available interim action levels or other aquatic toxicity thresholds.
- Basic information regarding sampling dates, locations, or other pertinent documentation.

Discharge Assessment Plan

A Discharge Assessment Plan is applicable only if TIEs are conducted during two consecutive events and the results are inclusive for each. A Discharge Assessment Plan will be submitted to Los Angeles Regional Water Board for comment within 60 days of receipt of notification of the second consecutive inconclusive TIE result. If no comments are received within 30-days, it will be assumed that the approach is appropriate for the given situation and the Plan should be implemented within 90-days of submittal.

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APPENDIX A

AUTOMATED STORMWATER MONITORING EQUIPMENT

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1 Automated Stormwater Monitoring Equipment

Monitoring of stormwater runoff at the Mass Emission (ME) sites and Stormwater Outfall Monitoring sites will require use of automated stormwater monitoring equipment. This section addressed equipment and sampling procedures that will be used for sites operated by the LSGR WG. Monitoring conducted at S13 by the Los Angeles County Flood Control District (LACFCD) will utilize similar procedures. Sampling conducted by the LACFCD will use equipment and procedures consistent with those used for monitoring over the past decade.

Sampling at mass emission monitoring sites for collection of stormwater samples will require collection of flow-weighted composite samples. Time-weighted will be considered for sampling at upstream, stormwater outfall monitoring sites. Similar equipment will be necessary regardless of the selected sampling approach. Time-weighted composite samples simply allow for more mobile installations that do not require flow meters, rain gauges, solar panels, or communication equipment. In lieu of communications equipment, such sites require added field personnel to monitor and track performance of the equipment along with added sensors to trigger the equipment to initiate the sampling.

For purposes of this CIMP, it is assumed that all sites requiring collection of flow-weighted composite samples will be established as “permanent” or “long-term” sites with appropriate security to protect the equipment and intake structures from debris coming down the stream or vandalism. As noted, collection of time-weighted samples will be utilize the same types of autosamplers and composite containers but will not include flow meters, rain gauges and telecommunication packages. Monitoring stations designed to take time-weighted composite samples will require sensors to detect initial flows and trigger the sampler. This will allow for use of smaller security enclosures that can temporally be secured at a site or, if necessary, equipment can be deployed in a manhole.

Fixed monitoring sites will utilize automated stormwater sampling stations that incorporate an autosampler (American Sigma or Isco), a datalogger/flow module to monitor flow and pace the autosampler, a rain gauge to monitor and record local rainfall, and telecommunications to allow for remote monitoring and control of each site. Sites without access to AC power will be powered by deep-cycle marine batteries. Sites without direct access to AC power will utilize solar panels to provide the energy needed to maintain the charge on two deep cycle batteries used to power the autosampler, flow meter and datalogger. Providing reliable telecommunications for real-time access to data and to provide command and control functionality has greatly improved efficiency and contributed to improved stormwater data.

Both types of automated stormwater monitoring systems considered for this monitoring program use peristaltic pumping systems. When appropriate measures are taken, it has been demonstrated that these types of systems are capable of collecting blanks that are uncontaminated and high quality, reproducible data using detection limits appropriate to water quality criteria. In order to accomplish this, extreme care must be taken to avoid introduction of contaminants.

Requirements include:

- Assuring that all materials coming into contact with the samples are intrinsically low in trace metals and do not adsorb/absorb metals or other target.
- Materials coming into contact with the sample water are subjected to intensive cleaning using standardized protocol and subjected to systematic blanking to demonstrate and document that blanking standards are met.
- All cleaned sampling equipment and bottles are appropriately tracked so that blanking data can be associated with all component deployed in the field.
- Samples are collected, processed and transported taking care to avoid contamination from field personnel or their gear, and
- Laboratory analysis is conducted in a filtered air environment using ultrapure reagents.

Table 2-1 of the USGS National Field Manual (http://pubs.water.usgs.gov/twri9A/) provides a summary of acceptable materials for use sampling organic and inorganic constituents. The stormwater monitoring stations will primarily utilize 20-L borosilicate glass media bottles for the composite samples, FEP tubing for the sample hose and either 316 SS or Teflon-coated intake strainers. Ten (10) liter borosilicate glass media bottles will be considered for sites where required sample volumes are low and lower sample volumes are acceptable. The peristaltic hose is a silicone-base material that is necessary for operation of the autosamplers. The peristaltic hose can be as source of silica which is not a target compound.

Although the technical limitations of autosamplers are often cited, they still provide the most practical method for collecting representative samples of stormwater runoff for characterization of water quality and have been heavily utilized for this purpose for the past 20 years. The alternative, manual sampling, is generally not practical for collection of flow-weighted composite samples from a large number of sites or for sampling events that occur over an extended period of time. Despite the known drawbacks, autosamplers combined with accurate flow metering remain the most common and appropriate tool for monitoring stormwater runoff.

1.1 Sampler Intake Strainer, Intake Tubing and Flexible Pump Tubing

Intake strainers will be used to prevent small rocks and debris from being drawn into the intake tubing and causing blockages or damage to the pump and peristaltic pump tubing. Strainers will be constructed of a combination of Teflon and 316 stainless or simply stainless steel. The low profile version is typically preferred to provide greater ability to sample shallow flows. Although high grade stainless steel intake strainers are not likely to impact trace metal measurements, it is preferable to use strainers coated with a fluoropolymer coating. If the stainless steel intake is not coated, the strainer will not be subjected to cleaning with acids. Cleaning will be limited to warm tap water, laboratory detergents and MilliQ water rinses.

Tubing comprised of 100% FEP (Fluorinated Ethylene Propylene) will be used for the intake tubing. Several alternative fluoropolymer products are available but 3/8" ID solid FEP tubing has the chemical characteristics suitable for sampling metals and organics at low levels and appropriate physical characteristics. The rigidity of FEP tubing provides resistance to collapse at high head differentials but still is manageable for tight configurations.

The peristaltic hose used in autosamplers is a medical-grade silicon product. The specifications for the peristaltic pump hoses used in these samplers are unique to the samplers. It is very important that hose specified and provided by the manufacturers of the autosamplers be used. Minor differences in the peristaltic hose can cause major deterioration in performance of the samplers. Use of generic peristaltic pump hose from other sources can lead to problems with the ability to calibrate the samplers and maintain intake velocities of greater than 2.5 feet per second with higher lift requirements.

The peristaltic hose is connected to the FEP tubing and fed through the pump head leaving the minimum amount necessary to feed the peristaltic pump hose into the top of the composite bottle. The composite container will always have a lid to prevent dust from settling in the container.

1.2 Composite Containers

The composite containers used for monitoring must be demonstrated to be free of contaminants of interest at the desired levels (USEPA 1996). Containers constructed of fluoropolymers (FEP, PTFE), conventional or linear polyethylene, polycarbonate, polysulfone, polypropylene, or ultrapure quartz are considered optimal for metals but borosilicate glass has been shown to be suitable for both trace metals and organics at limits appropriate to EPA water quality criteria. High capacity borosilicate media bottles (20-liters or ~5-gallons) are preferred for storm monitoring since they can be cleaned and suitably blanked for analysis of both metals and organic compounds. The transparency of the bottles is also a useful feature when subsampling and cleaning the containers for reuse.

Figure 1. Composite Bottle with Label and installed Tubing inside Brute® Container.

These large media bottles are designed for stoppers and thus do not come with lids. Suitable closure mechanisms must be fabricated for use during sampling, transport and storage of clean bottles. The preferred closure mechanism is a Teflon® stopper fitted with a Viton® O-ring (2 3/8" - I.D. x 23/4"- O.D.) that seals the lid against the media bottle. A polypropylene clamp (Figure 2) is used to seal the Teflon® stopper and O-ring to the rim of the composite sample bottle. Two polypropylene bolts with wing-nuts are used to maintain pressure on the seal or to assist in removal of the lid.

Every composite bottle requires one solid lid for use in protecting the bottle during storage and transport. A minimum of one Teflon® stopper should be available for each monitoring site during storm events. Each field sampling crew should have additional stoppers with holes ("sampling stopper") that would be available if a sampling stopper is accidentally contaminated during bottle changes or original installations.

Figure 2. Composite bottle showing bottle bag used for transport and lifting.

The holes in the sampling stoppers should be minimally larger than the external diameter of the peristaltic hose. If a tight fit exists, the pressure created when water is pumped into the bottle will cause the hose to be ejected and the sampling event will to be abandoned.

Transporting composite bottles is best accomplished by use of 10-gallon Brute® containers to both protect them from breakage and simplify handling. They also provide additional capacity for ice while transporting full bottles to the laboratory or subsampling site.

Bottle bags (Figure 2) are also useful in allowing full bottles to be handled easier and reduce the need to contact the bottles near the neck. They are important for both minimizing the need to handle the neck of the bottle and are also an important Health and Safety issue. The empty bottles weigh 15 pounds and they hold another 40 pounds of water when full. These can be very slippery and difficult to handle when removing them from the autosamplers. Bags can be easily fabricated out of square-mesh nylon netting with nylon straps for handles. Use of bottle bags allows two people to lift a full bottle out of the ice in the autosampler and place it in a Brute® container. Whether empty or full, suitable restraints should be provided whenever the 20-L composite bottles and Brute® containers are being transported.

1.3 Flow Monitoring

Retrieval of flow-weighted stormwater samplers requires the ability to accurately measure flow over the full range of conditions that occur at the monitoring site. The ability to accurately measure flow at an outfall site should be carefully considered during the initial site selection process. Hydraulic characteristics necessary to allow for accurate flow measurement include a relatively straight and uniform length of pipe or channel without major confluences or other features that would disrupt establishment of uniform flow conditions. The actual measurement site should be located sufficiently downstream from inflows to the drainage system to achieve well-mixed conditions across the channel. Ideally, the flow sensor and sample collection inlet should be placed a minimum of five pipe diameters upstream and ten pipe diameters downstream of any confluence to minimize turbulence and ensure well-mixed flow. The latest edition of the *Isco Open Channel Flow Measurement Handbook* (Walkowiak 2008) is an invaluable resource to assist in selection of the most appropriate approach for flow measurements and information on the constraints of each method.

The existing mass emission site has an established flow rating curve (Stage-Flow relationships) that only requires measurement of water level to estimate flow. Additional sites requiring flow monitoring are expected to utilize area-velocity sensors that use Doppler-based sensors to measure the velocity of water in the conveyance, a pressure sensor to measure water depth, and information regarding channel dimensions to allow for real-time flow measurements to pace the autosamplers.

1.4 Rainfall Gauges

Electronic tipping bucket rain gauges will be installed at each fixed monitoring location to provide improved assessment of rainfall in the smaller drainages. Use of a localized rain gauge provides better representation of conditions at the site. A variety of quality instruments are available but all require substantial maintenance to ensure maintenance of high data quality.

Tipping bucket rain gauges with standard 8-inch diameter cones will be used at each site. These provide 1 tip per 0.01" of rain and have an accuracy of ± 2% up to 2"/hr. The accuracy of tipping bucket rain gauges can be impacted by very intense rainfall events but errors are more commonly due to poor installation.

Continuous data records will be maintained throughout the wet season with data being output and recorded for each tip of the bucket. The rainfall data is downloaded at the same rate as the flow and stormwater monitoring events.

1.5 Power

Stormwater monitoring equipment can generally be powered by battery or standard 120VAC. If 120VAC power is unavailable, external, sealed deep-cycle marine batteries will be used to power the monitoring site. Even systems with access to 120VAC will be equipped with batteries that can provide backup power in case of power outages during an event. All batteries will be placed in plastic marine battery cases to isolate the terminals and wiring. A second battery will be provided at each site to support the telecommunication packages. Sites relying on battery power will also be equipped with a solar panel to assure that a full charge is available when needed for a storm event.

1.6 Telecommunication for System Command/Control and Data Access

The ability to remotely communicate with the monitoring equipment has been shown to provide efficient and representative sampling of stormwater runoff. Remote communication facilitates preparation of stations for storm events and making last minute adjustments to sampling criteria based upon the most recent forecasts. Communication with the sites also reduces the number of field visits by monitoring personnel. Remote two-way communication with monitoring sites allows the project manager (storm control) to make informed decisions during the storm as to the best allocations of human resources among sampling sites. By remotely monitoring the status of each monitoring site, the manager can more accurately estimate when composite bottles will fill and direct field crews to the site to avoid disruptions in the sampling. Real time access to flow, sampling and rainfall data also provides important information for determining when sampling should be terminated and crews directed to collect and process the samples. Increases in both efficiency and sample quality make two-way communication with monitoring stations a necessity for most monitoring programs.

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APPENDIX B

CLEANING AND BLANKING PROTOCOL

FOR

EQUIPMENT AND SUPPLIES USED IN COLLECTION OF FLOW OR TIME-WEIGHTED COMPOSITES

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CLEANING PROTOCOL FOR:

20-L Borosilicate Glass Composite Bottles (Media Bottles) and Closures

1.0 SCOPE

This Standard Operating Procedure (SOP) describes the procedures for the cleaning of 20-liter composite sample bottles and the related equipment necessary to complete the task. The purpose of these procedures is to ensure that the sample bottles are contaminant-free and to ensure the safety of the personnel performing this procedure.

2.0 APPLICATION

This SOP applies to all laboratory activities that comprise the cleaning of 20-liter composite sample bottles and stoppers.

3.0 HEALTH AND SAFETY CONSIDERATIONS

The cleaning of 20-liter composite-sample bottles and associated equipment involves hazardous materials. Skin contact with all materials and solutions should be minimized by wearing appropriate personal protective equipment (PPE) including: chemical-resistant gloves, laboratory coats, chemical-resistant aprons, and goggles. To ensure that you are aware of the hazards involved, the material safety data sheets (MSDSs) for nitric acid and laboratory detergents should be reviewed before beginning any of these procedures.

Note: Preparations should be made to contain and neutralize any spillage of acid. Be aware of the location of absorbent, neutralizing, and containment materials in the bottle cleaning area.

4.0 DEFINITIONS

4.1 **Composite sample bottle** - 20 liter borosilicate glass bottle that is used with autosamplers to collect a stormwater composite sample.

4.2 **Stopper** - a Teflon® cap used to seal the composite sample bottle (either solid, or drilled with holes for the silicon inlet tubing).

4.3 **O-Ring** - Viton O-ring 23/8"- I.D. x 23/4"- O.D. that is located around the base of stopper.

4.4 **Clamp** - Polypropylene clamp, 2 bolts, and wing nuts specifically designed to fasten the stopper and the O-ring to the rim of the composite sample bottle.

4.5 **De-ionized (DI) water -** commercial de-ionized water (12-13 Megohm/cm)

4.6 **Laboratory Detergent** - 2% solution of Contrad 70® or Micro-90® detergent

5.0 EQUIPMENT

5.1 Instrumentation:

1) Peristaltic pump with a protocol-cleaned sub-sampling hose setup

5.2 Reagents:

1) ACS Reagent Grade nitric acid in a 2 Normal solution (2N HNO_3)

2) Contrad 70® non-phosphate laboratory detergent

3) Contrad 70® anti-foaming agent

4) Micro-90® non-phosphate laboratory detergent

5) Baking soda or equivalent to neutralize acid

6) pH paper

5.3 Apparatus:

1) Bottle Rolling Rack

2) DI Rinse Rack

3) Yellow Neutralization Drip Bucket

4) Neutralization Tank

5.4 Documentation:

The status of each composite sample bottle must be tracked. Bottles should be washed in batches of 10, 20, or 30 and the status of each batch must be made apparent to all personnel by posting a large status label (including the start date) with each batch. This will ensure that all required soak times have been attained and that each bottle was subjected to the proper cleaning procedures. Information on each batch of bottles cleaned (including bottle number, QA batch, date cleaning started, date finished, date blanked, and cleaning technicians) should be entered in the **Bottle Cleaning Log Sheet**.

6.0 CLEANING PROCEDURES

Care must be taken to ensure that no contaminants are introduced at any point during this procedure. If the wash is not performed with this in mind, the possibility for the introduction of contaminants (i.e., from dust, dirty sub-sampling tubing tips, dirty fingers/gloves, automobile emissions, etc.) is increased significantly.

6.1 Teflon® Bottle Stoppers with Holes and Field Extras:

To be performed whenever required for field use.

1) Wash with laboratory detergent using a clean all-plastic brush.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N nitric acid squirt bottle.

5) Rinse thoroughly (minimum of three times) with DI water.

6) Allow to dry in a dust-free environment.

7) Store in two sealed clean Ziploc® bags.

6.2 NPS 20 liter composite sample bottle Cleaning:

6.2.1 Preliminary Bottle Cleaning:

Bottles should undergo a preliminary rinse with tap water as soon as possible after they are available. This includes dumping any remaining stormwater into a sanitary drain and rinsing the bottles and stoppers. This prevents material from adhering to the interior surface of the bottle.

6.2.2 **48 Hour Soak:** Place the bottle to be cleaned into a secondary containment bucket. Prepare a 2% solution of laboratory detergent with tap water directly in the bottle. Note: Since laboratory detergent is a foaming solution, add 3/4 of the tap water first, add the detergent, then add the rest of the water. Should excessive foam be generated, a few drops of Contrad 70® anti-foaming agent may be added. **Make sure that the bottle is filled to the rim and scrub the rim with an all-plastic scrub brush.** Scrub a Teflon® stopper with 2% solution of laboratory detergent and place stopper over the full bottle so overflowing happens. This will allow both the stopper and the bottle to soak for 48 hours. After the 48 hour soak, this solution may be may be retained for reuse (i.e., siphoned into other dirty bottles) or it can be poured off into a sanitary drain.

6.2.3 Teflon® Bottle Stopper and O-ring Cleaning:

This procedure should be performed prior to the bottle washing process so that the stopper can follow the bottle through the acid wash.

1) Rinse thoroughly (minimum of three times) with tap water.

2) Rinse thoroughly (minimum of three times) with DI water.

3) Store temporarily in a similarly cleaned

6.2.4 **Tap Water Rinse:** Tap water rinses detergent better than DI water. Flush upside down bottle with tap water for 20 sec. Rinse each bottle 3 times with tap water being careful not to contaminate the clean surfaces.

6.2.5 **DI Rinse:** Rinse the top and neck of the bottles with DI water using a squirt bottle and then rinse upside down for three minutes on the DI rinse rack for bottles. Make sure to tip bottles from side to side for a more thorough rinsing. Allow 1-2 minutes for the bottles to drain as much as possible. Rinse each stopper with DI water squirt bottle 3 times (being careful not to touch the clean surfaces).

6.2.6 **Acid Wash:** Note that it is important to Wash the bottle with 2N nitric acid according to the following procedure:

1) Place the empty bottle near the 2N nitric acid carboy and peristaltic pump. The location should be able to safely contain a spill if the 20L bottle breaks.

2) Pump acid into the bottle using the peristaltic pump fitted with a protocol-cleaned sub-sampling hose setup

3) Fill the bottle slightly more than half full.

4) Place a protocol-cleaned solid Teflon® stopper (with a properly seated O-ring) (Refer to Section 6.2.3 above) on the bottle and clamp it securely.

5) **Carefully** lift and place the bottle on the roller rack and check for leakage from the stopper. Neutralize any spillage. Often small leaks can be corrected by a slight tightening of the clamp. Roll the bottles for twenty minutes.

6) Pump the acid into another bottle for rolling or back into the 2N nitric acid carboy.

6.2.7 **DI Rinse for Sub-sampling Hose**: After use, the sub-sampling hose setup should be rinsed by pumping 1-2 gallons of DI water through the hoses and into a neutralization tank. Carefully rinse the outside of the hose to remove any acid that may be on the exterior of the hose. pH paper should be used to insure that the fluid in and on the hose is 6.8 or higher. Continue rinsing until your reach neutral pH. Store hose in a clean, large plastic bag between uses. Dispose of rinsate in accordance with all federal, state, and local regulations

6.2.8 **DI Rinse for Bottles**: Allow the bottles to drain into a yellow neutralization bucket for at least 1 minute. Place four bottles at a time on the DI rinse rack and rinse for 5 minutes. Move bottles around to ensure complete and thorough rinsing. Rinse the outside of the bottle with tap water. Allow bottles to drain for 2 minutes.

6.2.9 **DI Rinse for Stoppers**: Rinse caps thoroughly 3 times over neutralization tank. Place on a clean surface where the clean side of the stopper will not be contaminated.

6.3 **Storage:** Clamp a stopper (one that went through the entire cleaning procedure) on the bottle. Properly label the bottle as to the date cleaned and by whom and place on the bottle storage rack or in a secondary containment bucket in a safe area. Also, fill out the **Bottle Cleaning Log Sheet**.

7.0 QUALITY ASSURANCE REQUIREMENTS

7.1 The NPS 20 liter sample bottles must be evaluated ("blanked") for contaminants after they have completed the decontamination procedure. The analytical laboratory performing the evaluation should supply Milli-Q® water that is used as a blanking rinsate, and sample bottles for the appropriate constituents of concern. This evaluation will be accomplished by randomly blanking 10% of the washed bottles, or 1 bottle per batch (whichever is greater) and having the blanking rinsate analyzed by the laboratory for the appropriate constituents.

7.2 If any of the bottles fail the analyses (concentration of any analytes are at or above the limit of detection), all of the bottles from that batch must be decontaminated. Again, 10% of these bottles must be subjected to the blanking process as described-above.

7.3 If results of the evaluation process show that the bottles are not contaminant-free, the cleaning procedure must be re-evaluated. Consult with the Quality Assurance/Quality Control Officer to determine the source of contamination.

CLEANING PROTOCOL FOR:

Miscellaneous Laboratory Equipment used for Cleaning and Blanking

1.0 SCOPE

This Standard Operating Procedure describes the procedures for cleaning the miscellaneous items necessary to complete the tasks of cleaning 20- liter composite sample bottles and hoses. The purpose of these procedures is to ensure that the items are contaminant-free and to ensure the safety of the personnel performing this procedure.

2.0 APPLICATION

This SOP applies to all laboratory activities that comprise the cleaning of ancillary items necessary to complete the tasks of cleaning 20 liter composite sample bottles and NPS hoses.

3.0 HEALTH AND SAFETY CONSIDERATIONS

The cleaning of the following items may involve contact with hazardous materials. Skin contact with all materials and solutions should be minimized by wearing appropriate personal protective equipment (PPE) including: chemically-resistant protective gloves, laboratory coats, chemically-resistant aprons, and goggles. In addition, to ensure that you are aware of the hazards involved and of any new revisions to the procedure, the material safety data sheets (MSDSs) for nitric acid and the laboratory detergent should be reviewed before beginning any of these procedures.

4.0 DEFINITIONS

4.1 Polyethylene Squirt Bottles - ½ and 1 liter squirt bottles for washing and/or rinsing with DI water or nitric acid.

4.2 Polycarbonate and Polyethylene De-ionized Water Jugs - For holding DI water.

4.3 Polyethylene Bucket - For holding tap water, DI water or detergent solutions during hose washing procedures.

4.4 Four-inch Teflon® Connector - For connecting two lengths of silicon peristaltic tubing together.

4.5 Four-inch Silicon Connector - For connecting two lengths of Teflon® hose together.

4.6 Orange Polypropylene Hose Caps - For placing over the ends of clean Teflon® hose to prevent contamination.

4.7 De-ionized (DI) water - Commercial de-ionized water

4.8 Laboratory Detergent - 2% solution of Contrad 70® or Micro-90® detergent.

5.0 EQUIPMENT

5.1 Instrumentation: Not applicable.

5.2 Reagents:

1) ACS Reagent Grade nitric acid as a 2 Normal solution (2N HNO_3)

2) Micro-90® non-phosphate laboratory detergent

3) Contrad 70® non-phosphate laboratory detergent

4) Contrad 70® anti-foaming agent.

5) pH paper or pH meter

6) Baking soda ($NaHCO_3$) or equivalent to neutralize acid

5.3 Apparatus:

1) Clean polyethylene squirt bottles.

2) Clean polyethylene trays or 2000 ml glass beakers.

3) Neutralization Tank

5.4 Documentation:

Label each squirt bottle, DI jug, storage container holding clean items, etc. as to the date each was cleaned and the initials of the cleaning technician.

6.0 CLEANING PROCEDURES

Care must be taken to ensure that no contaminants are introduced at any point during these procedures. If the wash is not performed with this in mind, the possibility for the introduction of contaminants (i.e., from dirty sinks, dirty counter tops, dirty fingers/gloves, dirty hose ends, etc.) is increased significantly.

Rinsing properly is essential to ensure proper cleaning. This is done by squirting the liquid over the item to be cleaned in a top-down fashion, letting the water flow off completely **<u>before</u>** applying the next rinse. Rinse the item in this fashion **<u>a minimum</u>** of three times. **Numerous rinses of relatively small volumes are <u>much better</u> than one or two rinses of higher volume.** Be aware of handling: use clean gloves (it is best if they have gone through the same prior wash as the item to be rinsed) and rinse off the fingers prior to grasping the item to be cleaned. Try to grasp the item in a slightly different place between rinses so ones fingers do not cover a portion of the item throughout the rinses.

6.1 Polyethylene Squirt Bottles:

1) Soak in a 2% solution of laboratory detergent in a protocol-cleaned bucket for 48 hours.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N (10%) nitric acid.

5) Rinse thoroughly (minimum of three times) with DI water. Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations.

6.2 Polycarbonate and Polyethylene DI Water Jugs:

1) Fill to the rim with a 2% solution of laboratory detergent, cap the jug, and let soak for 48 hours. Wash cap with an all-plastic scrub brush after soak.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N (10%) nitric acid.

5) Rinse thoroughly (minimum of three times) with DI water. Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations.

6.3 Polyethylene Bucket:

1) Fill to the rim with a 2% solution of laboratory detergent and let soak for 48 hours.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N (10%) nitric acid squirt bottle.

5) Rinse thoroughly (minimum of three times) with DI water. Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations. **Label as to the date cleaned and initial**.

6.4 Four-inch Teflon® and Silicon Hose Connectors and Orange Polypropylene Hose Caps. The purpose of the four-inch sections of Teflon® and silicon hose is to connect longer lengths of each type of hose together during the hose cleaning procedures. The orange polypropylene hose caps are for the ends of cleaned FEP hoses to prevent contamination prior to use in the field or laboratory.

1) Using a 2% solution of laboratory detergent, soak the four-inch sections of FEP hose, silicon tubing, and orange caps for 48 hours.

2) Rinse thoroughly with tap water (minimum of three rinses).

3) Rinse thoroughly with DI water (minimum of three rinses).

4) Using a squirt bottle filled with 2N (10%) HNO_3, thoroughly rinse the interior and exterior of the connectors and caps thoroughly OR, roll/agitate them in a shallow layer of 2N (10%) HNO_3

in a laboratory detergent cleaned glass beaker or other appropriate, clean container for a more thorough washing.

5) Thoroughly rinse connectors and caps with DI water (minimum of three rinses). Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations. Keep clean connectors and caps in a similarly cleaned (or certified clean) widemouth glass jar or detergent-cleaned resealable bag and **label as clean, date cleaned, and initial**.

NPS 20-Liter Bottle Subsampling Procedure

1.0 Scope

This Standard Operating Procedure (SOP) describes the procedures for the compositing and sub-sampling of non-point source (NPS) 20 liter sample bottles. The purpose of these procedures is to ensure that the sub-samples taken are representative of the entire water sample in the 20-L bottle (or bottles). In order to prevent confusion, it should be noted that in other KLI SOPs relating to 20-L bottles they are referred to as "composite" bottles because they are a composite of many small samples taken over the course of a storm; in this SOP the use of "compositing" generally refers to the calculated combining of more than one of these 20-L "composite" bottles.

2.0 Application

This SOP applies to all laboratory activities that comprise the compositing and sub-sampling of NPS 20 liter sample bottles.

3.0 Health and Safety Considerations

The compositing and sub-sampling of NPS 20 liter sample bottles may involve contact with contaminated water. Skin contact with sampled water should be minimized by wearing appropriate protective gloves, clothing, and safety glasses. Avoid hand-face contact during the compositing and sub-sampling procedures. Wash hands with soap and warm water after work is completed.

4.0 Definitions

4.1 **20 liter sample bottle:** 20 liter borosilicate glass bottle that is used to collect multiple samples over the course of a storm (a composite sample).

4.2 **Large-capacity stirrer**: Electric motorized "plate" that supports a 20 liter bottle and facilitates the mixing of sample water within the bottle by means of spinning a pre-cleaned magnetic stir-bar which is introduced into the bottle.

4.3 **Stir-bar**: Teflon-coated magnetic "bar" approximately 2-3 inches in length which is introduced into a 20 liter bottle and is spun by the stirrer, thereby creating a vortex in the bottle and mixing the sample. Pre-cleaned using cleaning protocols provided in KLI SOP for *Cleaning Procedures for Miscellaneous Items Related to NPS Sampling*.

4.4 **Sub-sampling hose**: Two ~3-foot lengths of Teflon tubing connected by a ~2-foot length of silicon tubing. Pre-cleaned using cleaning protocols provided in SOP for *Teflon Sample Hose and Silicon Peristaltic Tubing Cleaning Procedures*. Used with a peristaltic pump to transfer sample water from the 20-L sample bottle to sample analyte containers.

4.6 **Volume-to-Sample Ratio (VSR):** A number that represents the volume of water that will flow past the flow-meter before a sample is taken (usually in liters but can also be in kilo-cubic feet for river deployments). For example, if the VSR is 1000 it means that every time 1000 liters passes the flow-meter the sampler collects a sample (1000 liters of flow per 1 sample taken). Note: The VSR indicates when a sample should be taken and is NOT an indication of the sample size.

5.0 EQUIPMENT

5.1 Instrumentation: Not applicable

5.2 Reagents: Not applicable.

5.3 Apparatus

1) Large capacity stirrer.

2) Stir bar.

3) Sub-sampling hose.

4) Peristaltic pump.

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APPENDIX C

QUALITY ASSURANCE/QUALITY CONTROL

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1. Quality Assurance/Quality Control

Elements of a Quality Assurance and Quality Control (QA/QC) Plan have been incorporated into the CIMP in order to detail critical activities conducted to assure that both chemical and physical measurements meet the standard of quality needed to evaluate measurements at levels relevant to applicable water quality criteria. With many different monitoring programs being implemented within the region, comparability should remain of the primary goals of the QA/QC monitoring program. The Intergovernmental Task Force on Monitoring Water Quality (ITFM, 1995) defines comparability as the "characteristics that allow information from many sources to be of definable or equivalent quality so that it can be used to address program objectives not necessarily related to those for which the data were collected."

One important aspect of comparability is the use of analytical laboratories that are accredited under a program such as the National Environmental Laboratory Accreditation Program (NELAP), California's Environmental Laboratory Accreditation Program (ELAP) or a well-qualified research laboratory. In addition, the laboratory should be a participant in a laboratory proficiency and intercalibration program. Laboratories have not been selected for this program but participation in the Stormwater Monitoring Coalition's (SMC) intercalibration program will be a primary consideration. Unfortunately, the SMC has not fully completed implementation of a program the full range of analyses included in the MRP Table E-2 list.

Evaluation of data quality will be based upon protocols provided in the *National Functional Guidelines for Inorganic Superfund Data Review (USEPA540-R-10-011)* (USEPA 2010), *National Functional Guidelines for Superfund Organic Methods Data Review (EPA540/R-08-01),* and the *Guidance on the Documentation and Evaluation of Trace Metals Data Collected for Clean Water Act Compliance Monitoring (EPA/821/B/95/002)* (USEPA 1996).

The sections that follow address activities associated with both field sampling and laboratory analyses. Quality assurance activities start with procedures designed to assure that errors introduced in the field sampling and subsampling processes are minimized. Field QA/QC samples are collected and used to evaluate potential contamination and sampling error introduced into a sample prior to its submittal to the analytical laboratory. Laboratory QA/QC activities are used to provide information needed to assess potential laboratory contamination, analytical precision and accuracy, and representativeness.

1.1.1 Sample Handling, Containers and Holding Times.

Table **1** provides a summary of the types of sample volumes, container types, preservation and holding times for each analytical method. Analytical methods requiring the same preservation and container types may be transferred to the laboratory in one container in order to minimize handling prior to transfer to the laboratory.

Table 1. Constituents, Sample Container, Preservation and Holding Times.

Analyte	EPA Method Number	Holding Time	Container Size	Container Type	Preservation	Minimum Level/ Resolution	Units
Conventionals							
pH	150.1	15 minutes		glass or PE	none	+/- 0.1	std. units
Oil and Grease	1664A	28 days	1 L	Glass	HCl	5	mg/L
TPH	418.1	28 days	1 L	Glass	HCl	5	mg/L
Total Phenols	420.1	28 days	500mL-1 L	Glass	H_sSO_4	5	mg/L
Cyanide	SM4500-CN-E	14 days	500 mL	HDPE	NaOH	0.003	mg/L
Turbidity	SM2130B	48 hours	100-250mL	Glass	4-6°C	1	NTU
TSS	160.2	7 days	1 L	HDPE	4-6°C	4	mg/L
SSC[1]	ASTMD3977B	7 days	1 L	HDPE	4-6°C	4	mg/L
TDS	160.1	7 days	1 L	HDPE	4-6°C	1	mg/L
VSS	160.4	7 days	1 L	HDPE	4-6°C	1	mg/L
TOC; DOC	415.1	28 days	250 mL	glass	4°C and HCl or H_2SO_4 to pH<2	1	mg/L
BOD_5	SM5210B	48 hours	600mL-1L	HDPE	4-6°C	3	mg/L
COD	410.1	28 days	20-250 mL	Glass	H_sSO_4	4	mg/L
Alkalinity	SM 2320B	Filter ASAP, 14 days	100-250 mL	HDPE	4-6°C	1	mg/L
Conductivity	SM 2510	28 days	100-250 mL	HDPE	4°C; filter if hold time >24 hours	1	µmho/cm
Hardness	130.2	6 months	100-250 mL	HDPE	and HNO_3 or H_2SO_4 to pH<2	1	mg/L
MBAS	425.1	48 hours	250-500 mL	HDPE	4-6°C	0.02	mg/L
Chloride	300	28 days	250-500 mL	HDPE	4-6°C	2	mg/L
Fluoride	300	28 days	250-500 mL	HDPE	4-6°C	0.1	mg/L
Perchlorate	314.0	28 days	100-250 mL	HDPE	4-6°C	4	µg/L
Volatile Organics							
MTBE	624	14 days	3 40mL VOA	Glass	HCl	1	µg/L

Analyte	EPA Method Number	Holding Time	Container Size	Container Type	Preservation	Minimum Level/ Resolution	Units
Bacteria							
Total Coliform	SM9221B	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
Fecal Coliform	SM9221B	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
Enterococcus	SM9230B or C	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
E. coli	SM 9223 COLt	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
Nutrients							
TKN	351.1	28 days	500mL-1L	Amber glass	H_sSO_4	0.5	mg/L
Nitrate-N	300	48 hours	50-125mL	HDPE	4-6°C	0.1	mg/L
Nitrite-N	300	48 hours	50-125mL	HDPE	4-6°C	0.05	mg/L
Total Nitrogen	Calculation					NA	mg/L
Ammonia-N	350.1	28 days	500mL-1L	Amber glass	H_sSO_4	0.1	mg/L
Total Phosphorus	SM4500-P,EorF	28 days	100-250 mL	glass	H_sSO_4	0.1	mg/L
Dissolved Phosphorus	SM4500-P,EorF	28 days	100-250 mL	glass	4-6°C	0.1	mg/L
Organic Compounds (pesticides and herbicides)							
Organochlorine Pesticides & PCBs	608	7days:40days	1L	Amber glass	4-6°C	0.005-0.5	µg/L
Organophosphate Pesticides	507	14days	1L	Amber glass	$Na_sS_2O_3$ 4-6°C	0.01-1	µg/L
Glyphosate	547	14days	250mL	Amber glass	$Na_sS_2O_3$ 4-6°C	5	µg/L
Chlorinated Acids	515.3	14days	250mL	Amber glass	$Na_sS_2O_3$ 4-6°C		
2,4-D						0.02	µg/L
2,4,5-TP-Silvex						0.2	µg/L
Semivolatile Organic Compounds	625;8270D	7days;40days	1L	Amber glass	4-6°C	0.05-10	µg/L

Analyte	EPA Method Number	Holding Time	Container Size	Container Type	Preservation	Minimum Level/ Resolution	Units
Metals (Total and Dissolved)							
Aluminum	200.8	If practical, filter immediately after subsampling. Otherwise filter in laboratory for dissolved fraction and preserve not more than 24 hours after subsampling; 6 months to analysis	250 to500 mL	HDPE	4°C and HNO_3 to pH<2	100	µg/L
Antimony	200.8					0.5	µg/L
Arsenic	200.8					0.5	µg/L
Beryllium	200.8					0.5	µg/L
Cadmium	200.8					0.25	µg/L
Chromium (Total)	200.8					0.5	µg/L
Copper	200.8					0.5	µg/L
Iron	200.8					25	µg/L
Lead	200.8					0.5	µg/L
Nickel	200.8					1	µg/L
Selenium	200.8					1	µg/L
Silver	200.8					0.25	µg/L
Thallium	200.8					0.5	µg/L
Zinc	200.8					1	µg/L
Chromium (Hexavalent)	218.6	Filter as above 24 hours	250 ml	HDPE	4°C	5	µg/L
Mercury	245.1	Filter as above 28 days	250 ml	Glass or Teflon	4°C and HNO_3 to pH<2	0.2	µg/L

Abbreviations

TSS=Total Suspended Solids
SSC=Suspended Sediment Concentration
TDS=Total Dissolved Solids
TPH=Total Petroleum Hydrocarbons
VSS=Volatile Suspended Solids
TOC=Total Organic Carbon
BOD_5=Five-day Biochemical Oxygen Demand
COD=Chemical Oxygen Demand
MBAS=Methylene Blue Active Substances
MTBE= Methyl Tertiary Butyl Ether
TKN=Total Kjeldahl Nitrogen
PCBs=Polychlorinated Biphenyls

1.1.2 Precision, Bias, Accuracy, Representativeness, Completeness, and Comparability

The overall quality of analytical measurements is assessed through evaluation of precision, accuracy/bias, representativeness, comparability and completeness. Precision and accuracy/bias are measured quantitatively. Representativeness and comparability are both assessed qualitatively. Completeness is assessed in both quantitative and qualitative terms. The following sections examine how these measures are typically applied.

1.1.2.1 Precision

Precision provides an assessment of mutual agreement between repeated measurements. These measurements apply to field duplicates, laboratory duplicates, matrix spike duplicates, and laboratory control sample duplicates. Monitoring of precision through the process allows for the evaluation of the consistency of field sampling and laboratory analyses.

The Relative Percent Difference (RPD) will be used to evaluate precision based upon duplicate samples. The RPD is calculated for each pair of data is calculated as:

$$RPD=[(x_1-x_2)*100]/[(x_1+x_2)/2)$$

Where:

x_1=concentration or value of sample 1 of the pair

x_2=concentration or value of sample 2 of the pair

In the case of matrix spike/spike duplicate, RPDs are compared with measurement quality objectives (MQOs) established for the program. MQOs will be established to be consistent with the most current SWAMP objectives in the SWAMP Quality Assurance Project Plan (2008) including the most recent updates as well as consultations with the laboratories performing the analyses. In the case of laboratory or field duplicates, values can often be near or below the established reporting limits. The most current SWAMP guidelines rely upon matrix spike/spike duplicate analyses for organic compounds instead of using laboratory duplicates since one or both values are often below detection limits or are near the detection limits. In such cases, RPDs do not provide useful information.

1.1.2.2 Bias

Bias is the systematic inherent in a method or caused by some artifact or idiosyncrasy of the measurement system. Bias may be either positive or negative and can emanate from a number of different points in the process. Although both positive and negative biases may exist concurrently in the same sample, the net bias is all that can be reasonably addressed in this project. Bias is preferably measured through analysis of spiked samples so that matrix effects are incorporated.

1.1.2.3 Accuracy

Accuracy is a measure of the closeness of a measurement or the average of a number of measurements to the true value. Accuracy includes of a combination of random error as measured by precision and systematic error as measured by bias. An assessment of the accuracy of measurements is based on determining the percent difference between measured values and known or “true” values applied to surrogates, Matrix Spikes (MS), Laboratory Control Samples (LCS) and Standard Reference Materials (SRM). Surrogates and matrix spikes evaluate matrix interferences on analytical performance, while laboratory control samples, standard reference materials and blank spikes (BS) evaluate analytical performance in the absence of matrix effects.

Assessment of the accuracy of measurements is based upon determining the difference between measured values and the true value. This is assessed primarily through analysis of spike recoveries or certified value ranges for SRMs. Spike recoveries are calculated as Percent Recovery according to the following formula:

Percent Recovery= $[(t-x)/\alpha]*100\%$

Where:

t=total concentration found in the spiked sample

x=original concentration in sample prior to spiking, and

α=actual spike concentration added to the sample

1.1.2.4 Representativeness, Comparability and Completeness

Representativeness is the degree to which data accurately and precisely represents the natural environment. For stormwater runoff, representativeness is first evaluated based upon the automated flow-composite sample and the associated hydrograph. To be considered as representative, the autosampler must have effectively triggered to capture initial runoff from the pavement and the composite sample should:

- be comprised of a minimum number of aliquots over the course of the storm event,
- effectively represent the period of peak flow,
- contain flow-weighted aliquots from over 80% of the total runoff volume, and
- demonstrate little or no evidence of “stacking”.

Stacking occurs when the sampling volume is set too low and commands back up in the memory of an autosampler causing it to continuously cycle until it catches up with the accumulation of total flow measured by the stormwater monitoring station.

Representativeness is also assessed through the process of splitting or subsampling 20 L composite bottles into individual sample containers being sent to the laboratory. The first subsamples removed from the composite bottle should have the same composition as the last. Subsampling should be conducted in accordance with guidance in the subsampling SOP. This SOP is based upon use of large laboratory magnetic stir plate, an autosampler, and precleaned subsampling hoses to minimize variability. Sample splitting can introduce a substantial amount of error especially if significant quantities of coarse sediments (greater than 250 μm) represent as significant fraction of the suspended sediments. Use of a USGS Teflon churns or Decaport cone splitter may also be used but would require development of a separate SOP.

Comparability is the measure of confidence with which one dataset can be compared to another. The use of standardized methods of chemical analysis and field sampling and processing are ways of insuring comparability. Application of consistent sampling and processing procedures is necessary for assuring comparability among data sets. Thorough documentation of these procedures, quality assurance activities and a written assessment of data validation and quality are necessary to provide others with the basic elements to evaluate comparability.

Completeness is a measure of the percentage of the data judged valid after comparison with specific validation criteria. This includes data lost through accidental breakage of sample containers or other activities that result in irreparable loss of samples. Implementation of standardized Chain-of-Custody procedures which track samples as they are transferred between custodians is one method of maintaining a high level of completeness.

A high level of completeness is essential to all phases of this study due to the limited number of samples. Of course, the overall goal is to obtain completeness of 100%, however, a realistic data quality indicator of 95% insures an adequate level of data return.

1.1.3 Laboratory Quality Assurance/Quality Control

The quality of analytical data is dependent on the ways in which samples are collected, handled and analyzed. Data Quality Objectives provide the standards against which the data are compared to determine if they meet the quality necessary to be used to address program objectives. Data will be subjected to a thorough verification and validation process designed to evaluate project data quality and determine whether data require qualification.

The three major categories of QA/QC checks are accuracy, precision, and contamination were discussed in the previous section. As a minimum, the laboratory will incorporate analysis of method blanks, and matrix spike/spike duplicates with each analytical batch. Laboratory duplicates will be analyzed for analytical tests where matrix spike/spike duplicate are not analyzed. Use of Certified Reference Materials (CRM) or Standard Reference Materials (SRM) is also recommended as these allow assessment of long term performance of the analytical methods so that representativeness can be assessed. Laboratories often use an internal CRM that is analyzed with each batch to evaluate any potential long-term shift in performance of the analytical procedures. Recommended minimum quality control samples are provided in **Error! Reference source not found.**.

1.1.4 Field QA/QC

1.1.4.1 Blanks

A thorough system of blanking is an essential element of monitoring. Much of the blanking processes are performed well in advance of the actual monitoring in order to demonstrate that all equipment expected to contact water is free of contaminants at the detection limits established for the program. Equipment components are cleaned in batches. Subsamples from each cleaning batch are rinsed with Type 1 laboratory blank water and submitted to the laboratory for analysis. If hits are encountered in any cleaning batch, the entire batch is put back through the cleaning and blanking process until satisfactory results are obtained. If contaminants are measured in the blanks, it is often prudent to reexamine the cleaning processes and equipment or materials used in the cleaning process. Equipment requiring blanks and the frequency of blanks is summarized below and in Table 2.

Table 2. Summary of Blanking Requirements for Field Equipment.

System Component	Blanking Frequency
Intake Hose	One per batch
Peristaltic Pump Hose	One per batch[1] or 10% for batches greater than 10
Composite Bottles	One per batch or 10% for batches greater than 10
Subsampling Pump Hose	One per batch or 10% for batches greater than 10
Laboratory Sample Containers	2% of the lot[2] or batch, minimum of one
Capsule Filter Blank[3]	One per batch or 10% for batches greater than 10
Churn/Cone Splitter[4]	When field cleaning is performed, process one blank per session

[1] A batch is a group of samples that are cleaned at the same time and in the same manner.

[2] If decontaminated bottles are sent directly from the manufacturer, the batch would be the lot designated by the manufacturer in their testing of the bottles.

[3] If filtration is performed in the laboratory, the capsule filter blanks would be considered part of laboratory QA/QC.

[4] This is applicable to use of a churn or cone splitter to subsample flow-weighted composite samples into individual containers. Splitting may be performed by the sampling team in a protected, clean area or by the laboratory.

1.1.4.2 Field Duplicates

Composite subsampling duplicates associated with flow-weighted composite samples are often referred to as field duplicates but, in fact, they are subsampling replicates. These replicates help assess combined variability associated with subsampling from the composite container and variability associated with the analytical process. They are evaluated against the same criteria as used for laboratory duplicates.

1.1.5 Equipment Cleaning, Blanking and Tracking

Sample collection, handling, and processing materials can contribute and/or sorb trace elements within the time scales typical for collection, processing and analysis of runoff samples. Sampling artifacts are especially important when measured concentrations that are at or near analytical detection limits (Horowitz 1997). Therefore, great care is required to collect and process samples in a manner that will minimize potential contamination and variability in the sampling process (Breault and Granato 2000).

Sampling conducted to measure dissolved metals and other trace contaminants at levels relevant to EPA water quality criteria requires documentation that all sampling equipment is free of contamination and that the processes used to obtain and handle samples do not introduce contamination. This requires documentation that methods used to collect, process and analyze the samples do not introduce contamination. Documentation for the CIMP includes written procedures provided in Appendix B for cleaning all components of the sampling system, blanking processes necessary to verify that system components and sample handling are not introducing contamination, and a system of tracking deployment of protocol-cleaned equipment in the field as described in this section.

All composite containers and equipment used for sample collection in the field and/or sample storage in the laboratory will be decontaminated and cleaned prior to use. These include the FEP tubing, Teflon® lids, strainers and hoses/fittings that are used in the subsampling process (USGS 1993). Personnel assigned to clean and handle the equipment are thoroughly trained and familiar with the cleaning, blanking, and tracking procedures. In addition, all field sampling staff will be trained to be familiar with these processes so that they have a better understanding of the importance of using clean sampling procedures and the effort required to eliminate sources of contamination.

Sample contamination has long been considered one of the most significant problems associated with measurement of dissolved metals and may be accentuated with use of High Resolution Mass Spectroscopy (HRMS) methods for trace levels of organic constituents at levels three orders of magnitude lower than conventional GCMS methods. One of the major elements of QA/QC documentation is establishing that clean sampling procedures are used throughout the process and that all equipment used to collect and process the water samples are free of contamination.

Cleaning protocols are consistent with ASTM (2008) standard D5088 – 02 that covers cleaning of sampling equipment and sample bottles. The generalized cleaning process is based upon a series of washings that typically start with tap water with a phosphate-free detergent, a tap water rinse, soaking in a 10% solution of reagent grade nitric acid, and a final series of rinses with ASTM Type 1 water. Detailed procedures for decontamination of sampling equipment are provided in Appendix A. In addition, Appendix G of the most recent Caltrans Stormwater Monitoring Guidance Manual (Caltrans, 2013) provides alternative cleaning procedure that incorporate use of methylene chloride to remove potential organic contaminants. Experience indicates that this step can be eliminated and still result in blanking data suitable for most target organic contaminants. Addition of this cleaning step or a comparable step to address organic contaminants may be necessary if satisfactory equipment blanks cannot be attained. Significant issues exist with respect to use of methylene chloride. This chemical is highly toxic, must be handled and disposed as a hazardous waste and is difficult to fully remove from the 20-L media bottles used as composite containers.

In order to account for any contamination introduced by sampling containers, blanks must be collected for composite bottles and laboratory bottles used for sample storage for trace contaminants. A sampling container blank is prepared by filling a clean container with blank water and measuring the concentrations of selected constituents (typically metals and other trace contaminants for composite bottles and metals analysis only for metals storage bottles). Blanking of the 20-L composite bottles will be performed by using the minimum amount of blank water necessary for the selected analytical tests. This is typically requires one to two liters. The bottle is capped and then manipulated to assure that all surfaces up to the neck of the bottle are rinsed. The water is then be allowed to sit for a minimum of one hour before decanting the rinse water into sample containers. In order to provide adequate control, media bottles are labelled and tracked. All media bottles cleaned and blanked in one batch are tracked to allow for recall if laboratory analyses reveal any contamination. Further tracking is required in the field to document where bottles from each cleaning batch are used and to assist in tracking of any contamination that might be detected after bottles have been deployed since laboratory turnaround in the middle of the storm season may require use of decontaminated bottles prior to receiving the results of the blank analyses.

Selected constituents for blanking will be dependent upon the list of contaminants with reasonable potential to be present at levels that could impact sample results. Minimum parameters used for blank analyses will include total recoverable trace metals, TDS, TOC and nutrients. Analysis of total metals will allow for detection of any residual metal contamination which will be of concern for all sampling. Nutrients, particularly nitrogen compounds, will assure that residual nitrogen from acid cleaning has been fully removed. TDS and TOC are useful for accessing presence of any residual contaminants. Additional blanking may be added when sampling other constituents with ultra-low analytical methods. These blanks may be submitted "blind" to the laboratory by field personnel or prepared internally by the laboratory.

Certified pre-cleaned QC-grade laboratory containers can be used. These bottles are cleaned using acceptable protocol for the intended analysis and tracked by lots. They come with standard certification forms that document the concentration to which the bottles are considered "contaminant-free" but these concentrations are not typically suitable for program reporting limits required for measurement of dissolved metals. Manufacturers may provide an option of certification to specific limits required by a project but it is preferable to purchase the QC bottles that are tracked by lot and conduct internal blanking studies. Lots not meeting project requirements should be returned to the manufacturer and exchanged for containers from another lot. At least 2% of the bottles in any "lot" or "batch" should be blanked at the program detection limits with a minimum frequency of one bottle per batch. A batch is considered to be a group of samples that are cleaned at the same time and in the same manner; or, if decontaminated bottles are sent directly from the manufacturer, the batch would be the lot designated by the manufacturer in their testing of the bottles. Cleaned bottles are stored in a clean area with lids properly secured.

Subsampling hoses consist of a length of peristaltic hose with short lengths of FEP tubing attached to each end. These are required to be cleaned inside and out since the FEP tubing is immersed in the composite bottle during the subsampling process. Once cleaned, the ends of the subsampling hoses are bagged. All hoses associated with the batch are then stored in large zip-lock containers labeled to identify the cleaning batch. Blanking of subsampling hoses is conducted as part of the composite bottle blanking process. A clean subsampling hose is used to decant blank water from the 20-L composite bottles into clean laboratory containers. Detection of any contaminants in the bottle blanks therefore requires that the subsampling hoses also are subjected another decontamination process. After cleaning, the subsampling hoses should only be handled while wearing clean, powder-free nitrile gloves.

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APPENDIX D

NON-STORMWATER IC/ID AND OUTFALL TRACKING

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Operation Procedures	
Illicit Discharge Detection & Elimination: Initial Outfall Screening	
Purpose:	This provides a basic checklist for field crews conducting initial survey of storm drainage system outfalls for use in identification of illicit discharges

Reference: Brown et al., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments,* Center for Watershed Protection, Ellicott City, 2004.

Planning Considerations:

- Employees should have reviewed and understand the information presented in Chapter 11 of the reference manual
- Inspections are to occur during dry weather (no runoff producing precipitation in last 72 hours)
- Conduct inspections with at least two staff per crew
- Conduct inspections during low groundwater (if appropriate).
- Complete ***Site Info section on Outfall Reconnaissance Inventory Form*** before leaving the office. Additional forms should be available for undocumented outfalls

Field Methods:

- Ensure outfall is accessible.
- Inspect outfall only if safe to do so.
- Characterize the outfall by recording information on the ***LCC Outfall Reconnaissance Inventory Form.***
- Photograph the outfall with a digital camera (use dry erase board to identify outfall).
- Enter flow information on form if dry weather flow is present and ***easily*** obtained. If not, provide rough estimate of flow.
- Document clean, dry outfalls for potential elimination during future screening programs.
- Water samples will not be collected during the initial survey. In-situ measurements of temperature, conductivity, and pH should be taken if significant flow is present.
- Do not enter private property without permission.
- Photograph each site with the site identification written on the dry erase board.

Equipment List:

1. System map
2. Outfall Reconnaissance Inventory Forms
3. City identification or business cards
4. Digital camera (spare batteries)
5. Cell phone
6. GPS unit
7. Clip board and pencils
8. Dry erase board and pens
9. Hand Mirror
10. Flashlight (spare batteries)
11. Disposable gloves
12. Folding wood ruler or comparable
13. Temperature, Conductivity probe
14. pH probe/strips
15. ***Ammonia test strips***
16. ***Ten1-liter (polyethylene) sample bottles***
17. Watch with second hand
18. Calculator
19. Hand sanitizer
20. Safety vests
21. First aid kit
22. ***Cooler***
23. Permanent marker

Bolded, italicized items will only be needed for later surveys. No water quality samples will be taken for laboratory analysis during the first survey.

LOWER SAN GABRIEL R. OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subbasin:		Outfall ID:	
TODAY'S DATE:		**TIME (MILITARY):**	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: ____
- Known Industries: ______________________________________

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: __________	☐ Circular ☐ Elliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: ______________________	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No ***If No, Skip to Section 5***				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	_____' _____"	Ft, In	Tape measure
	Measured length	_____' _____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Meter
pH			pH Units	Meter
Ammonia			mg/L	Test strip

Lower LA River Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1.	Sample for the lab?	☐ Yes	☐ No	
2.	If yes, collected from:	☐ Flow	☐ Pool	
3.	Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

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APPENDIX E

ANALYTICAL METHODS AND DETECTION LIMITS FOR THE LACFD AG LABORATORY

-APPLICABLE TO S13 AND S13 ME SITES

Table 3. Analytical Methods and Detection Limits of the Los Angeles County Flood Control Departments Ag Lab.

Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
Conventional Pollutants					
EPA 1664A	Oil and Grease	5	mg/L	5	1.44
EPA 420.1	Total Phenols	0.1	mg/L	0.1	0.03
SM 4500-CN- E	Cyanide	0.005	mg/L	0.005	0.005
SM 4500-H+ B	pH	0 - 14	pH	0.1	0.1
SM 2550B	Temperature	N/A	C	0.01	0.01
SM 4500-O G	Dissolved Oxygen	Sensitivity to 5	mg/L	1	1
BACTERIA (single sample limits)					
SM9221B	Total coliform (marine waters)	10,000	MPN/100ml	20	20
SM 9230B	Enterococcus (marine waters)	104	MPN/100ml	20	20
SM 9221E	Fecal coliform (marine & fresh waters)	400	MPN/100ml	20	20
SM 9221E/ Colilert-QT	E. coli (fresh waters)	235	MPN/100ml	1	1
GENERAL					
SM 4500-P E	Dissolved Phosphorus	0.05	mg/L	0.05	0.05
SM 4500-P E	Total Phosphorus	0.05	mg/L	0.05	0.05
SM 2130 B	Turbidity	0.1	NTU	0.1	0.1
SM 2540D	Total Suspended Solids	2	mg/L	2	1
SM 2540E	Volatile Suspended Solids	2	mg/L	1	1
SM 5310B	Total Organic Carbon	1	mg/L	1	0.5
EPA 418.1	Total Petroleum Hydrocarbon	5	mg/L	5	1.5
SM 5210 B	Biochemical Oxygen Demand	2	mg/L	2	1
SM 5220 D	Chemical Oxygen Demand	20-900	mg/L	20	10
SM 4500-NH3 C	Total Ammonia-Nitrogen	0.1	mg/L	0.1	0.1
SM4500-NH3 C	Total Kjeldahl Nitrogen	0.1	mg/L	0.1	0.1
EPA 300.0	Nitrate-N	0.1	mg/L	0.1	0.1
EPA 300.0	Nitrite -N	0.1	mg/L	0.1	0.1
SM 2320B	Alkalinity	2	mg/L	2	2
SM 2510 B	Specific Conductance	1	umho/cm	1	1
SM 2340C	Total Hardness	2	mg/L	2	2
SM 5540C	MBAS	0.5	mg/L	0.5	0.1
EPA 300.0	Chloride	2	mg/L	1	1
EPA 300.0	Fluoride	0.1	mg/L	0.1	0.1
EPA 624	Methyl tertiary butyl ether (MTBE)	1	mg/L	1	0.33
EPA 314.0	Perchlorate	4	µg/L	4	4
METALS (Dissolved & Total)					

Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
EPA 200.8	Aluminum	100	µg/L	100	50
EPA 200.8	Antimony	0.5	µg/L	0.5	0.5
EPA 200.8	Arsenic	1	µg/L	1	0.2
EPA 200.8	Beryllium	0.5	µg/L	0.5	0.1
EPA 200.8	Cadmium	0.25	µg/L	0.25	0.1
EPA 218.6	Chromium (Hexavalent)	5	µg/L	5	0.25
EPA 200.8	Chromium (total)	0.5	µg/L	0.5	0.5
EPA 200.8	Copper	0.5	µg/L	0.5	0.5
EPA 200.8	Iron	100	µg/L	100	50
EPA 200.8	Lead	0.5	µg/L	0.5	0.2
EPA 245.1	Mercury	0.5	µg/L	0.5	0.1
EPA 200.8	Nickel	1	µg/L	1	0.5
EPA 200.8	Selenium	1	µg/L	1	0.5
EPA 200.8	Silver	0.25	µg/L	0.25	0.1
EPA 200.8	Thallium	1	µg/L	1	0.1
EPA 200.8	Zinc	1	µg/L	1	1
	SEMIVOLATILE ORGANIC COMPOUNDS **ACIDS**				
EPA 625	2-Chlorophenol	2	µg/L	2	0.67
EPA 625	4-Chloro-3-methylphenol	1	µg/L	1	1
EPA 625	2,4-Dichlorophenol	1	µg/L	1	1
EPA 625	2,4-Dimethylphenol	2	µg/L	2	0.67
EPA 625	2,4-Dinitrophenol	5	µg/L	5	1
EPA 625	2-Nitrophenol	10	µg/L	10	1
EPA 625	4-Nitrophenol	5	µg/L	5	1
EPA 625	Pentachlorophenol	2	µg/L	2	0.67
EPA 625	Phenol	1	µg/L	1	0.33
EPA 625	2,4,6-Trichlorophenol	10	µg/L	10	3.33
	BASE/NEUTRAL				
EPA 625	Acenaphthene	1	µg/L	1	0.33
EPA 625	Acenaphthylene	2	µg/L	2	0.67
EPA 625 SIM	Acenaphthylene	2	µg/L		
EPA 625	Anthracene	2	µg/L	2	0.67
EPA 625	Benzidine	5	µg/L	5	1.67
EPA 625	1,2 Benzanthracene	5	µg/L	5	1.67
EPA 625	Benzo(a)pyrene	2	µg/L	2	0.67
EPA 625	Benzo(g,h,i)perylene	5	µg/L	5	1.67
EPA 625	3,4 Benzofluoranthene	10	µg/L	10	3.33

Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
EPA 625	Benzo(k)flouranthene	2	µg/L	2	0.67
EPA 625	Bis(2-Chloroethoxy) methane	5	µg/L	5	1.67
EPA 625	Bis(2-Chloroisopropyl) ether	2	µg/L	2	0.67
EPA 625	Bis(2-Chloroethyl) ether	1	µg/L	1	0.33
EPA 625	Bis(2-Ethylhexyl) phthalate	5	µg/L	5	1.67
EPA 625	4-Bromophenyl phenyl ether	5	µg/L	5	1.67
EPA 625	Butyl benzyl phthalate	10	µg/L	10	3.33
EPA624	2-Chloroethyl vinyl ether	1	µg/L	1	0.33
EPA 625	2-Chloronaphthalene	10	µg/L	10	3.33
EPA 625	4-Chlorophenyl phenyl ether	5	µg/L	5	1.67
EPA 625	Chrysene	5	µg/L	5	1.67
EPA 625	Dibenzo(a,h)anthracene	0.1	µg/L	0.1	0.033
EPA 625	1,3-Dichlorobenzene	1	µg/L	1	0.5
EPA 625	1,4-Dichlorobenzene	1	µg/L	1	0.5
EPA 625	1,2-Dichlorobenzene	1	µg/L	1	0.5
EPA 625	3,3-Dichlorobenzidine	5	µg/L	5	1.67
EPA 625	Diethyl phthalate	2	µg/L	2	1
EPA 625	Dimethyl phthalate	2	µg/L	2	1
EPA 625	di-n-Butyl phthalate	10	µg/L	10	3.33
EPA 625	2,4-Dinitrotoluene	5	µg/L	5	1.67
EPA 625	2,6-Dinitrotoluene	5	µg/L	5	1.67
EPA 625	4,6 Dinitro-2-methylphenol	5	µg/L	5	1
EPA 625	1,2-Diphenylhydrazine	1	µg/L	1	0.33
EPA 625	di-n-Octyl phthalate	10	µg/L	10	3.33
EPA 625	Fluoranthene	0.05	µg/L	0.05	0.017
EPA 625	Fluorene	0.1	µg/L	0.1	0.033
EPA 625	Hexachlorobenzene	1	µg/L	1	0.33
EPA 625	Hexachlorobutadiene	1	µg/L	1	0.33
EPA 625	Hexachloro-cyclopentadiene	5	µg/L	5	1.67
EPA 625	Hexachloroethane	1	µg/L	1	0.33
EPA 625	Indeno(1,2,3-cd)pyrene	0.05	µg/L	0.05	0.017
EPA 625	Isophorone	1	µg/L	1	0.33
EPA 625	Naphthalene	0.2	µg/L	0.2	0.067
EPA 625	Nitrobenzene	1	µg/L	1	0.33
EPA 625	N-Nitroso-dimethyl amine	5	µg/L	5	1.67
EPA 625	N-Nitroso-diphenyl amine	1	µg/L	1	0.33
EPA 625	N-Nitroso-di-n-propyl amine	5	µg/L	5	1.67
EPA 625	Phenanthrene	0.05	µg/L	0.05	0.017

Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
EPA 625	Pyrene	0.05	µg/L	0.05	0.017
EPA 625	1,2,4-Trichlorobenzene	1	µg/L	1	0.33
Chlorinated Pesticides					
EPA 608	Aldrin	0.005	µg/L	0.005	0.005
EPA 608	alpha-BHC	0.01	µg/L	0.01	0.01
EPA 608	beta-BHC	0.005	µg/L	0.005	0.005
EPA 608	delta-BHC	0.005	µg/L	0.005	0.005
EPA 608	gamma-BHC (lindane)	0.02	µg/L	0.02	0.02
EPA 608	alpha-chlordane	0.1	µg/L	0.1	0.1
EPA 608	gamma-chlordane	0.1	µg/L	0.1	0.1
EPA 608	4,4'-DDD	0.05	µg/L	0.05	0.05
EPA 608	4,4'-DDE	0.05	µg/L	0.05	0.05
EPA 608	4,4'-DDT	0.01	µg/L	0.01	0.01
EPA 608	Dieldrin	0.01	µg/L	0.01	0.01
EPA 608	alpha-Endosulfan	0.02	µg/L	0.02	0.02
EPA 608	beta-Endosulfan	0.01	µg/L	0.01	0.01
EPA 608	Endosulfan sulfate	0.05	µg/L	0.05	0.05
EPA 608	Endrin	0.01	µg/L	0.01	0.01
EPA 608	Endrin aldehyde	0.01	µg/L	0.01	0.01
EPA 608	Heptachlor	0.01	µg/L	0.01	0.01
EPA 608	Heptachlor Epoxide	0.01	µg/L	0.01	0.01
EPA 608	Toxaphene	0.5	µg/L	0.5	0.5
POLYCHLORINATED BIPHENYLS					
EPA 608	Aroclor-1016	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1221	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1232	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1242	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1248	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1254	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1260	0.5	µg/L	0.5	0.5
ORGANOPHOSPHATE PESTICIDES					
EPA507	Atrazine	2	µg/L	2	0.667
EPA507	Chlorpyrifos	0.05	µg/L	0.05	0.02
EPA507	Cyanazine	2	µg/L	2	0.667
EPA507	Diazinon	0.01	µg/L	0.01	0.003
EPA507	Malathion	1	µg/L	1	0.33
EPA507	Prometryn	2	µg/L	2	0.67
EPA507	Simazine	2	µg/L	2	0.67
HERBICIDES					
EPA 515.3	2,4-D	10	µg/L	0.2	0.02
EPA 547	Glyphosate	5	µg/L	5	5
EPA 515.3	2,4,5-TP-SILVEX	0.5	µg/L	0.2	0.067

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APPENDIX F

SEDIMENT AND WATER QUALITY DATA QUALITY OBJECTIVES FOR THE LOS ANGELES COUNTY SANITATION DISTRICT MONITORING AT R8.

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Table 1. Analytical Methods and Detection Limits Applicable to NPDES Monitoring in Receiving Waters - Los Angeles County Sanitation District.

CMP	COMPOUND	RL	UNITS
METALS AND HARDNESS			
7429-90-5	Aluminum	10	ug/l
7440-36-0	Antimony	0.5	ug/l
7440-38-2	Arsenic	1	ug/l
7440-39-3	Barium	0.5	ug/l
7440-41-7	Beryllium	0.25	ug/l
7440-42-8	Boron	0.02	mg/l
7440-43-9	Cadmium	0.2	ug/l
7440-70-2	Calcium	0.02	mg/l
7440-47-3	Chromium	0.5	ug/l
7440-47-3(3+)	Trivalent Chromium	0.5	ug/l
7440-48-4	Cobalt	0.25	ug/l
7440-50-8	Copper	0.5	ug/l
7439-89-6	Iron	0.02	mg/l
7439-92-1	Lead	0.25	ug/l
7439-95-4	Magnesium	0.02	mg/l
7439-96-5	Manganese	1	ug/l
7439-98-7	Molybdenum	0.25	ug/l
7440-02-0	Nickel	1	ug/l
7440-09-7	Potassium	0.2	mg/l
7782-49-2	Selenium	1	ug/l
7440-21-3	Silicon	0.02	mg/l
7440-22-4	Silver	0.2	ug/l
7440-23-5	Sodium	0.2	mg/l
7440-24-6	Strontium	0.2	ug/l
7440-28-0	Thallium	0.25	ug/l
7440-31-5	Tin	0.5	ug/l
7440-32-6	Titanium	2	ug/l
7440-62-2	Vanadium	1	ug/l
7440-66-6	Zinc	1	ug/l
SiO2	Si as SiO2	0.04	mg/l
CaHARDNESS	Calcium Hardness as CaCO3	0.05	mg/l
MgHARDNESS	Magnesium Hardness as CaCO3	0.08	mg/l
HARDNESS	Total Hardness as CaCO3	0.05	mg/l
PCBS			
12674-11-2	Aroclor 1016	0.1	ug/l
11104-28-2	Aroclor 1221	0.5	ug/l
11141-16-5	Aroclor 1232	0.3	ug/l
53469-21-9	Aroclor 1242	0.1	ug/l
12672-29-6	Aroclor 1248	0.1	ug/l

11097-69-1	Aroclor 1254	0.05	ug/l
11096-82-5	Aroclor 1260	0.1	ug/l
OC PESTICIDES			
309-00-2	Aldrin	0.005	ug/l
319-84-6	alpha-BHC	0.01	ug/l
319-85-7	beta-BHC	0.005	ug/l
5103-73-1	cis-Nonachlor	0.01	ug/l
319-86-8	delta-BHC	0.005	ug/l
60-57-1	Dieldrin	0.01	ug/l
959-98-8	Endosulfan I	0.01	ug/l
33213-65-9	Endosulfan II	0.01	ug/l
1031-07-8	Endosulfan sulfate	0.01	ug/l
72-20-8	Endrin	0.01	ug/l
7421-93-4	Endrin aldehyde	0.01	ug/l
58-89-9	gamma-BHC (Lindane)	0.01	ug/l
5103-71-9	alpha-Chlordane	0.01	ug/l
5103-74-2	gamma-Chlordane	0.01	ug/l
76-44-8	Heptachlor	0.01	ug/l
28044-83-9	Heptachlor epoxide (Isomer A)	0.01	ug/l
1024-57-3	Heptachlor epoxide (Isomer B)	0.01	ug/l
72-43-5	Methoxychlor	0.01	ug/l
2385-85-5	Mirex	0.05	ug/l
53-19-0	o,p'-DDD	0.01	ug/l
3424-82-6	o,p'-DDE	0.01	ug/l
789-02-6	o,p'-DDT	0.01	ug/l
26880-48-8	Oxychlordane	0.01	ug/l
72-54-8	p,p'-DDD	0.01	ug/l
72-55-9	p,p'-DDE	0.01	ug/l
50-29-3	p,p'-DDT	0.01	ug/l
12789-03-6	Technical Chlordane	0.05	ug/l
8001-35-2	Toxaphene	0.5	ug/l
56534-02-2	cis-Chlordene	0.02	ug/l
56641-38-4	trans-Chlordene	0.01	ug/l
39765-80-5	trans-Nonachlor	0.01	ug/l
959-98-8	Endosulfan I	0.01	ug/l
33213-65-9	Endosulfan II	0.01	ug/l
1031-07-8	Endosulfan sulfate	0.01	ug/l
7421-93-4	Endrin aldehyde	0.01	ug/l
PAHS			
83-32-9	Acenaphthene	0.02	ug/l
208-96-8	Acenaphthylene	0.02	ug/l
120-12-7	Anthracene	0.02	ug/l
56-55-3	Benzo(a)anthracene	0.02	ug/l

205-99-2	Benzo(b)fluoranthene	0.02	ug/l
207-08-9	Benzo(k)fluoranthene	0.02	ug/l
50-32-8	Benzo(a)pyrene	0.02	ug/l
191-24-2	Benzo(g,h,i)perylene	0.02	ug/l
218-01-9	Chrysene	0.02	ug/l
53-70-3	Dibenzo(a,h)anthracene	0.02	ug/l
206-44-0	Fluoranthene	0.02	ug/l
86-73-7	Fluorene	0.02	ug/l
193-39-5	Indeno(1,2,3-cd)pyrene	0.02	ug/l
91-20-3	Naphthalene	0.02	ug/l
85-01-8	Phenanthrene	0.02	ug/l
129-00-0	Pyrene	0.02	ug/l

Table 2. Reporting Limits and Data Quality Objectives (DQOs) for Sediment Sampling at R8 for the Harbor Toxics Monitoring Program

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
Grain Size: Estuary Sediment								
Sediment grain size	None	N/A	N/A	Laboratory Duplicate - RPD < 25%	90%	ABC	<2000 - >0.2	µm
Nutrients: Estuary Sediment								
Total Kjeldahl Nitrogen	None	None	N/A	Laboratory Duplicate - RPD < 25%	90%	IIRMES	0.04	mg/Kg dw
Phosphorus as P	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	80 - 120%	Laboratory duplicate, Blind Field duplicate, or MS/MSD 25%. RPD Laboratory duplicate minimum.	90%	IIRMES	0.05	mg/Kg dw
Total Organic Carbon	Total					IIRMES	0.02	% dw
Metals: Estuary Sediment								
Arsenic	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike. Matrix spikes sometimes have poor recovery in sediments, in which case a case a CRM and an LCS may be	75 -125% (70 - 130 % for Hg)	Laboratory Duplicate and Matrix Spike (or CRM) Duplicate - RPD < 25%	90%	IIRMES	0.5	mg/Kg dw
Cadmium	Total					IIRMES	0.4	mg/Kg dw
Chromium	Total					IIRMES	0.5	mg/Kg dw
Copper	Total					IIRMES	0.8	mg/Kg dw
Iron	Total					IIRMES	10	mg/Kg dw
Lead	Total					IIRMES	0.1	mg/Kg dw
Mercury	Total					IIRMES	0.02	mg/Kg dw
Nickel	Total					IIRMES	0.5	mg/Kg dw
Selenium	Total					IIRMES	0.5	mg/Kg dw
Zinc	Total					IIRMES	0.5	mg/Kg dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
		used.						
Organochlorine Pesticides: Estuary Sediment								
Aldrin	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	50 - 150%	Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%	IIRMES	1	ng/g dw
Chlordane, cis-	Total		50 - 150%			IIRMES	1	ng/g dw
Chlordane, trans-	Total		50 - 150%			IIRMES	1	ng/g dw
DDD(o,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDD(p,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDE(o,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDE(p,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDT(o,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDT(p,p')	Total		50 - 150%			IIRMES	1	ng/g dw
Dieldrin	Total		50 - 150%			IIRMES	1	ng/g dw
Endosulfan I	Total		50 - 150%			IIRMES	5	ng/g dw
Endosulfan II	Total		50 - 150%			IIRMES	5	ng/g dw
Endosulfan Sulfate	Total		50 - 150%			IIRMES	5	ng/g dw
Endrin	Total		50 - 150%			IIRMES	5	ng/g dw
Endrin Aldehyde	Total		33 - 138%			IIRMES	5	ng/g dw
Endrin Ketone	Total		50 - 150%			IIRMES	5	ng/g dw
HCH, alpha	Total		50 - 150%			IIRMES	1	ng/g dw
HCH, beta	Total		50 - 150%			IIRMES	1	ng/g dw
HCH, delta	Total		50 - 150%			IIRMES	1	ng/g dw
HCH, gamma	Total		50 - 150%			IIRMES	1	ng/g dw
Heptachlor	Total		50 - 150%			IIRMES	1	ng/g dw
Heptachlor Epoxide	Total		50 - 150%			IIRMES	1	ng/g dw
Methoxychlor	Total		34 - 143%			IIRMES	1	ng/g dw
Mirex	Total		50 - 150%			IIRMES	1	ng/g dw
Nonachlor, cis-	Total		50 - 150%			IIRMES	1	ng/g dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
Nonachlor, trans-	Total		50 - 150%			IIRMES	1	ng/g dw
Oxychlordane	Total		50 - 150%			IIRMES	1	ng/g dw
Toxaphene	Total		50 - 150%			IIRMES	1	
PCBs: Estuary Sediment								
PCB 003	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	50 - 150 %	Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%	IIRMES	0.2	ng/g dw
PCB 008	Total					IIRMES	0.2	ng/g dw
PCB 018	Total					IIRMES	0.2	ng/g dw
PCB 028	Total					IIRMES	0.2	ng/g dw
PCB 031	Total					IIRMES	0.2	ng/g dw
PCB 033	Total					IIRMES	0.2	ng/g dw
PCB 037	Total					IIRMES	0.2	ng/g dw
PCB 044	Total					IIRMES	0.2	ng/g dw
PCB 049	Total					IIRMES	0.2	ng/g dw
PCB 052	Total					IIRMES	0.2	ng/g dw
PCB 056	Total					IIRMES	0.2	ng/g dw
PCB 056/060	Total					IIRMES	0.2	ng/g dw
PCB 060	Total					IIRMES	0.2	ng/g dw
PCB 066	Total					IIRMES	0.2	ng/g dw
PCB 070	Total					IIRMES	0.2	ng/g dw
PCB 074	Total					IIRMES	0.2	ng/g dw
PCB 077	Total					IIRMES	0.2	ng/g dw
PCB 081	Total					IIRMES	0.2	ng/g dw
PCB 087	Total					IIRMES	0.2	ng/g dw
PCB 095	Total					IIRMES	0.2	ng/g dw
PCB 097	Total					IIRMES	0.2	ng/g dw
PCB 099	Total					IIRMES	0.2	ng/g dw
PCB 101	Total					IIRMES	0.2	ng/g dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
PCB 105	Total					IIRMES	0.2	ng/g dw
PCB 110	Total					IIRMES	0.2	ng/g dw
PCB 114	Total					IIRMES	0.2	ng/g dw
PCB 118	Total					IIRMES	0.2	ng/g dw
PCB 119	Total					IIRMES	0.2	ng/g dw
PCB 123	Total					IIRMES	0.2	ng/g dw
PCB 126	Total					IIRMES	0.2	ng/g dw
PCB 128	Total					IIRMES	0.2	ng/g dw
PCB 138	Total					IIRMES	0.2	ng/g dw
PCB 141	Total					IIRMES	0.2	ng/g dw
PCB 149	Total					IIRMES	0.2	ng/g dw
PCB 151	Total					IIRMES	0.2	ng/g dw
PCB 153	Total					IIRMES	0.2	ng/g dw
PCB 156	Total					IIRMES	0.2	ng/g dw
PCB 157	Total					IIRMES	0.2	ng/g dw
PCB 158	Total					IIRMES	0.2	ng/g dw
PCB 167	Total					IIRMES	0.2	ng/g dw
PCB 168	Total					IIRMES	0.2	ng/g dw
PCB 168/132	Total					IIRMES	0.2	ng/g dw
PCB 169	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	50 - 150 %	Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%	IIRMES	0.2	ng/g dw
PCB 170	Total					IIRMES	0.2	ng/g dw
PCB 174	Total					IIRMES	0.2	ng/g dw
PCB 177	Total					IIRMES	0.2	ng/g dw
PCB 180	Total					IIRMES	0.2	ng/g dw
PCB 183	Total					IIRMES	0.2	ng/g dw
PCB 187	Total					IIRMES	0.2	ng/g dw
PCB 189	Total					IIRMES	0.2	ng/g dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
PCB 194	Total					IIRMES	0.2	ng/g dw
PCB 195	Total					IIRMES	0.2	ng/g dw
PCB 209	Total					IIRMES	0.2	ng/g dw
PAHs: Estuary Sediment		Reference Material (CRM, SRM or LCS) and Matrix Spike		Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%			
Acenaphthene	Total		50 - 150%			IIRMES	5	ng/g dw
Acenaphthylene	Total		50 - 150%			IIRMES	5	ng/g dw
Anthracene	Total		50 - 150%			IIRMES	5	ng/g dw
Benz(a)anthracene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(a)pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(b)fluoranthene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(e)pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(g,h,i)perylene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(k)fluoranthene	Total		50 - 150%			IIRMES	5	ng/g dw
Biphenyl	Total		50 - 150%			IIRMES	5	ng/g dw
Chrysene	Total		50 - 150%			IIRMES	5	ng/g dw
Dibenz(a,h)anthracene	Total		50 - 150%			IIRMES	5	ng/g dw
Dibenzothiophene	Total		50 - 150%			IIRMES	5	ng/g dw
Dimethylnaphthalene, 2,6-	Total		50 - 150%			IIRMES	5	ng/g dw
Fluoranthene	Total		50 - 150%			IIRMES	5	ng/g dw
Fluorene	Total		50 - 150%			IIRMES	5	ng/g dw
Indeno(1,2,3-c,d)pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Methylnaphthalene, 1-	Total		50 - 150%			IIRMES	5	ng/g dw
Methylnaphthalene, 2-	Total		50 - 150%			IIRMES	5	ng/g dw
Methylphenanthrene, 1-	Total		50 - 150%			IIRMES	5	ng/g dw
Naphthalene	Total		41 - 109%			IIRMES	5	ng/g dw
Perylene	Total		50 - 150%			IIRMES	5	ng/g dw
Phenanthrene	Total		50 - 150%			IIRMES	5	ng/g dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
Pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Trimethylnaphthalene, 2,3,5-	Total		50 - 150%			IIRMES	5	ng/g dw
Toxicity: Estuary Sediment								
Eohaustorius sp.	N/A	Meets EPA control response standards; DMR intralab results w/in criteria	N/A	Ref Tox ± 2 SD of preceding 20 tests	90%	ABC	N/A	Survival (%)
Mytilus Sediment Water Interface	N/A					ABC		Mortality/ Normality (%)
Invertebrate Identifications: Estuary Sediment								
Sampling	N/A	≤10 seconds of nominal Lat/Long (300 m radius)	N/A	N/A	90%	ABC	1.0 seconds Lat/Long	N/A
Sorting	N/A	A minimum of 10% of all material will be resorted. Sorting accuracy within 5% (equivalent to 95% removal efficiency).	95 % Sorting Efficiency	N/A	90%	ABC	N/A	N/A

Table 4. Data Quality Objectives for Water Quality Monitoring during Dry Weather at R8

	Accuracy			
Parameter	**Requirements**	**Recovery**	**Precision**	**Completeness**
Temperature-field pH-field instrumentation Dissolved Oxygen- field				90%
CONVENTIONALS Oil and Grease Total Petroleum Hydrocarbon Total Phenols Cyanide Turbidity Total Suspended Solids Total Dissolved Solids Volatile Suspended Solids Total Organic Carbon Biochemical Oxygen Demand Chemical Oxygen Demand Alkalinity Specific Conductance Total Hardness MBAS Chloride Fluoride Perchlorate	Field Duplicate Laboratory Duplicate Matrix Spike/Spike Dup	80 - 120%	Field Duplicate - RPD < 25% Laboratory Dup. - RPD < 25%	90%
VOLATILE Methyl tertiary butyl ether (MTBE)				
BACTERIA Total coliform (marine waters) Fecal coliform (marine waters) Enterococcus (marine waters) E. coli (fresh waters)	None	N/A	Laboratory Duplicate - RPD < 25%	90%
NUTRIENTS Total Kjeldahl Nitrogen (TKN) Nitrate as Nitrogen (NO3-N) Nitrite as Nitrogen (NO2-N) Total Nitrogen Ammonia as Nitrogen (NH3-N) Total Phosphorus Dissolved Phosphorus	Reference Material (CRM, SRM or LCS) and Matrix Spike	80 - 120%	Laboratory duplicate, Blind Field duplicate, or MS/MSD 25%. RPD Laboratory duplicate minimum.	90%

APPENDIX G

MINIMUM CRITERIA FOR EVALUATION OF WATER QUALITY CONSTITUENTS IN TABLE E-2 OF THE MRP

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SUMMARY OF MINIMUM APPLICABLE WATER QUALITY CRITERIA FOR THE SAN GABRIEL RIVER WATERSHED

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Oil and Grease	5	mg/L	Basin Plan	Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.	N/A		
Total Phenols	100	µg/L	None	None	N/A		
Cyanide (Total)	5	µg/L	CTR Freshwater (1 hr avg.)	22	µg/L		
			CTR Freshwater (4 day avg.)	5.2			
pH	0 - 14	N/A	MS4 MAL[1]	7.7	N/A		
			Basin Plan	The pH of inland surface waters shall not be depressed below 6. 5 or raised above 8. 5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0. 5 units from natural conditions as a result of waste discharge. The pH of bays or estuaries shall not be depressed below 6. 5 or raised above 8. 5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0. 2 units from natural conditions as a result of waste discharge.			
Temperature	None	°F	Basin Plan	The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. Alterations that are allowed must meet the requirements below. For waters designated WARM, water temperature shall not be altered by more than 5 °F above the natural temperature. At no time shall these WARM designated waters be raised above 80 °F as a result of waste discharges. For waters designated COLD, water temperature shall not be altered by more than 5 °F above the natural temperature.	°F		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Dissolved Oxygen	Sensitivity to 5 mg/L	mg/L	Basin Plan	At a minimum (see specifics below), the mean annual dissolved oxygen concentration of all waters shall be greater than 7 mg/L, and no single determination shall be less than 5.0 mg/L, except when natural conditions cause lesser concentrations.	mg/L		
				The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges.			
				The dissolved oxygen content of all surface waters designated as COLD shall not be depressed below 6 mg/L as a result of waste discharges.			
				The dissolved oxygen content of all surface waters designated as both COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.			
Fecal coliform (fresh waters)	20	MPN/100 ml	Basin Plan (REC-1, log mean, >= 4 samples for any 30-day period)	200	MPN/100 ml	Daily Maximum	
			Basin Plan (REC-1, <10% samples during any 30-day period)	400			
E. coli (fresh waters)	1	MPN/100 ml	None	None	N/A		
Dissolved Phosphorus	0.05	mg/L	Basin Plan	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.	mg/L		
Total Phosphorus	0.05	mg/L	MS4 MAL	0.8	mg/L		
Turbidity	0.1	NTU	Basin Plan	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits: (1) Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%; (2) Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%; (3) Allowable zones of dilution within which higher concentrations may be tolerated may be defined for each discharge in specific Waste Discharge Requirements.	NTU		

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	Minimum Level		Water Quality Objective/Criterion			Notes	
Constituent	Value	Units	Source	Value	Units		
Total Suspended Solids (TSS)	2	mg/L	Basin Plan	Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.			
			MS4 MAL	264.1	mg/L		
Suspended Sediment Concentration (SSC)	0.5	mg/L	Basin Plan	Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.	mg/L		
Total Dissolved Solids (TDS)	2	mg/L	USEPA Secondary MCL	500	mg/L		
			CA Dept. Public Health Recommended Upper Level	1,000			
			CA Dept. Public Health Recommended Short-term Level	1,500			
Volatile Suspended Solids (VSS)	2	mg/L	Basin Plan	Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.	mg/L		
Total Organic Carbon (TOC)	1	mg/L	None	None	N/A		
Total Petroleum Hydrocarbons (extractable fraction, i.e., diesel and motor oil range hydrocarbons)	5	mg/L	None	None	none		
Biochemical Oxygen Demand	2	mg/L	Basin Plan	Waters shall be free of substances that result in increases in the BOD which adversely affect beneficial uses.			
Chemical Oxygen Demand	20-900	mg/L	MAL	247.5	mg/L		
Total Ammonia-Nitrogen (NH_3-N)	0.1	mg/L	Basin Plan	Varies based on pH and temperature for Cold waters and Warm Waters (Table 3-1 to 3-4 of Basin Plan)			
Total Kjeldahl Nitrogen (TKN)	0.1	mg/L	MS4 MAL	4.59	mg/L		
Nitrate+Nitrite (NO_2+NO_3 as N)	0.1	mg/L	MS4 MAL	1.85			
			Basin Plan	10 as NO3-N + NO2-N			

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Alkalinity	2	mg/L	USEPA National Recommended Water Quality Criteria (Freshwater)	20,000	ug/L		
Specific Conductance	1	umho/cm	CA Dept. Public Health Secondary MCL	900	µmhos/cm		
Total Hardness (as CaCO3)	2	mg/L	None	None	N/A		
Methylene Blue Active Substances (MBAS)	500	µg/L	CA Dept. Public Health Secondary MCL	500	µg/L		
			Basin Plan Federal MCL	500			
Chloride	2	mg/L	Basin Plan	150	mg/L		
Fluoride	100	µg/L	CA Dept. Public Health MCL (drinking water)	2,000	µg/L		
Methyl tertiary butyl ether (MTBE)	1000	µg/L	USEPA National Recommended Water Quality Criteria 4-day average (freshwater)	51,000	µg/L		
			USEPA National Recommended Water Quality Criteria 1-hour average (freshwater)	151,000	µg/L		
Perchlorate	4	µg/L	CA Dept. Public Health MCL (drinking water)	6	µg/L		
Aluminum	100	µg/L	USEPA National Recommended Water Quality Criteria 4-day average (freshwater)	87	µg/L	-	
			USEPA National Recommended Water Quality Criteria 1-hour average (freshwater)	750		-	
Antimony	0.5	ug/L	USEPA National Recommended Water Quality Criteria Freshwater (acute)	9000	µg/L		
			USEPA National Recommended Water Quality Criteria Freshwater (chronic)	1600			

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Arsenic	1	µg/L	CTR Freshwater (1 hr avg.) dissolved	340	µg/L		
			CTR Freshwater (4 day avg.) dissolved	150	µg/L		
Beryllium	0.5	µg/L	USEPA National Recommended Water Quality Criteria Freshwater (acute)	130	µg/L		
			USEPA National Recommended Water Quality Criteria Freshwater (chronic)	5.3			
Cadmium	0.25	µg/L	MS4 MAL	2.52	µg/L		
			CTR Freshwater (1 hr avg.) dissolved	1.6	µg/L		
			CTR Freshwater (4-day avg.) dissolved	1.1			
Chromium	0.5	µg/L	MS4 MAL	20.2	µg/L		
			National Toxics Rule Freshwater (4-day avg.) dissolved	84			
			National Toxics Rule Freshwater (1-hour avg.) dissolved	260			
Chromium (Hexavalent)	5	µg/L	CTR Freshwater (1 hr avg.) dissolved	16	ug/L		
			CTR Freshwater (4 day avg.) dissolved	11			

Constituent	Minimum Level Value	Minimum Level Units	Water Quality Objective/Criterion Source	Water Quality Objective/Criterion Value	Water Quality Objective/Criterion Units	Notes	
Copper	0.5	µg/L	CTR Freshwater (1 hr avg.) dissolved	5.7	ug/L		
			CTR Freshwater (4 day avg.) dissolved	4.1			
			San Gabriel River Metals TMDL	Dry Weather: Coyote Creek 0.941	kg/day	Calculated based upon the median flow at LACDPW Station F354-R of 19 cfs multiplied by the numeric target of 20 µg/L, minus direct air deposition of 0.002 kg/d.	
				Dry Weather: San Gabriel River Estuary 3.7	ug/L		
				Dry Weather: San Gabriel River Reach 1 18			
				Wet Weather: Coyote Creek 24.71		Multiply WLA by daily storm volume (L)	
Iron	100	µg/L	USEPA National Recommended Water Quality Criteria 4-day average (freshwater)	1,000	ug/L		
Lead	0.5	ug/L	CTR Freshwater (1 hr avg.) dissolved	24	ug/L		
			CTR Freshwater (4 day avg.) dissolved	0.92			
			San Gabriel River Metals TMDL	Wet Weather: Coyote Creek 96.99	ug/L	Multiply WLA by daily storm volume (L)	
				Wet Weather: San Gabriel River Reach 2 81.34			
				Wet Weather: San Jose Creek Reach 1 81.34			

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Nickel	1	µg/L	MS4 MAL	27.43	µg/L		
			CTR Freshwater (1 hr avg.) dissolved	220			
			CTR Freshwater (4 day avg.) dissolved	24			
Selenium	1	µg/L	CTR Freshwater (1 hr avg.) dissolved	20	ug/L		
			CTR Freshwater (4 day avg.) dissolved	5			
			San Gabriel River Metals TMDL	San Jose Creek Reach 1 0.228	kg/day		
Silver	0.25	µg/L	CTR Freshwater (1 hr avg.)	0.71	ug/L		
Thallium	1	µg/L	USEPA National Recommended Water Quality Criteria chronic (freshwater)	40	ug/L		
			USEPA National Recommended Water Quality Criteria acute (freshwater)	1400			
Zinc	1	µg/L	CTR Freshwater (1 hr avg.) dissolved	54	ug/L		
			CTR Freshwater (4 day avg.) dissolved	54			
			San Gabriel River Metals TMDL	Wet Weather: Coyote Creek 144.57	ug/L	Multiply WLA by daily storm volume (L)	
				Dry Weather: San Jose Creek Reach 1 5			
Mercury	0.5	µg/L	CTR Human Health Protection (30-d avg; fish consumption only)	0.051	µg/L		
2-Chloroethylvinyl ether[4]	1	µg/L	None	None	µg/L		
2-Chlorophenol	2	µg/L	CTR Human Health Protection (Sources of Drinking water)	120	µg/L		
4-Chloro-3-methylphenol	1	µg/L	USEPA National Recommended Water Quality Criteria (Taste & Odor)	3,000	µg/L		
2,4-Dichlorophenol	1	µg/L	CTR Human Health Protection (Sources of Drinking water)	93	µg/L		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
2,4-Dimethylphenol	2	µg/L	CTR Human Health Protection (Sources of Drinking water)	540	µg/L		
2,4-Dinitrophenol	5	µg/L	CTR Human Health Protection (Sources of Drinking water)	70	µg/L		
2-Nitrophenol	10	µg/L	None	None	N/A		
4-Nitrophenol	5	µg/L	None	None	N/A		
Pentachlorophenol	2	µg/L	CTR Fresh Water (4 day avg.) at pH 6.5	4	ug/L		
			CTR Freshwater (1 hr avg.) at pH 6.5	5.3			
Phenol	1	µg/L	CTR Human Health Protection (Sources of Drinking water)	21,000	µg/L		
2,4,6-Trichlorophenol	10	µg/L	CTR Human Health Protection (Sources of Drinking water)	2.1	µg/L		
Acenaphthene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	170	µg/L		
			USEPA National Recommended Water Quality Criteria toxicity to algae	520			
Acenaphthylene	2	µg/L	None	None	N/A		
Anthracene	2	µg/L	CTR Human Health Protection (other waters)	110,000	µg/L		
Benzidine	5	µg/L	CTR Human Health Protection (Sources of Drinking water)	0.00012	µg/L		
1,2 Benzanthracene	5	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Benzo(a)pyrene	2	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Benzo(g,h,i)perylene	5	µg/L	None	None	N/A		
3,4 Benzoflouranthene	10	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Benzo(k)flouranthene	2	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Bis(2-Chloroethoxy) methane	5	µg/L	None	None	N/A		
Bis(2-Chloroisopropyl) ether	2	µg/L	None	None	N/A		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Bis(2-Chloroethyl) ether	1	µg/L	None	None	N/A		
Bis(2-Ethylhexl) phthalate	5	µg/L	National Toxics Rule (other waters)	5.9	N/A		
4-Bromophenyl phenyl ether	5	µg/L	None	None	N/A		
Butyl benzyl phthalate	10	µg/L	None	None	N/A		
2-Chloronaphthalene	10	µg/L	None	None	N/A		
4-Chlorophenyl phenyl ether	5	µg/L	None	None	N/A		
Chrysene	5	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Dibenzo(a,h)anthracene	0.1	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
1,3-Dichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	1,120	µg/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	763			
1,4-Dichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	1,120	µg/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	763			
1,2-Dichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	1,120	µg/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	763			
3,3-Dichlorobenzidine	5	µg/L	None	None	N/A		
Diethyl phthalate	2	µg/L	None	None	N/A		
Dimethyl phthalate	2	µg/L	None	None	N/A		
Di-n-Butyl phthalate	10	µg/L	None	None	N/A		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
2,4-Dinitrotoluene	5	µg/L	None	None	N/A		
2,6-Dinitrotoluene	5	µg/L	USEPA Toxicity LOEL	330 (acute)	µg/L		
				230 (chronic)			
4,6 Dinitro-2-methylphenol	5	µg/L	None	None	N/A		
1,2-Diphenylhydrazine	1	µg/L	None	None	N/A		
Di-n-Octyl phthalate	10	µg/L	USEPA Toxicity LOEL	940 acute	µg/L		
				3 chronic			
Fluoranthene	0.05	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	398	ug/L		
Fluorene	0.1	µg/L	CTR Human Health Protection (other waters)	14,000	ug/L		
Hexachlorobenzene	1	µg/L	None	None	N/A		
Hexachlorobutadiene	1	µg/L	None	None	N/A		
Hexachloro-cyclopentadiene	5	µg/L	None	None	N/A		
Hexachloroethane	1	µg/L	None	None	N/A		
Indeno(1,2,3-cd)pyrene	0.05	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Isophorone	1	µg/L	None	None	N/A		
Naphthalene	0.2	µg/L	USEPA National Recommended Water Quality Criteria chronic (freshwater)	620	ug/L		
			USEPA National Recommended Water Quality Criteria acute (freshwater)	2,300			
Nitrobenzene	1	µg/L	None	None	N/A		
N-Nitroso-dimethyl amine	5	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	585	ug/L		
N-Nitroso-diphenyl amine	1	µg/L	None	None	N/A		
N-Nitroso-di-n-propyl amine	5	µg/L	None	None	N/A		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Phenanthrene	0.05	µg/L	None	None	N/A		
Pyrene	0.05	µg/L	CTR Human Health Protection (other waters)	11,000	ug/L		
1,2,4-Trichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	250	ug/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	50			
Aldrin	0.005	µg/L	CTR freshwater instantaneous max.	3	ug/L		
alpha-BHC	0.01	µg/L	CTR Human Health Protection (other waters)	0.013	ug/L		
beta-BHC	0.005	µg/L	CTR Human Health Protection (other waters)	0.046	ug/L		
delta-BHC	0.005	µg/L	None	None	N/A		
gamma-BHC (lindane)	0.02	µg/L	CTR Freshwater (1 hr avg.)	0.95	ug/L		
alpha-chlordane[1]	0.1	µg/L	None	None	N/A		
gamma-chlordane[1]	0.1	µg/L	None	None	N/A		
4,4'-DDD	0.00004	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	0.06	ug/L		
4,4'-DDE	0.00008	ug/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	105	ug/L		
4,4'-DDT	0.00008	µg/L	CTR Freshwater (4-day avg.)	0.001	ug/L		
			CTR freshwater instantaneous max.	1.1			
Dieldrin	0.01	µg/L	CTR Freshwater (1 hr avg.)	0.24	ug/L		
			CTR Freshwater (4-day avg.)	0.056			
alpha-Endosulfan	0.02	µg/L	CTR Freshwater (1 hr avg.)	0.22	ug/L		
			CTR Freshwater (4-day avg.)	0.056			
beta-Endosulfan	0.01	µg/L	CTR Freshwater (1 hr avg.)	0.22	ug/L		
			CTR Freshwater (4-day avg.)	0.056			

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Endosulfan sulfate	0.05	µg/L	USEPA 24 hr avg	0.056	µg/L		
Endrin	0.01	µg/L	CTR Freshwater (1 hr avg.)	0.086	µg/L		
			CTR Freshwater (4-day avg.)	0.036			
Endrin aldehyde	0.01	µg/L	None	None	N/A		
Heptachlor	0.01	µg/L	National Toxics Rule Freshwater (4-day avg.)	0.0038	ug/L		
			CTR freshwater instantaneous max.	0.52			
Heptachlor epoxide	0.01	µg/L	National Toxics Rule Freshwater (4-day avg.)	0.0038	ug/L		
			CTR freshwater instantaneous max.	0.52			
Toxaphene	0.5	µg/L	CTR Freshwater (1 hr avg.)	0.73	ug/L		
			CTR Freshwater (4-day avg.)	0.0002			
Total PCBs (sum of 166 congeners)	range for all congeners: 0.000005-0.000020	µg/L	National Toxics Rule Freshwater (4-day avg.)	0.014	ug/L		
	Total PCBs: 0.00002		California Primary MCL	0.5			
Atrazine	2	µg/L	USEPA National Recommended Water Quality Criteria Freshwater (1-hour avg)	1,500	ug/L		
Chlorpyrifos	0.05	µg/L	California Dept. of Fish and Game Freshwater (1-hour avg)	0.02	ug/L		
			California Dept. of Fish and Game Freshwater (4-day avg)	0.014			
Cyanazine	2	µg/L	None	None	N/A		
Diazinon	0.01	µg/L	California Dept. of Fish and Game Freshwater (4-day avg)	0.05	µg/L		
			California Dept. of Fish and Game Freshwater (1-hour avg)	**0.08**			
Malathion	1	µg/L	USEPA National Recommended Water Quality Criteria for Freshwater Aquatic Life (max instant.)	0.1	µg/L		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Prometryn	2	µg/L	None	None	N/A		
Simazine	2	µg/L	USEPA National Recommended Water Quality Criteria for Freshwater Aquatic Life (max instant.)	10	µg/L		
2,4-D	10	µg/L	USEPA National Recommended Water Quality Criteria (water+fish consumption)	100	ug/L		
Glyphosate	5	µg/L	None	None	N/A		
2,4,5-TP-SILVEX	0.5	µg/L	USEPA National Recommended Water Quality Criteria (water+fish consumption)	10	ug/L		

[1] MAL = Municipal Action Level as defined by Los Angeles County Permit Order No. R4-2012-0175 Attachment G.

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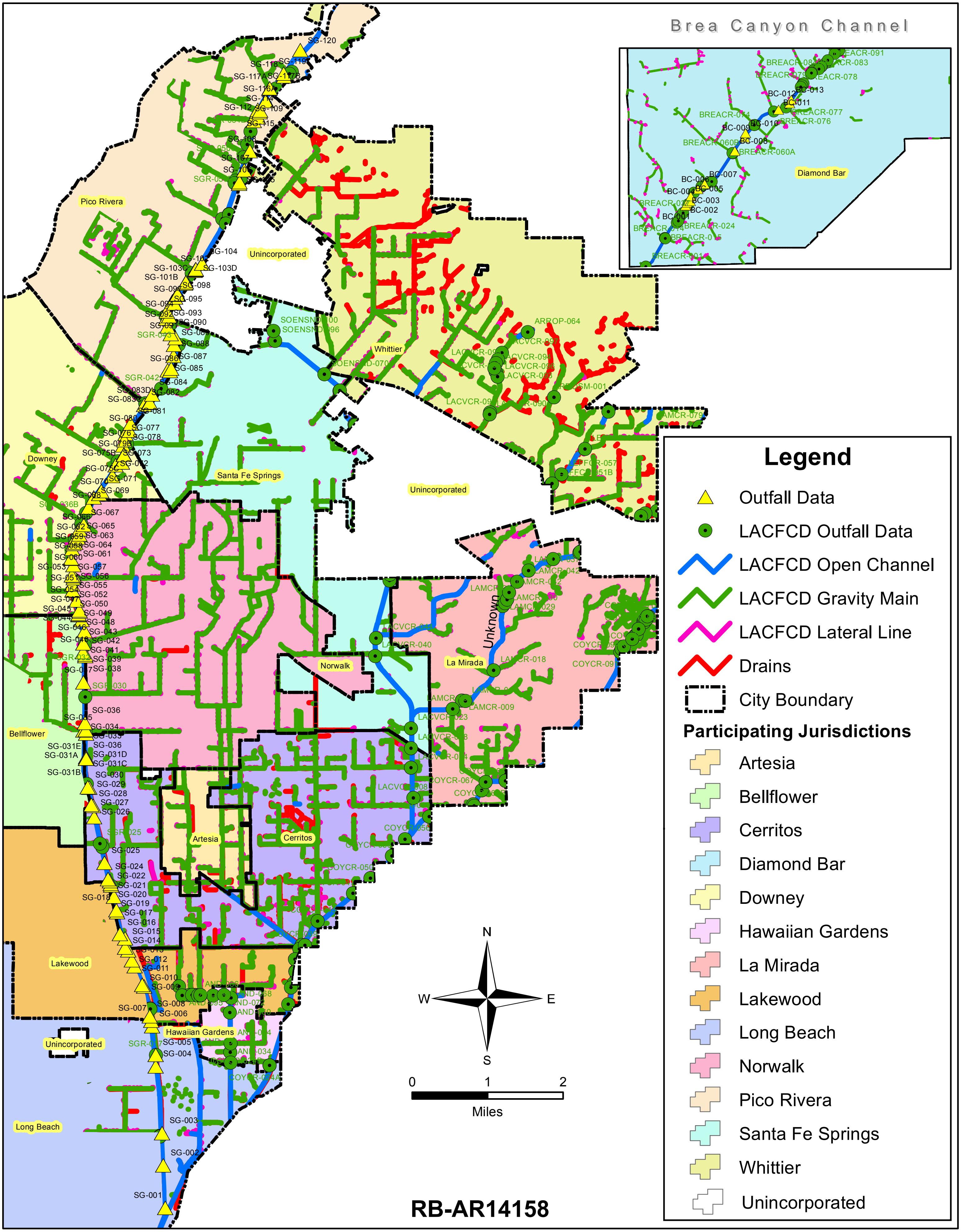
APPENDIX H

Outfall Identification

Per Section VII, Attachment E

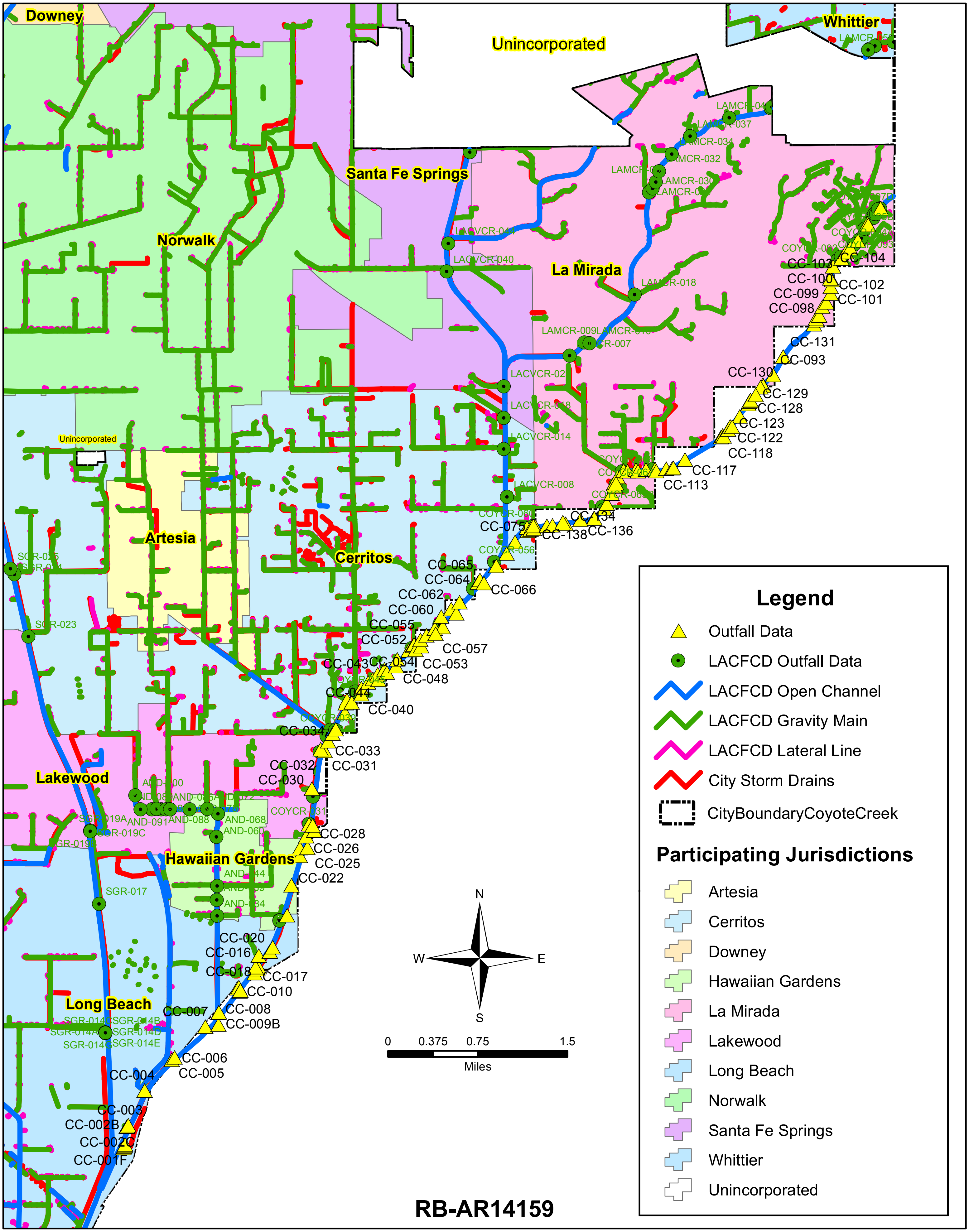
Outfalls 12 inches and greater were surveyed. Maps showing the location of these outfalls are contained in this Appendix. Photographs collected during the survey and a database with outfall attributes is available upon request

San Gabriel River

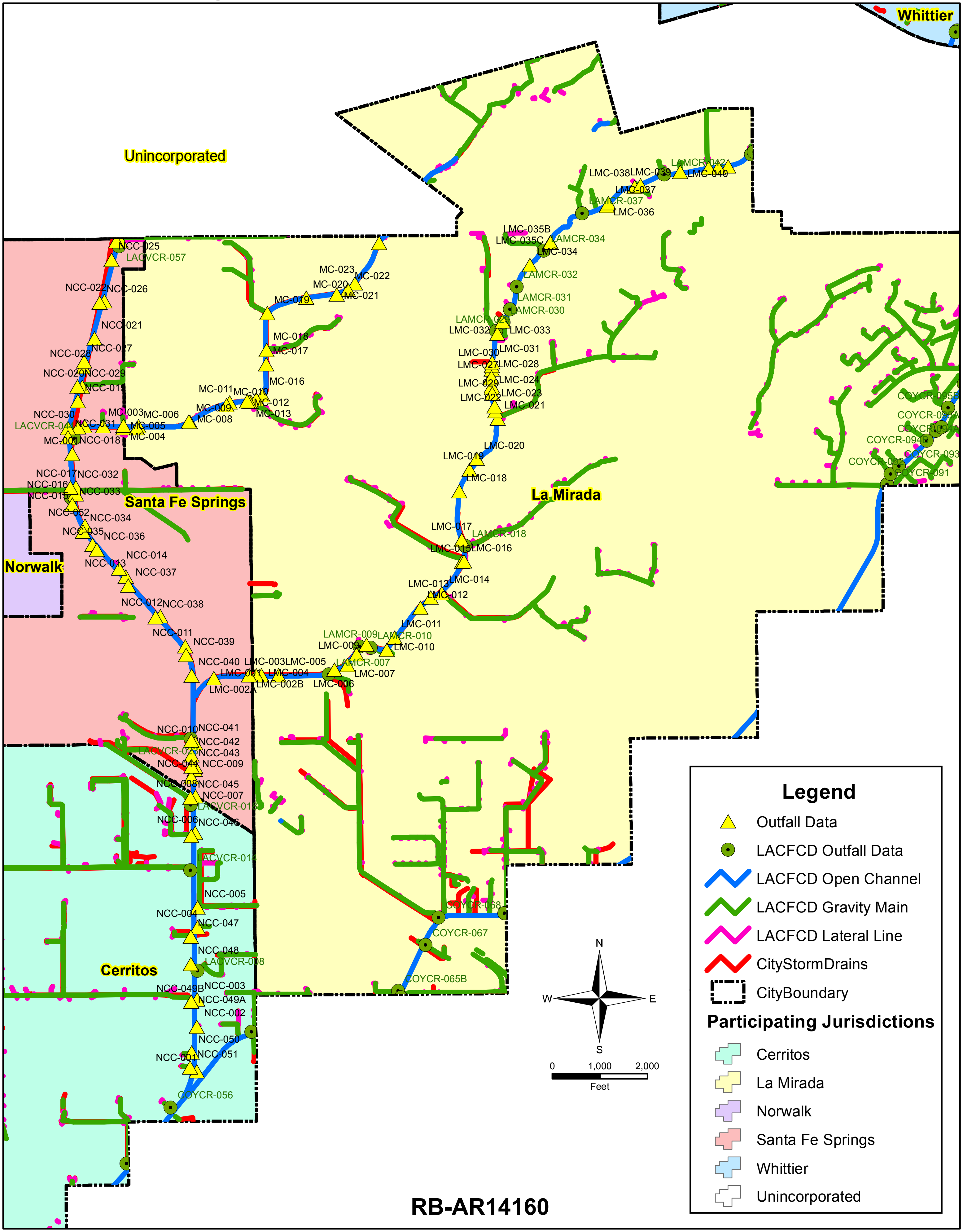


RB-AR14158

Coyote Creek Channel



North Coyote Creek Channel and Tributaries



RESOLUTION NO. 14-2431

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ARTESIA, CALIFORNIA APPROVING A GREEN STREETS POLICY

WHEREAS, the new Municipal Separate Storm Sewer System Permit (MS4 Permit) (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012 and requires development of Watershed Management Programs (WMPs) or Enhanced Watershed Management Programs (EWMPs) for each watershed that an agency lies in among other requirements; and

WHEREAS, municipalities electing to prepare a WMP or an EWMP under this MS4 Permit are required to demonstrate that Green Street policies are in place that specify the use of green street strategies for transportation corridors; and

WHEREAS, Green Streets are enhancements to street and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration measures such as bioretention and infiltration trenches and dry wells; bio-treatment/infiltration measures such flow-through planters and vegetated swales; treatment Best Management Practices (BMPs) such as catch basin filters and screens; and implementing and maintaining xeriscaped parkways and tree lined streets; and

WHEREAS, that since February 26, 2012, the City has worked in conjunction with the Gateway Water Management Authority for the development of a Green Street Policy.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF ARTESIA CALIFORNIA, HEREBY DETERMINES, FINDS AND RESOLVES AS FOLLOWS:

Section 1. The City Council hereby adopts as its Green Streets Policy the Green Streets Manual as shown in Exhibit "A," attached hereto and incorporated herein by this reference.

Section 2. The City Council of the City of Artesia, California, hereby directs the Community Development Director to implement Green Streets for city-owned transportation corridors and road projects that add 10,000 square feet or more of impervious area following the City of Artesia's Green Streets Manual, as show in Exhibit "A" which is based on the USEPA's Wet Weather with Green Infrastructure guidance (December 2008 EPA-833-F-08-009).

Section 3. Routine maintenance including but not limited to slurry seals, grind and overlay and reconstruction to maintain original line and grade are excluded from the Green Street Policy.

Section 4. The Community Development Director is authorized to make non-substantive changes to the City of Artesia's Green Streets manual consistent with the requirements of the MS4 Permit.

Section 5. The adoption of this Resolution and the timing thereof is mandated by the action of the Los Angeles Regional Water Quality Control board ("LARWQCB"). In this case, the City is acting at the direction of the LARWQCB and federal law to protect, maintain, restore and enhance natural resources and the environment. To comply with the requirements of the LARWQCB, the City Council determines that the Green Streets Manual will not have a significant effect on the environment, and finds that the adoption of this Ordinance is categorically exempt from the requirements of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines Sections 15307 and 15308.

Section 6. At its regular meeting held on June 9, 2014, the City Council determined that the public interest and necessity justify the adoption of the Green Street Policy.

Section 7. This resolution was posted in three (3) public places in the City of Artesia, California.

PASSED, APPROVED, AND ADOPTED at a regular meeting of the City Council of the City of Artesia, California, on this 9th ~~day of~~ June 2014.

TONY LIMA, MAYOR

ATTEST:

GLORIA CONSIDINE,
CITY CLERK/CITY TREASURER

I, Gloria Considine, City Clerk of the City of Artesia, California, hereby certify that Resolution No. 14-2431 was adopted by the City Council of the City of Artesia California, at a regular meeting held on the 9th day of June 2014, and that the same was adopted by the following vote:

AYES:	Council Members:	Flowers, Manalo, Taj, Canales and Lima
NOES:	Council Members:	None
ABSTAIN:	Council Members:	None
ABSENT:	Council Members:	None

ORDINANCE NO. 14-810

AN ORDINANCE OF THE CITY OF ARTESIA AMENDING THE CITY OF ARTESIA STORM WATER MANAGEMENT AND DISCHARGE CONTROL ORDINANCE, CODIFIED AT CHAPTER 7 OF TITLE 6 OF THE ARTESIA MUNICIPAL CODE, TO IMPOSE LOW IMPACT DEVELOPMENT (LID) REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, AND MAKING A DETERMINATION OF EXEMPTION UNDER CEQA

THE CITY COUNCIL OF THE CITY OF ARTESIA DOES ORDAIN AS FOLLOWS:

Section 1. Findings.

A. The federal Clean Water Act (33 U.S.C. § 1251 *et seq.*,) provides for the regulation and reduction of pollutants discharged into the waters of the United States by extending National Pollutant Discharge Elimination System ("NPDES") requirements to storm water and urban runoff discharge into municipal storm drain systems.

B. Storm water and urban runoff flows from individual properties onto streets, then through storm drains passing through the City and finally into the waters of the United States.

C. The City is a co-permittee under the "Waste Discharge Requirements for Municipal Separate Storm Sewer System" ("MS4") discharges within the Coastal Watersheds of Los Angeles County, except those discharges originating from the City of Long Beach MS4, which also serves as a NPDES Permit under the federal Clean Water Act (NPDES No. CAS614001), as well as waste discharge requirements under California law (the "Municipal NPDES Permit") and, as a co-permittee under the Municipal NPDES Permit, the City is required to adopt ordinances and implement procedures with respect to the entry of non-storm water discharges into the municipal storm water system.

D. Part III, Section A of the Municipal NPDES Permit requires the City to effectively prohibit non-storm water discharges from within its boundaries, into that portion of the MS4 that it owns or operates and into watercourses, except where such discharges are: (1) in compliance with a separate individual or general NPDES permit, or (2) identified and in compliance with Part III.A (non-storm water discharges) of the Municipal NPDES Permit, or (3) originate from federal, state or other facilities that the City is preempted from regulating, and further provides that compliance with the terms of the Municipal NPDES Permit through the development and implementation of the programs described in the Municipal NPDES Permit will constitute compliance with the discharge prohibition in the Municipal NPDES Permit.

E. Part VI, Section A.2 of the Municipal NPDES Permit requires the City to establish and maintain the legal authority necessary to control discharges to and from those portions of the MS4 over which it has jurisdiction, so as to comply with the Municipal NPDES Permit and to specifically prohibit certain discharges identified in the Municipal NPDES Permit.

F. The Municipal NPDES Permit contemplates the development of a Watershed Management Program in which the City will participate, which will in turn require the development and the implementation of programs for, among other things, the elimination of illicit connections and illicit discharges, development planning, development construction, and public information and education requirements, and which may require the later adoption of additional legal authority to implement such programs as they are developed by the permittees and approved by the Regional Board.

G. This Ordinance sets forth requirements for the construction and operation of certain commercial development, new development and redevelopment and other projects that are intended to ensure compliance with the storm water mitigation measures prescribed in the Municipal NPDES Permit. This Ordinance also authorizes the City Manager, or his or her designee, to define and adopt applicable best management practices and other storm water pollution control measures to carry out all inspections, including entering entities discharging to the MS4, conduct surveillance, conduct monitoring, cite infractions and to impose fines pursuant to Chapter 7 of Title 6 of the Artesia Municipal Code.

H. In order to control, in a cost-effective manner, the quantity and quality of storm water and urban runoff to the maximum extent practicable, the adoption of this Ordinance is essential.

I. The City Council plans to approve and enter into interagency agreements as deemed necessary by the City Council to control the contribution of pollutants of the shared MS4.

Section 2. The adoption of this Ordinance and the timing thereof is mandated by the action of the Los Angeles Regional Water Quality Control board ("LARWQCB"). In this case, the City is acting at the direction of the LARWQCB and federal law to protect, maintain, restore and enhance natural resources and the environment. To comply with the requirements of the LARWQCB, the City Council finds that the adoption of this Ordinance is categorically exempt from the requirements of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guildelines Sections 15307 and 15308.

Section 3. Chapter 7 ("Storm Water Management and Discharge Control") of Title 6 ("Sanitation and Health") of the Artesia Municipal Code is hereby amended in its entirety to read as follows:

"6-7.01 Title.

This chapter shall be known as the "City of Artesia Storm Water Management and Discharge Control Ordinance."

6-7.02 Purpose and Intent.

(a) The purpose of this chapter is to ensure the future health, safety and general welfare of the citizens of the City and the water quality of the receiving waters of the County of Los Angeles and surrounding coastal areas by:

(1) Reducing pollutants in storm water discharges to the maximum extent practicable;

(2) Regulating illicit connections and illicit discharges and reducing the level of contamination of storm water and urban runoff in the municipal storm water system; and

(3) Regulating non-storm water discharges to the municipal storm water system.

(b) The intent of this chapter is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the Municipal NPDES Permit.

(c) This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal storm water system over which it has jurisdiction as required by the Municipal NPDES Permit, and fully and timely comply with the terms of the Municipal NPDES Permit while the Watershed Management Program is being developed by the permittees under the Municipal NPDES Permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequently adopted Watershed Management Program, or other programs developed under the Municipal NPDES Permit.

(d) This chapter also sets forth requirements for the construction and operation of certain commercial development, new development and redevelopment and other projects (as further defined herein) that are intended to ensure compliance with the storm water mitigation measures prescribed in the current MS4 Permit. This chapter authorizes the Director to define and adopt applicable best management practices and other storm water pollution control measures, as provided herein, to carry out all inspections including entering entities discharging to the MS4, conduct surveillance, conduct monitoring, cite infractions and to impose fines pursuant to this chapter. Except as otherwise provided herein, the Director shall administer, implement and enforce the provisions of this section.

6-7.03 Definitions.

Except as specifically provided herein, any term used in this chapter shall be defined as that term is defined in the current Municipal NPDES Permit, or if it is not specifically defined in the Municipal NPDES Permit, then as such term is defined in the Federal Clean Water Act, as amended, or the regulations promulgated thereunder. If the definition of any term contained in this section conflicts with the definition of the same term in the current Municipal NPDES Permit, then the definition contained in the Municipal NPDES Permit shall govern. The following words and phrases shall have the following meanings when used in this chapter:

(a) *Area susceptible to runoff* shall mean any surface directly exposed to precipitation or in the path of runoff caused by precipitation, which path leads off the parcel on which the surface is located.

(b) *Automotive service facilities* shall mean a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539 provided that these facilities have no outside activities or materials that may be exposed to storm water.

(c) *Best Management Practices (BMPs)* shall mean practices or physical devices or systems designed to prevent or reduce pollutant loading from storm water or non-storm water discharges to receiving waters, or designed to reduce the volume of storm water or non-storm water discharged to the receiving water. Examples of BMPs may include public education and outreach, proper planning of development projects, proper cleaning of catch basin inlets, and proper sludge- or waste-handling and disposal, among others.

(d) *Biofiltration* shall mean a LID BMP that reduces storm water pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this chapter is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales.

(e) *Bioretention* shall mean a LID BMP that reduces storm water runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this chapter, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the Municipal NPDES Permit as biofiltration.

(f) *Bioswale* shall mean a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect storm water runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

(g) *City* shall mean the City of Artesia.

(h) *Clean Water Act (CWA)* shall mean the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

(i) *Commercial development* shall mean any development on private land that is not heavy industrial or residential. The category includes, without limitation, hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

(j) *Commercial malls* shall mean any development on private land comprised of one or more buildings forming a complex of stores that sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, without limitation, mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers.

(k) *Construction* shall mean any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that result in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Storm Water Discharges Associated with Construction Activities is required if more than one (1) acre is disturbed or the activities are part of a larger plan.

(l) *Control* shall mean to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

(m) *Development* shall mean any construction, rehabilitation, redevelopment or reconstruction of any: public or private residential project (whether single family, multi-unit or planned unit development); industrial, commercial, retail and other nonresidential projects, including public agency projects; or mass grading for future construction. "Development" does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

(n) *Directly adjacent* shall mean situated within two hundred (200) feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

(o) *Director* shall mean the City Manager or his or her designee.

(p) *Discharge* shall mean when used without qualification the discharge of a pollutant.

(q) *Discharge of a pollutant* shall mean any addition of any pollutant or combination of pollutants to waters of the United States from any point source or, any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft that is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff that is collected or channeled by a state, municipality, or other person that do not lead to treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

(r) *Discharging directly* shall mean outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

(s) *Discretionary project* is defined in the same manner as Section 15357 of the Guidelines for Implementation of the California Environmental Quality Act contained in Title 14 of the California Code of Regulations, as amended, and means a project that requires the exercise of judgment or deliberation when the City decides to approve or disapprove a particular activity, as distinguished from situations where the City merely has to determine whether there has been conformity with applicable statutes, ordinances or regulations.

(t) *Disturbed area* shall mean an area that is altered as a result of clearing, grading, and/or excavation.

(u) *Environmentally sensitive area (ESA)* shall mean an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and that would be easily disturbed or degraded by human activities and developments (Cal. Pub. Resources Code, § 30107.5). Areas subject to storm water mitigation requirements are areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning (1976) and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Games Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the Basin Plan as supporting the Rare, Threatened, or Endangered Species (RARE) beneficial use; and an area identified by the City as environmentally sensitive.

(v) *Evapotranspiration* shall mean the loss of water from the soil both by evaporation and by transpiration from the plants growing in the soil.

(w) *Flow-through treatment BMPs* shall mean a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

(x) *Full Capture System* shall mean any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a five millimeter (5 mm) mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage area.

(y) *Good housekeeping practices* shall mean common practices related to the storage, use or cleanup of materials, performed in a manner that minimizes the discharge of pollutants. Examples include, but are not limited to, purchasing only the quantity of materials to be used at a given time, use of alternative and less environmentally harmful products, cleaning up spills and leaks, and storing materials in a manner that will contain any leaks or spills.

(z) *General Construction Activities Storm Water Permit (GCASP)* shall mean the general NPDES permit adopted by the State Board that authorizes the discharge of storm water from construction activities under certain conditions.

(aa) *General Industrial Activities Storm Water Permit (GIASP)* shall mean the general NPDES permit adopted by the State Board that authorizes the discharge of storm water from certain industrial activities under certain conditions.

(bb) *Green roof* shall mean a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

(cc) *Hillside* shall mean property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is twenty-five (25) percent or greater and where grading contemplates cut or fill slopes.

(dd) *Illicit connection* shall mean any human-made conveyance that is connected to the storm drain system without a permit, excluding gutters, roof-drains and other similar connections. Examples include channels, pipelines, conduits, inlets or outlets that are connected directly to the storm drain system.

(ee) *Illicit discharge* shall mean any discharge to the storm drain system that is prohibited under local, state or federal statutes, ordinances, codes or regulations. This includes all non-storm water discharges except discharges pursuant to a separate NPDES permit and discharges that are exempted or conditionally exempted in accordance with Part III the Municipal NPDES permit.

(ff) *Industrial/Commercial facility* shall mean any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, without limitation, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

(gg) *Industrial park* shall mean land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

(hh) *Infiltration BMP* shall mean a LID BMP that reduces storm water runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

(ii) *Infiltration* shall mean the downward entry of water into the surface of the soil.

(jj) *Low Impact Development (LID)* consists of building and landscape features designed to retain or filter storm water runoff.

(kk) *Material* shall mean any substance including, without limitation: garbage and debris; lawn clippings, leaves, and other vegetation; biological and fecal waste; sediment and sludge; oil and grease; gasoline; paints, solvents, cleaners, and any fluid or solid containing chemicals.

(ll) *Municipal NPDES Permit* shall mean the Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach (Order No. R4-2012-0175), NPDES Permit No. CAS00401), issued by the California Regional Water Quality Control Board—Los Angeles Region, and any successor permit to that permit.

(mm) *Municipal Separate Storm Sewer System (MS4)* shall mean a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(1) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

(2) Designed or used for collecting or conveying storm water;

(3) Which is not a combined sewer; and

(4) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Section 122.2.

(nn) *New development* shall mean land-disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

(oo) *Non-storm water* discharge shall mean any discharge to a municipal storm water system that is not composed entirely of storm water.

(pp) *NPDES permit* shall mean any waste discharge requirements issued by the Regional Board or the State Water Resources Control Board in the form of an NPDES permit pursuant to Water Code Section 13370 (other than the Municipal NPDES Permit).

(qq) *Outfall* shall mean a point source as defined by 40 CFR Section 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two (2) municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR § 122.26(b)(9).)

(rr) *Parking lot* shall mean land area or a facility for the parking or storage of motor vehicles used for businesses, commerce, industry or personal use with a lot size of five thousand (5,000) square feet or more of surface area, or with twenty-five (25) or more parking spaces.

(ss) *Planning priority projects* shall mean those projects specified in Section 6-7.10(c) of this chapter that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective projects.

(tt) *Pollutant* shall mean those pollutants defined in Section 502(6) of the federal Clean Water Act (33 U.S.C. § 1362(6)), or incorporated into California Water Code Section 13373. Examples of pollutants include, without limitation, the following:

(1) Commercial and industrial waste (such as fuels, solvents, detergents, plastic pellets, hazardous substances, fertilizers, pesticides, slag, ash and sludge);

(2) Metals such as cadmium, lead, zinc, copper, silver, nickel, chromium, and nonmetals such as phosphorus and arsenic;

(3) Petroleum hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants and grease);

(4) Excessive eroded soils, sediment and particulate materials in amounts that may adversely affect the beneficial use of the receiving waters, flora or fauna of the state;

(5) Animal wastes (such as discharge from confinement facilities, kennels, pens, recreational facilities, stables and show facilities); and

(6) Substances having characteristics such as pH less than six or greater than nine, or unusual coloration or turbidity, or excessive levels of fecal coliform, or fecal streptococcus, or enterococcus.

The term "pollutant" shall not include uncontaminated storm water, potable water or reclaimed water generated by a lawfully permitted water treatment facility.

(uu) *Project* shall mean all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Cal. Pub. Resources Code, § 21065).

(vv) *Rainfall harvest and use* shall means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department (Order No. R4-2012-0175).

(ww) *Receiving water* shall mean "water of the United States" into which waste and/or pollutants are or may be discharged.

(xx) *Redevelopment* shall mean land-disturbing activity that result in the creation, addition, or replacement of five thousand (5,000) square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: (1) the expansion of a building footprint; (2) addition or replacement of a structure; (3) replacement of impervious surface area that is not part of routine maintenance activity; and (4) land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

(yy) *Regional Board* shall mean the California Regional Water Quality Control Board—Los Angeles Region.

(zz) *Restaurant* shall mean a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. (SIC Code 5812).

(aaa) *Retail gasoline outlet* shall mean any facility engaged in selling gasoline and lubricating oils.

(bbb) *Routine maintenance* includes, but is not limited to projects conducted to:

(1) Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

(2) Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.

(3) Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.

(4) Update existing lines and facilities, which include replacing existing lines with new materials or pipes, to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.

(5) Repair leaks.

"Routine maintenance" does not include construction of new lines or facilities resulting from compliance with applicable codes, standards and regulations.

(ccc) *Runoff* shall mean any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

(ddd) Significant Ecological Areas (SEAs). An area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan. Areas are designated as SEAs, if they possess one or more of the following criteria:

(1) The habitat of rare, endangered, and threatened plant and animal species.

(2) Biotic communities, vegetative associations, and habitat of plant and animal speciesthat are either one of a kind, or are restricted in distribution on a regional basis.

(3) Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.

(4) Habitat that at some point in the life cycle of a species or group of species, serves as_a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.

(5) Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.

(6) Areas important as game species habitat or as fisheries.

(7) Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.

(8) Special areas.

(eee) *Site* shall mean the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

(fff) *Source control BMP* shall mean any schedule of activities, prohibition of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

(ggg) *Standard urban storm water mitigation plan* or *SUSMP* shall mean a report submitted by an applicant for approval by the Director prior to issuance of a building, grading, planning or similar permit outlining the necessary LID requirements and BMPs that must be incorporated into design plans for development or redevelopment projects.

(hhh) *Storm drain system* shall mean any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of storm water and are located within the City.

(iii) *Storm water runoff* shall mean that part of precipitation (rainfall) that travels via flow across a surface to the MS4 or receiving waters from impervious, semi-pervious or pervious surfaces. When all other factors are equal, runoff increases as the perviousness of a surface decreases.

(jjj) *Structural BMP* shall mean any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). Structural BMPs may include both treatment control BMPs and source control BMPs.

(kkk) *Treatment* shall mean the application of engineered systems that use physical, chemical or biological processes to remove pollutants. Such processes include, without limitation, filtration, gravity settling, media adsorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

(lll) *Treatment control BMP* shall mean any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological or chemical process.

(mmm) *Urban runoff* means surface water flow produced by non-storm water resulting from residential, commercial and industrial activities involving the use of potable and nonpotable water.

6-7.04 Construction and Application.

This chapter shall be construed to assure consistency with the requirements of the federal Clean Water Act and acts amendatory or supplementary to the Federal Clean Water Act, applicable implementing regulations, and the Municipal NPDES Permit, and any amendment, revision or reissuance of the Municipal NPDES Permit.

6-7.05 No Taking.

The provisions of this chapter shall not operate to deprive any property owner of substantially all of the market value of such owner's property or otherwise constitute an unconstitutional taking without compensation.

6-7.06 Prohibited Activities.

(a) *Illicit Discharges and Connections*. It is prohibited to commence, establish, use, maintain or continue any illicit connections to the MS4 or any illicit discharges to the MS4. This prohibition against illicit connections applies to the use, maintenance or continuation of any illicit connection, whether that connection was established prior to or after the effective date of this chapter.

(b) *Littering*. No person shall throw, deposit, place, leave, maintain, keep or permit to be thrown, deposited, placed, left or maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles or accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place, or upon any or private plot of land in the City, so that the same might be or become a pollutant. No person shall throw or deposit litter in any fountain, pond, lake, stream, or other body of water within the City. This section shall not apply to refuse, rubbish or garbage deposited in containers, bags or other appropriate receptacles that are placed in designated locations for regular solid waste pick-up and disposal.

(c) *Disposal of Landscape Debris*. No person shall dispose of leaves, dirt, or other landscape debris into the municipal separate storm water system.

(d) *Non-Storm Water Discharges*. The following non-storm water discharges into the MS4 are prohibited unless in compliance with a separate NPDES permit or pursuant to a discharge exemption by the Regional Board, the Regional Board's Executive Officer, or the State Water Resources Control Board:

(1) The discharge of untreated wash waters to the MS4 when gas stations, auto repair garages, or other type of automotive service facilities are cleaned;

(2) The discharge of untreated wastewater to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;

(3) To the maximum extent practicable, discharges to the MS4 from areas where repair of machinery and equipment, including motor vehicles, which are visibly leaking oil, fluid or antifreeze, is undertaken;

(4) Discharges of untreated runoff to the MS4 from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials;

(5) Discharges of commercial/municipal swimming pool filter backwash to the MS4;

(6) Discharges of untreated runoff from the washing of toxic materials from paved or unpaved areas to the MS4; provided, however, that nonindustrial and noncommercial activities that incidentally generate urban runoff, such as the hosing of sidewalks, shall be excluded from this prohibition;

(7) To the maximum extent practicable, discharges to the MS4 from washing impervious surfaces in industrial/commercial areas that results in a discharge of untreated runoff to the MS4, unless specifically required by state law, or the City's Municipal code, or Los Angeles County's Health and Safety Codes, or permitted under a separate NPDES permit;

(8) Discharges from the washing out of concrete trucks into the MS4;

(9) Discharges to the MS4 of any pesticide, fungicide or herbicide, banned by the USEPA or the California Department of Pesticide Regulation; or

(10) The disposal of hazardous wastes into trash containers used for municipal trash disposal where such disposal causes or threatens to cause a direct or indirect discharge to the MS4.

(e) *Car Washing.* No motor vehicle, boat, trailer, or other type of mobile transportation may be washed, other than at a commercial carwash, unless such vehicle is being washed by:

(1) A resident at their residence using a hand-held bucket or a water hose equipped with an automatic shutoff nozzle as long as water does not flow onto streets; or

(2) A business that has an approved car wash facility for its fleet vehicles, provided that water does not flow onto streets.

6-7.07 Exempted Discharges, Conditionally Exempted Discharges, or Designated Discharges.

(a) Discharges from those activities specifically identified in, or pursuant to, Part III.A.1-3 of the Municipal NPDES Permit as being exempted discharges, conditionally exempted discharges or designated discharges shall not be considered a violation of this chapter; provided that, consistent with Part III.A.1-3 of the Municipal NPDES Permit:

(1) Any applicable BMPs developed pursuant to the Municipal NPDES Permit are implemented to minimize any adverse impacts from such identified sources;

(2) The discharger meets all notification, reporting and recordkeeping requirements; and

(3) The discharge has conducted all applicable monitoring requirements.

(b) *Discharges in Violation of the Municipal NPDES Permit.* Any discharge that would result in or contribute to a violation of the Municipal NPDES Permit, either separately or in combination with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the person(s) causing or responsible for the discharge, and such person(s) shall defend, indemnify and hold harmless the City from all losses, liabilities, claims or causes of actions in any administrative or judicial action relating to such discharge.

6-7.08 Good Housekeeping Provisions.

Owners and occupants of property within the City shall comply with the following requirements:

(a) *Septic Waste.* No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste to precipitation in an area where a discharge to City streets or MS4 may or does occur.

(b) *Use of Water.* Runoff of water used for irrigation purposes shall be minimized to the maximum extent practicable. Runoff of water from the permitted washing down of paved areas shall be minimized to the maximum extent practicable.

(c) *Storage of Materials, Machinery, and Equipment.* Machinery or equipment that is to be repaired or maintained in areas susceptible to or exposed to storm water, shall be placed in a manner so that leaks, spills and other maintenance-related pollutants are not discharged to the MS4.

(d) *Removal and Disposal of Debris from Industrial/Commercial Motor Vehicle Parking Lots.* Industrial/commercial motor vehicle parking lots with more than twenty-five (25) parking spaces that are located in areas potentially exposed to storm water shall be swept regularly or other equally effective measures shall be utilized to remove debris from such parking lots.

(e) *Food Wastes.* Food wastes generated by nonresidential food service and food distribution sources shall be properly disposed of and in a manner so such wastes are not discharged to the MS4.

(f) *Best Management Practices.* Best management practices shall be used in areas exposed to storm water for the removal and lawful disposal of all fuels, chemicals, fuel and chemical wastes, animal wastes, garbage, batteries, or other materials that have potential adverse impacts on water quality.

(g) *Maintenance of Structural BMPs.* Structural BMPs shall be properly operated and maintained, consistent with the approved SUSMP. Records and documentation of such maintenance shall be provided to the Director upon request.

6-7.09 Requirements for Industrial/Commercial and Construction Activities.

(a) *Industrial/Commercial and Construction Related Dischargers Generally.* Each discharger associated with industrial/commercial activity or construction activity, or other discharger described in any general NPDES permit addressing such discharges, as may be issued by the U.S. Environmental Protection Agency, the State Water Resources Control Board, or the Regional Board shall comply with all requirements of such NPDES permit and the City's development construction program. Each discharger identified in an individual NPDES permit shall comply with and undertake all activities required by such permit. Proof of compliance with any such NPDES permit and the City's development construction program may be required in a form acceptable to the Director prior to the issuance of any grading, building or occupancy permits, or any other type of permit or license issued by the City.

(b) *Industrial/Commercial and Construction Non-Storm Water Discharges.* Non-storm water discharges to the MS4 from industrial, commercial or construction activities in violation of any applicable NPDES permit or the City's development construction program are prohibited.

(c) *Source Control BMPs for Industrial/Commercial Facilities.* Industrial/commercial facilities shall implement the effective source control BMPs listed in Table 10 of Part VI.D.6.f. of the Municipal NPDES Permit, unless a particular pollutant generating activity does not occur on a facility's site.

6-7.10 Standard Urban Storm Water Mitigation Plan (SUSMP) and Low Impact Development (LID) Requirements for New Development and Redevelopment Projects.

(a) *Objective.* Pursuant to Part VI.D.7.b of the Municipal NPDES Permit, the provisions of this section establish requirements for construction activities and facility operations of development and redevelopment projects to comply with the current Municipal NPDES Permit to lessen the water quality impacts of development by using smart growth practices and integrate LID practices and standards for storm water pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use. Except as otherwise provided herein, the City shall administer, implement and enforce the provisions of this section.

(b) *Scope.* This section contains requirements for storm water pollution control measures in development and redevelopment projects and authorizes the City to further define and adopt storm water pollution control measures, and to develop LID principles and requirements, including, without limitation, the objectives and specifications for integration of LID strategies. As specified in this section, certain Planning Priority Projects shall meet the requirements of this section through the preparation and submittal of a standard urban storm water mitigation plan (SUSMP), which shall include the applicable LID requirements set forth in this section as an element of the SUSMP.

(c) *Applicability – Planning Priority Projects.* The following development and redevelopment projects shall be designated as Planning Priority Projects, which are subject to City conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution prior to completion of the projects, and shall meet the requirements of this section:

(1) New Development Projects.

(i) All development projects equal to one (1) acre or greater of disturbed area that adds more than ten thousand (10,000) square feet of impervious surface area.

(ii) Industrial parks ten thousand (10,000) square feet or more of surface area.

(iii) Commercial malls ten thousand (10,000) square feet or more of surface area.

(iv) Retail gasoline outlets with five thousand (5,000) square feet or more of surface area.

(v) Restaurants (Standard Industrial Classification (SIC) of 5812) with five thousand (5,000) square feet or more of surface area.

(vi) Parking lots with five thousand (5,000) square feet or more of impervious surface area, or with twenty-five (25) or more parking spaces.

(vii) Streets and roads construction of ten thousand (10,000) square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

(viii) Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) five thousand (5,000) square feet or more of surface area.

(ix) Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA), where the development will:

(A) Discharge storm water runoff that is likely to impact a sensitive biological species or habitat; and

(B) Create two thousand five hundred (2,500) square feet or more of impervious surface area.

(x) Single-family hillside homes.

(2) Redevelopment Projects.

(i) Land disturbing activity that results in the creation or addition or replacement of five thousand (5,000) square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

(ii) Where Redevelopment results in an alteration to more than fifty (50) percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction storm water quality control requirements, the entire project must be mitigated.

(iii) Where Redevelopment results in an alteration of less than fifty (50) percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction storm water quality control requirements, only the alteration must be mitigated, and not the entire development.

(iv) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways that does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

(v) Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace ten thousand (10,000) square feet of impervious surface area.

(d) *Specific Requirements*. The site for every Planning Priority Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use. In addition, the following specific requirements apply:

(1) New Single-Family Hillside Homes. A new single-family hillside home development project shall include mitigation measures to:

(i) Conserve natural areas;

(ii) Protect slopes and channels;

(iii) Provide storm drain system stenciling and signage;

(iv) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

(v) Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

(2) Street and Road Construction of Ten Thousand (10,000) Square Feet or More. Street and road construction of ten thousand (10,000) square feet or more of impervious surface shall follow the City's Green Street Manual developed by the Director and approved by City Council resolution. The City's Green Street Manual shall be based on the USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009).

(3) Remainder of Planning Priority Projects Require a SUSMP. Except for the projects listed in subparagraphs (1) and (2) of subsection (d) of this section, all other Planning Priority Projects shall prepare and submit to the Director for review and approval a SUSMP that

shall also contain LID requirements consistent with Parts VI.D.7.c and VI.D.7.d(iii) of the Municipal NPDES Permit. In addition, Planning Priority Projects subject to this subparagraph (3) shall do the following:

(i) Incorporate the SUSMP into Project Plans. An applicant for a Planning Priority Project identified in subparagraph (3) of subsection (d) of this section shall incorporate into the applicant's project plans a Storm Water Mitigation Plan (SWMP), which includes those BMPs necessary to control storm water pollution from construction activities and facility operations, as set forth in the SUSMP applicable to the applicant's project. Structural or Treatment Control BMPs (including, as applicable, post-construction treatment control BMPs) set forth in project plans shall meet the design standards set forth in the SUSMP and the current Municipal NPDES Permit.

(ii) Verify Maintenance of BMPs. If a project applicant has included or is required to include structural or treatment control BMPs in project plans, the applicant shall provide verification of maintenance provisions. The verification shall include the applicant's signed statement, as part of its project application, accepting responsibility for all structural and treatment control BMP maintenance until such time, if any, the property is transferred.

(e) *Issuance of Discretionary Permits.* No discretionary permit may be issued for any Planning Priority Project identified in this section until the Director confirms the project plans comply with the applicable requirements of this section.

(f) *Issuance of Certificates of Occupancy.* As a condition for issuing a certificate of occupancy for a Planning Priority Project identified in this section, the Director shall require facility operators and/or owners to build all the storm water pollution control BMPs and structural or treatment control BMPs that are shown on the approved project plans and to submit a signed certification statement stating that the site and all structural or treatment control BMPs will be maintained in compliance with the SUSMP and other applicable regulatory requirements.

(g) *Transfer of Properties Subject to Requirement for Maintenance of Structural and Treatment Control BMPs.*

(1) The transfer or lease of a property subject to a requirement for maintenance of structural and treatment control BMPs shall include conditions requiring the transferee and its successors and assigns to either (i) assume responsibility for maintenance of any existing structural or treatment control BMP or (ii) to replace an existing structural or treatment control BMP with new control measures or BMPs meeting the then current standards of the City and the SUSMP. Such requirement shall be included in any sale or lease agreement or deed for such property. The condition of transfer shall include a provision that the successor property owner or lessee conduct maintenance inspections of all structural or treatment control BMPs at least once a year and retain proof of inspection.

(2) For residential properties where the structural or treatment control BMPs are located within a common area that will be maintained by a homeowners association, language regarding the responsibility for maintenance shall be included in the projects conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

(3) If structural or treatment control BMPs are located within an area proposed for dedication to a public agency, said BMPs shall be the responsibility of the developer until the dedication is accepted by the public agency.

(h) *CEQA.* Provisions of this section shall be complementary to, and shall not replace, any applicable requirements for storm water mitigation required under the California Environmental Quality Act.

6-7.11 Enforcement.

(a) *Violations Deemed a Public Nuisance.*

(1) The following violations shall be deemed a public nuisance:

(i) Any condition caused or permitted to exist in violation of any of the provisions of this chapter;

(ii) Any failure to comply with any applicable requirement of either the SUSMP or an approved storm water mitigation plan with respect to a property;

(iii) Any false certification or verification, or any failure to comply with a certification or verification provided by a project applicant or the applicant's successor in interest; or

(iv) Any failure to properly operate and maintain any structural or treatment control BMP on a property in accordance with an approved storm water mitigation plan or the SUSMP, is determined to be a threat to the public health, safety and welfare, is declared and deemed a public nuisance, and may be abated or restored by the Director, and a civil or criminal action to abate, enjoin or otherwise compel the cessation of such nuisance may be brought by the City Attorney.

(2) The cost of such abatement and restoration shall be borne by the owner of the property and the cost shall be billed to the owner of the property, as provided by law or ordinance for the recovery of nuisance abatement costs,

(3) If any violation of this chapter constitutes a seasonal and recurrent nuisance, the Director shall so declare. The failure of any person to take appropriate annual precautions to prevent storm water pollution after written notice of a determination under this section shall constitute a public nuisance and a violation of this chapter.

(b) *Concealment.* Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of such provision.

(c) *Civil Actions.* In addition to any other remedies provided in this chapter, any violation of this chapter may be enforced by civil action brought by the City. In any such action, the City may seek any or all of the following remedies:

(1) A temporary and/or permanent injunction;

(2) Assessment of the violator for the costs of any investigation, inspection or monitoring survey that led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action under this section;

(3) Costs incurred in removing, correcting or terminating the adverse effects resulting from violation; and

(4) Compensatory damages for loss or destruction to water quality, wildlife, fish and aquatic life.

(d) *Administrative Enforcement Powers.* In addition to the other enforcement powers and remedies established by this chapter, the Director has the authority to utilize the following administrative remedies:

(1) Cease and Desist Orders. When a discharge has taken place or is likely to take place in violation of this chapter, the Director may issue an order to cease and desist such discharge, or practice or operation likely to cause such discharge and direct that those persons not complying shall:

(i) Comply with the requirement;

(ii) Comply with a time schedule for compliance; and

(iii) Take appropriate remedial or preventive action to prevent the violation from recurring.

(2) Notice to Clean. Whenever the Director finds any oil, earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or any other material of any kind, in or upon the

sidewalk abutting or adjoining any parcel of land, or upon any parcel of land or grounds, which may result in pollutants entering the MS4 or a non-storm water discharge to the MS4, he or she may give notice to the owner or occupant of the adjacent property to remove such oil earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or other material, in any manner that he or she may reasonably provide. The recipient of such notice shall undertake the activities as described in the notice.

(e) *Penalties*. Violation of this chapter shall be punishable as provided in Chapter 2 of Title 1 of this Code. Each day that a violation continues shall constitute a separate offense.

(f) *Permit Revocation*. To the extent the City makes a provision of this chapter or any identified BMP a condition of approval to the issuance of a permit or license, any person in violation of such condition is subject to the permit revocation procedures set forth in this Code.

(g) *Burden of Proof*. In an enforcement action, the burden of proof shall be on the person who is the subject of such action to establish that the reduction or elimination of the discharge to the maximum extent practicable has been accomplished through compliance with the best management practices available, including applicable monitoring, notifications and reporting requirements.

(h) *Remedies*. Remedies under this chapter are in addition to and do not supersede or limit any and all other available remedies, civil or criminal. The remedies provided for in this chapter shall be cumulative and not exclusive.

6-7.12 Fees.

Fees for plan reviews, inspections, violation corrections and tasks associated with this section shall be established by resolution of the City Council."

Section 4. The City Council declares that should any provision, section, paragraph, sentence, or word of this Ordinance be rendered or declared invalid by any final court action in a court of competent jurisdiction, or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences and words of this Ordinance shall remain in full force and effect.

Section 5. The City Clerk shall certify to the adoption of this Ordinance.

PASSED, APPROVED AND ADOPTED this 12th day of May, 2014.

Tony Lima

TONY LIMA, MAYOR

ATTEST:

Gloria Considine

GLORIA CONSIDINE, CITY CLERK

I, GLORIA CONSIDINE, City Clerk of the City of Artesia, do herby certify that the foregoing Ordinance was adopted at a regular meeting of the City Council of the City of Artesia held on the 12th day of May, 2014, by the following vote:

AYES:	COUNCILMEMBERS:	Manalo, Taj, Canales and Lima
NOES:	COUNCILMEMBERS:	None
ABSENT:	COUNCILMEMBERS:	Flowers
ABSTAIN:	COUNCILMEMBERS:	None

Gloria Considine

GLORIA CONSIDINE, CITY CLERK

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7.16 Green Streets Best Management Practices

1. **Introduction.** The National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) permit for the Los Angeles Region, Order No. R4-2012-0175 (MS4 Permit), adopted November 8, 2012, allows Permittees to participate in a Watershed Management Program (WMP) or Enhanced Watershed Management Program (EWMP). The City has elected to participate in two such programs. As such, the MS4 Permit allows the City to demonstrate 1) there are green streets policies in place and/or 2) commence development of policies that specify the use of green street strategies for significant projects transportation corridors within 60 days of the effective date of the Order, and have a draft policy within 6 months of the effective date of the Order. If greater than 50% of the land area covered by WMP or EWMP meets condition 1 or 2 above, the MS4 Permit allows an additional 6 months for submittal of the draft WMP to the Los Angeles Regional Water Quality Control Board (Regional Board) or submittal of an EWMP to the Regional Board.

2. **Purpose.** This policy fulfills MS4 Permit criteria to implement green streets policies within the Los Cerritos Channel Watershed Management Program and the Lower San Gabriel River Watershed Management Program land areas. The City's Public Works Department shall implement feasible green streets best management practices (BMPs) for new and redevelopment street and roadway projects within transportation corridors. Green streets are defined as right-of-way areas that incorporate infiltration, biofiltration, and/or storage and use BMPs to collect, retain, or detain stormwater runoff as well as a design element that creates attractive streetscapes.

3. **Definitions.**
   a. "New development and/or redevelopment street project" is defined as a public roadway project which 1) adds at least 10,000 square feet of impervious surface or 2) modifies over 10,000 square feet of impervious surface as to line, grade, hydraulic capacity or purpose.
   b. "Transportation corridor" is defined as major arterial streets and highways which provide direct access to freeways and extend continuously from city limit to city limit, providing direct access to adjoining cities.
   c. "Routine maintenance" is defined as slurry seal, repaving, and reconstruction of the road or street where the original line, grade and hydraulic capacity are maintained.

4. **Application.**
   a. The Public Works Department shall require new development and/or redevelopment street and roadway projects within transportation corridors to incorporate feasible green streets BMPs. Routine street maintenance or repair projects and linear utility projects are excluded from these requirements.
   b. This policy shall apply to all street projects for which preliminary engineering design is begun after the effective date of this policy.

5. **Amenities.**
   a. The Public Works Department shall consider opportunities to replenish groundwater, create attractive streetscapes, and provide pedestrian and bicycle accessibility when designing new development and redevelopment of streets and roadway projects.
   b. The Planning and Economic Development Departments shall encourage developers to consider opportunities to replenish groundwater, create attractive streetscapes, and provide pedestrian and bicycle accessibility when designing newly constructed roadways.

6. **Guidance.** The City of Bellflower shall use the USEPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets*, or an equivalent guidance handbook or manual, for analysis of feasible and practicable measures in public and private developments.

7. **Training.** The Public Works Department shall incorporate aspects of green streets into annual MS4 Permit Public Agency Activities staff trainings for staff who participate in street design or approval of street design.

Approved: ______________________
Jeffrey L. Stewart
City Manager

Attachment:
USEPA Managing Wet Weather With Green Infrastructure Municipal Handbook Green Streets

Doc 281916

CITY OF BELLFLOWER

ORDINANCE NO. 1277

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BELLFLOWER AMENDING SECTION 13.20.130 OF THE BELLFLOWER MUNICIPAL CODE TO UPDATE THE CITY'S STORMWATER LOW IMPACT DEVELOPMENT ORDINANCE

WHEREAS, the City is authorized by Article XI, Section 5 and Section 7 of the State Constitution to exercise the police power of the State by adopting regulations to promote public health, public safety, and general prosperity; and

WHEREAS, the federal Clean Water Act and the Regional Water Quality Control Boards establish permit requirements in order to prohibit the discharge of pollutants in stormwater runoff to waters of the United States; and

WHEREAS, the City is a permittee under the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, issued on November 8, 2012, which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach MS4; and

WHEREAS, Order No. R4-2012-0175 contains requirements for municipalities to establish a Low Impact Development ("LID") Ordinance and a Green Streets Policy in order to participate in a Watershed Management Program; and

WHEREAS, the California Regional Water Quality Control Board, Los Angeles Region has adopted Total Maximum Daily Loads ("TMDLs") for pollutants, which are numerical limits that must be achieved effectively through LID implementation; and

WHEREAS, the City has the authority under the California Water Code to adopt and enforce ordinances imposing conditions, restrictions, and limitations with respect to any activity that might degrade waters of the State; and

WHEREAS, the City is committed to a stormwater management program that protects water quality and water supply by employing watershed-based approaches that balance environmental and economic considerations; and

WHEREAS, the City imposes LID requirements on development and hereby intends to update those requirements in accordance with Order No. R4-2012-0175.

THE CITY COUNCIL OF THE CITY OF BELLFLOWER DOES ORDAIN AS FOLLOWS:

SECTION 1. Section 13.20.130 of the Bellflower Municipal Code is amended to read, in its entirety, as follows:

"13.20.130 Control of Pollutants from New Development/Redevelopment Projects.

A. Prior to the construction of any project that is subject to development planning requirements specified in the MS4 NPDES Permit, such project shall be evaluated by the City for its potential to discharge pollutants to the MS4. Such projects must also comply with the development requirements specified in the Los Cerritos Channel Watershed Management Program, the Lower San Gabriel River Watershed Management Program, or any other Watershed Management Program to which the City is currently a participant. The City's Watershed Management Programs are hereby incorporated by reference and shall be made available for review by the public in the Public Works Department Office.

B. Once a development planning-subject project has been evaluated for its potential to discharge pollutants to the MS4, the City shall require appropriate BMPs, both structural and nonstructural, to be implemented on a post-construction basis, and shall require a maintenance agreement to assure the proper performance of such BMPs."

SECTION 2. This Ordinance shall take effect thirty (30) days after its adoption. The City Clerk, or her duly appointed deputy, shall certify to the adoption of this Ordinance and shall cause this Ordinance to be posted as required by law.

ORDINANCE NO. 1277 HAD ITS FIRST READING ON JUNE 9, 2014, ITS SECOND READING ON JUNE 23, 2014, AND WAS DULY PASSED, APPROVED, AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF BELLFLOWER AT ITS REGULAR MEETING OF JUNE 23, 2014.

Sonny R. Santa Ines, Mayor

Attest:

Debra D. Bauchop, City Clerk

Doc 301814

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF BELLFLOWER)

I, **Debra D. Bauchop**, City Clerk of the City of Bellflower, California, do hereby certify under penalty of perjury that:

Ordinance No. 1277 had its first reading on June 9, 2014, by the following vote to wit:

AYES:	Council Members -	Koops, Schnablegger, Larsen, Dunton, and Mayor Santa Ines

Ordinance No. 1277 had its second reading on June 23, 2014, and was duly passed, approved, and adopted by the City Council of the City of Bellflower at its Regular Meeting of June 23, 2014, by the following vote to wit:

AYES:	Council Members -	Dunton, Koops, Schnablegger, and Mayor Santa Ines
ABSENT:	Council Member -	Mayor Pro Tem Larsen

Ordinance No. 1277 was posted at City Hall, the Clifton M. Brakensiek Library, John S. Simms Park, the Bellflower Sheriff's Substation, and T. Mayne Thompson Park; and the title, effective date, and vote will be published on Monday, June 30, 2014, in the Public Notices Section of the *Long Beach Press-Telegram*, pursuant to Government Code Section 36933 and City Council action of October 9, 2006.

Dated: June 24, 2014

Debra D. Bauchop

Debra D. Bauchop, City Clerk
City of Bellflower, California

(SEAL)

CITY OF BELLFLOWER

ORDINANCE NO. 1099

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BELLFLOWER AMENDING BELLFLOWER MUNICIPAL CODE SECTION 10-4 TO REVISE THE STORMWATER AND RUNOFF POLLUTION CONTROL ORDINANCE

WHEREAS, on December 13, 2001, the California Water Quality Control Board, Los Angeles Region, adopted a municipal National Pollutant Discharge Elimination System (NPDES) Permit for municipal stormwater and urban runoff discharges within the County of Los Angeles, and the incorporated cities therein, except for the City of Long Beach;

WHEREAS, the City of Bellflower (City) is subject to the municipal NPDES Permit;

WHEREAS, on October 14, 2002, the City Council adopted Ordinance No. 1038 amending Bellflower Municipal Code Section 10-4 relative to stormwater and urban runoff pollution controls; and

WHEREAS, the City seeks to fully comply with the provisions of the most current NPDES Permit.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BELLFLOWER DOES ORDAIN AS FOLLOWS:

SECTION 1. Paragraph a. of Subsection 10-4.3 of the Bellflower Municipal Code is hereby amended to read as follows:

"Prohibiting illicit discharges to the municipal stormwater system."

SECTION 2. Bellflower Municipal Code Subsection 10-4.4 is hereby amended is hereby amended by adding thereto a new definition for "MS4 NPDES Permit" and amending the definitions of "illicit discharge" and "industrial activity" to read as follows:

""Illicit Discharge" means the entry of any material other than stormwater into the MS4 unless such discharge is exempted by Regional Board or under the MS4 NPDES Permit or any other NPDES Permit to which the City may be subject."

""Industrial activity" means any of the 10 classifications of industrial facilities specified in 40 Code of Federal Regulations §122.26 (b)(14), defined by Standard Industrial Classification (SIC) and which is required to obtain a NPDES Permit, not including construction activities that cause the disturbance of one (1) acre of soil by clearing, grading, excavation, or a combination thereof."

""MS4 NPDES Permit" means any municipal NPDES Permit adopted by the California Regional Water Quality Control Board, Los Angeles Region, to which the City is subject."

SECTION 3. Bellflower Municipal Code Subsection 10-4.9 is hereby amended as follows:

"10-4.9 Control of Pollutants from Industrial and Commercial Facilities.

a. Certain categories of commercial facilities specified in the municipal NPDES Permit or identified by the City as being significant contributors of pollution, shall implement BMPs prescribed by the Regional Board or its Executive Officer, through programs or actions made pursuant to the municipal NPDES Permit, or by the City's Director of Public Works, to minimize the discharge of pollutants to the MS4.

b. Certain categories of commercial facilities shall be inspected for pollution issues and BMP compliance in accordance with a schedule called for in the municipal NPDES Permit or as often as necessary as determined by the City."

SECTION 4. Bellflower Municipal Code Subsection 10-4.10 is hereby amended by adding a new paragraph "d" to read as follows:

"d. Any industry, whether or not subject to a NPDES General Industrial Activities Stormwater Permit, may be inspected in accordance with a schedule established by the municipal NPDES Permit or as often as necessary as determined by the City for the purpose of determining compliance with BMP requirements or to abate pollution issues."

SECTION 5. Paragraph a. of Subsection 10-4.11 of the Bellflower Municipal Code is hereby amended to read as follows:

"a. No person shall be granted a grading permit or shall commence or continue any construction activity in the City that causes the disturbance of one (1) acre or more of soil by clearing, grading, and excavating without demonstrating to the City that such person has obtained a NPDES General Construction Activity Stormwater Permit from the SWRCB. NPDES construction activity does not include: (i) routine maintenance to maintain original line and grade, (ii) hydraulic capacity, (iii) the original purpose of the facility, or (iv) emergency construction activities required to immediately protect the public health and safety."

SECTION 6. Bellflower Municipal Code Subsection 10-4.12 is hereby amended to read as follows:

"10-4.12 Control of Pollutants from Other Construction Activities

a. No person shall be granted a grading permit for a construction project that is expected to cause a disturbance of less than one (1) acre of soil by grading, clearing, and/or excavation without consenting to implement BMPs prescribed by the City to reduce pollutant discharges to the MS4 associated with construction activities.

b. No person shall be allowed to commence or continue any construction activity in the City that causes the disturbance of less than one (1) acre of soil by grading, clearing, and/or excavating without implementing BMPs prescribed by the City."

SECTION 7. Bellflower Municipal Code Subsection 10-4.13 is hereby amended to read as follows:

"10-4.13 Control of Pollutants from New Development/Redevelopment Projects

a. Prior to the construction of any project that is subject to development planning requirements specified in the MS4 NPDES Permit, such project shall be evaluated by the City for its potential to discharge pollutants to the MS4.

b. b. Once a development planning-subject project has been evaluated for its potential to discharge pollutants to the MS4, the City shall require appropriate BMPs, both structural and non-structural, to be implemented on a post-construction basis; and shall require a maintenance agreement to assure the proper performance of such BMPs."

SECTION 8. Bellflower Municipal Code Subsection 10-4.15 is hereby amended to read as follows:

10-4.15 Fees.

"The City Council may establish fees to recover costs for complying with the requirements of this Section, including but not limited to plan checking, cleanup and abatement fees, and industrial and commercial inspection fees, which may be fixed and established from time to time by the City Council by resolution."

SECTION 9. Bellflower Municipal Code Section 10-4 is hereby amended by adding thereto a new Subsection 10-4.16 to read as follows:

"10-4.16 Receiving Water Limitation Exceedances

Any person causing a discharge which exceeds a receiving water limitation shall be required to halt the discharge."

SECTION 10. If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid or ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this Ordinance. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance irrespective of the fact that one or more sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases be declared unconstitutional or invalid or ineffective.

SECTION 11. This Ordinance shall take effect thirty (30) days after its adoption. The City Clerk, or her duly appointed deputy, shall certify to the adoption of this Ordinance and shall cause this Ordinance to be posted as required by law.

ORDINANCE NO. 1099 HAD ITS FIRST READING ON OCTOBER 10, 2005, ITS SECOND READING ON OCTOBER 24, 2005, AND WAS DULY PASSED, APPROVED, AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF BELLFLOWER AT ITS REGULAR MEETING OF OCTOBER 24, 2005.

Randy Bomgaars

Randy Bomgaars, Mayor

ATTEST:

Debra D. Bauchop, City Clerk

Doc 122486

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF BELLFLOWER)

I, **Debra D. Bauchop**, City Clerk of the City of Bellflower, California, do hereby certify under penalty of perjury that:

Ordinance No. 1099 had its first reading on October 10, 2005, by the following vote to wit:

AYES: Council Members - Pratt, Smith, King, and Mayor Bomgaars
NOES: Council Member - Larsen

Ordinance No. 1099 had its second reading on October 24, 2005, and was duly passed, approved and adopted by the City Council of the City of Bellflower at its regular meeting of October 24, 2005, by the following vote to wit:

AYES: Council Members - Smith, King, and Pratt
NOES: Council Members - Larsen and Mayor Bomgaars

Ordinance No. 1099 was posted at City Hall, the Clifton M. Brakensiek Library, John S. Simms Park, the Bellflower Sheriff's Substation, and T. Mayne Thompson Park; and the Ordinance, effective date, and vote will be published on Monday, October 31, 2005, in the Local Section of the *Long Beach Press-Telegram*, pursuant to Government Code Section 36933 and City Council action of April 24, 1995.

Dated: October 25, 2005

Debra D. Bauchop

Debra D. Bauchop, City Clerk
City of Bellflower, California

(SEAL)

CITY OF CERRITOS

RESOLUTION NO. 2014-15

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CERRITOS APPROVING A GREEN STREETS POLICY

WHEREAS, Municipal Separate Storm Sewer System (MS4) Permit (Order No. R4-2012-0175) was adopted by the California Regional Water Quality Control Board (CRWQCB), Los Angeles Region on November 8, 2012; and

WHEREAS, the City of Cerritos is participating with multiple cities that discharge storm water and urban runoff into the San Gabriel River Watershed and the Los Cerritos Channel Watershed to develop a Watershed Management Program; and

WHEREAS, municipalities electing to prepare a Watershed Management Program under this MS4 Permit are required to demonstrate that Green Street Policies are in place that specify the use of green street strategies for transportation corridors; and

WHEREAS, Green Streets are enhancements to street and road projects to improve the quality of the storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways and tree lined streets.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CERRITOS DOES RESOLVE AS FOLLOWS:

Section 1. Directs the Director of Public Works to implement Green Streets for publicly owned transportation corridors as described in the City of Cerritos Green Streets Manual Exhibit "A" to the maximum extent practicable.

Section 2. Routine maintenance including but not limited to slurry seals, grind and overlay, and reconstruction to maintain original line are grade are excluded from the Green Streets Policy.

Section 3. The Director of Public Works is authorized to modify the City of Cerritos Green Streets Manual in a manner consist with the requirements of the current MS4 Permit.

Section 4. The City Clerk-Treasurer shall certify to the passage and adoption hereof.

PASSED, APPROVED AND ADOPTED this 12th day of June, 2014.

Mark E. Pulido, Mayor

ATTEST:

Vida Barone, City Clerk

CITY OF CERRITOS

ORDINANCE NO. 986

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF CERRITOS AMENDING CHAPTER 6.32 OF THE CITY OF CERRITOS MUNICIPAL CODE TO UPDATE THE CITY'S STORM WATER LOW IMPACT DEVELOPMENT ORDINANCE.

WHEREAS, the City is authorized by Article XI, Section 5 and Section 7 of the State Constitution to exercise the police power of the State by adopting regulations to promote public health, public safety, and general prosperity; and

WHEREAS, the federal Clean Water Act and the Regional Water Quality Control Boards establish permit requirements in order to prohibit the discharge of pollutants in storm water runoff to waters of the United States; and

WHEREAS, the City is a permittee under the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, issued on November 8, 2012, which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach MS4; and

WHEREAS, Order No. R4-2012-0175 contains requirements for municipalities to establish a Low Impact Development ("LID") Ordinance and a Green Streets Policy in order to participate in a Watershed Management Program; and

WHEREAS, the California Regional Water Quality Control Board, Los Angeles Region has adopted Total Maximum Daily Loads ("TMDLs") for pollutants, which are numerical limits that must be achieved effectively through LID implementation; and

WHEREAS, the City has the authority under the California Water Code to adopt and enforce ordinances imposing conditions, restrictions, and limitations with respect to any activity that might degrade waters of the State; and

WHEREAS, the City is committed to a storm water management program that protects water quality and water supply by employing watershed-based approaches that balance environmental and economic considerations; and

WHEREAS, the City imposes LID requirements on development and hereby intends to update those requirements in accordance with Order No. R4-2012-0175.

THE CITY COUNCIL OF THE CITY OF CERRITOS DOES HEREBY ORDAIN AS FOLLOWS:

Section 1. Chapter 6.32 of the Cerritos Municipal Code is hereby amended and shall now read as follows:

Chapter 6.32
STORM WATER AND URBAN RUNOFF POLLUTION PREVENTION CONTROLS[1]

Sections:

6.32.010 **Purpose.**
6.32.020 **Definitions.**
6.32.030 **Illicit discharges and connections.**
6.32.040 **Illicit disposal.**
6.32.050 **Construction sites requiring building permit and/or grading plan.**

6.32.055 New development/redevelopment pollution reduction.
6.32.060 Industrial activity sites.
6.32.070 Fees.
6.32.080 Violation—Penalty.
6.32.090 Disclaimer of liability.

6.32.010 Purpose.

The purpose of this chapter is to protect the health, safety and general welfare of the citizens of the city and state of California by:

(A) Regulating non-storm water discharge to the storm drain system;

(B) Providing for the control of spillage, dumping or disposal of materials into the storm drain system;

(C) Reducing pollutants in storm water and urban runoff to the maximum extent practicable.

6.32.020 Definitions.

As used in this chapter, the following terms have the meanings prescribed:

"Areas susceptible to runoff" means those areas within a real property exposed to rainfall or other precipitations (e.g., sprinkler irrigation) or the flow of any fluid.

"Authorized enforcement officer" means the director of the department of public works of the city, including any person designated by the director to enforce the provisions of this chapter.

"Best management practices (BMPs)" means storm water pollution control practices applicable to existing properties that significantly reduce and control storm water runoff and prevent non-storm water runoff pollution from entering the storm drain system and the Pacific Ocean.

"Biofiltration" means a LID BMP that reduces storm water pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this chapter is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain. Biofiltation BMPs include bioretention systems with an underdrain and bioswales.

"Bioretention" means a LID BMP that reduces storm water runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum two-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. A bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the MS4 Permit as biofiltration.

"Bioswale" means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect storm water runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

"Brownfield Development" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

"Certificate of occupancy" means the city building official's final construction approval and authorization to use a facility.

"Code" means the Cerritos Municipal Code and the City Charter of the city of Cerritos.

"Development" means construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail, and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Directly Adjacent" means situated within two hundred (200) feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Discharge" means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid or solid substance.

"Disturbed area" means an area altered as a result of clearing, grading and/or excavation of earth.

"Hazardous waste" means any material defined as hazardous by Chapter 6.95 of the California Health and Safety Code and any substance designated pursuant to 40 CFR 302. This includes unlisted hazardous substances that are solid wastes, as defined in 40 CFR 261.2, that are not excluded from regulation as hazardous wastes under 40 CFR 261.4(b) if they exhibit any of the characteristics identified in 40 CFR 261.20 through 261.24.

"Illicit connection" means any man-made conveyance which is connected to the storm drain system that conveys, or has the potential to convey an illicit discharge.

"Illicit discharge" means any discharge into the storm drain system that is prohibited under local, state, or federal statutes, ordinances, codes or regulations. The term illicit discharge includes any non-storm water discharge, except those discharges pursuant to a separate NPDES permit and discharges that are exempted or conditionally exempted by the current MS4 Permit applicable to the city of Cerritos.

"Infiltration BMP" means a LID BMP that reduces storm water runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

"LID" means Low Impact Development, which consists of building and landscape features designed to retain or filter storm water runoff.

"Low Impact Development Plan (LID Plan)" means such plan prepared by the project applicant pursuant to section 6.32.055 of this chapter.

"MS4" means the Municipal Separate Storm Sewer System, otherwise referred to as the Storm Drain System.

"Municipal NPDES Permit (MS4 Permit)" means the current, area-wide NPDES permit issued to a government agency or agencies permitting the discharge of storm water from an MS4.

"New development" for the purposes of this chapter means land disturbing activities, structural development (including construction or installation of a building or structure), creation of impervious surfaces, and land subdivision.

"Non-storm water runoff" means the flow of any fluid that is not entirely composed of storm water.

"NPDES" means the National Pollutant Discharge Elimination System.

"NPDES construction permit" means a permit issued by the Regional Water Quality Control Board to owners/developers for construction activity to control sediment and other pollutants from entering the storm drain system.

"NPDES industrial permit" means a permit issued by the Regional Water Quality Control Board to owners/operators of specific categories of industrial facilities identified in federal regulations to discharge storm water into the storm drain system.

"Planning Priority Projects" for the purposes of this chapter means those projects specified in section 6.32.055 that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective projects.

"Rainfall Harvest and Use" means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department.

"Redevelopment" for the purposes of this chapter means land-disturbing activity that results in the creation, addition, or replacement of five thousand (5,000) square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Storm drain system" means those facilities that convey storm water runoff and suspended solids to the waters of the United States, including streets, alleys, roads, ditches, curbs, gutters, catch basins, conduits, streams, channels, creeks and rivers.

"Storm water" means water that originates from atmospheric moisture (rainfall, hail, snow or snowmelt) and that falls onto land, water or other surfaces.

"Storm water pollution prevention plan (SWPPP)" means the operator/owner-prepared plan that identifies BMPs for implementation and monitors the effectiveness of the BMPs for a specific commercial/industrial facility.

"Storm water runoff" means the surface flow of storm water.

"Urban runoff" means fluid flows originating from precipitation and other sources found in the storm drain system.

6.32.030 Illicit discharges and connections.

(A) No person or business shall cause or allow any illicit discharge from their property of non-storm water runoff to enter the storm drain system, unless such discharge is authorized by an NPDES permit.

(B) No person or business shall construct or use an illicit connection that operates intentionally or unintentionally. Any such connection shall be removed.

(C) The discharge of untreated wash waters to the MS4 when gas stations, auto repair garages, or other types of automotive service facilities are cleaned is prohibited.

(D) The discharge of untreated wastewater to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations is prohibited.

(E) To the maximum extent practicable, discharges to the MS4 from areas where machinery and equipment, including motor vehicles, which are visibly leaking oil, fluid or antifreeze are repaired is prohibited.

(F) The discharge of untreated runoff to the MS4 from storage areas of materials containing grease, oil or other hazardous substances, and uncovered receptacles containing hazardous materials is prohibited.

(G) The discharge or commercial/municipal swimming pool filter backwash to the MS4 is prohibited.

(H) The discharge of untreated runoff from the washing of toxic materials from paved and unpaved areas to the MS4 is prohibited.

(I) The washing of impervious surfaces in industrial/commercial areas that results in a discharge of untreated runoff to the MS4 is prohibited or shall be controlled to the maximum extent practicable unless specifically required by state or local health and safety codes.

(J) The discharge from washing out concrete trucks to the MS4 is prohibited.

(K) Industrial and commercial motor vehicle parking lots with more than twenty-five spaces that are located in areas exposed to storm water shall be regularly swept, or other equally effective measure taken, to remove debris.

(L) The placement of machinery and equipment that are to be repaired or maintained shall be such that leaks, spills and other maintenance related pollutants are not discharged to the MS4.

(M) In order to control spills, dumping or disposal of materials to the MS4, the following are prohibited:

(1) Littering;

(2) Disposal of leaves, dirt or other landscape debris into a storm drain;

(3) The discharge to the MS4 of any pesticide, fungicide, or herbicide banned by the United States Environmental Protection Agency or the California Department of Pesticide Regulation;

(4) The improper disposal of food wastes;

(5) The disposal of hazardous wastes into trash containers for municipal trash disposal so as to cause a discharge to the MS4.

(N) In areas exposed to storm water, the removal and lawful disposal of all fuels, chemicals, fuel and chemical wastes, animal wastes, garbage, batteries, and other materials that may have potential adverse impacts on water quality is required.

(O) The following BMPs shall be adhered to by all persons within the city:

(1) Collection, Storage and Minimization of Runoff.

(a) Water used for irrigation purposes shall not be allowed to run off of a site. In addition, washing down of paved areas shall be prohibited unless necessary for health or safety purposes and is not in violation of any provision of this code.

(b) The uncovered outdoor storage of unsealed containers of building materials such as dirt, wood and wood products, mineral aggregates, liquids, and other building materials containing hazardous materials is prohibited in areas susceptible to runoff.

(2) Maintenance of Equipment.

(a) Objects such as vehicle parts containing grease, oil or other hazardous substances, and unsealed receptacles containing hazardous materials, shall not be in areas susceptible to runoff.

(b) Maintenance of vehicles and equipment in an uncovered outdoor area shall be performed on a pad of absorbent material to contain leaks, spills or discharges.

(3) Removal of Debris and Residue.

(a) Fuel and chemical residue or other types of potentially harmful material, such as animal waste, and refuse, which are located in areas susceptible to runoff, shall be removed immediately and disposed of properly.

(b) Intentional disposal into a storm drain of green waste debris such as landscaping clips, grass, tree branches, and other vegetable materials, is prohibited.

(P) The discharge of gray water to the streets or the storm drains is prohibited. Gray water is water that is discharged from sinks, showers, tubs, washing machines and garbage disposals.

(Q) Any discharge that would result in, or constitute, a violation of NPDES Permit No. CAS614001, available for viewing at the department of public works, or any amendment, revision or reissuance thereof, either separately considered or when combined with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the person(s) causing or responsible for the discharge and such person(s) shall defend, indemnify and hold harmless the city in any administrative or judicial action relating to such discharge.

(R) Where best management practices, Standard Urban Storm Water Mitigation Plan and/or similar requirements have been duly and legally adopted and imposed by any federal, state of California, regional and/or local regulatory agency with jurisdiction over the city of Cerritos pertaining to any activity, operation or facility that causes or contributes to storm water pollution or illicit discharges to the storm water system, every person undertaking such activity or operation or owning or operating such facility shall comply with such requirements, including obtaining all necessary permits. If the requirements set forth in this chapter are more stringent than the best management practices, Standard Urban Storm Water Mitigation Plan and/or similar requirements duly and legally adopted and imposed by a federal, state of California, regional and/or regulatory agency with jurisdiction over the city of Cerritos, the city engineer may waive the requirements imposed by this chapter upon a finding of good cause.

6.32.040 Illicit disposal.

(A) No person or business shall spill, dump, dispose or place any material, other than storm water runoff, into any storm drain system.

(B) No person or business shall throw, deposit, place, leave, maintain, or permit to be thrown, deposited, placed, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles or accumulations, in or upon any street, alley, sidewalk, stone drain, inlet, catch basin conduit or drainage structure, or upon any public or private plot of land in the city, so that the same might become a pollutant, except in containers, recycling bags, or other lawfully established waste disposal facilities.

6.32.050 Construction sites requiring building permit and/or grading plan.

(A) Any person or business engaging in construction activity that requires an NPDES construction permit must obtain that permit from the Regional Water Quality Control Board, and must demonstrate possession of such permit before grading and/or building permits can be issued. The NPDES construction permit shall be retained on site and shall be shown to the authorized enforcement officer upon request.

(B) No grading permit shall be issued for developments with a disturbed area of land one acre or greater unless the applicant can show that a notice to comply with the State Construction Activity Storm Water Permit has been filed and a SWPPP has been prepared.

(C) The following BMPs shall apply to all projects under construction in the city at the time of demolition of an existing structure or commencement of new construction, and shall remain in place until receipt of a certificate of occupancy.

(1) Runoff, sediment and construction debris shall not leave the site and enter the storm drain system.

(2) Any sediments or other materials which are tracked off site shall be removed the same day as they are tracked off site. Where determined necessary by the authorized enforcement officer, a temporary sediment barrier shall be installed.

(3) Drainage controls to prevent runoff from leaving the site shall be utilized as needed, depending on the topography of the site and extent of proposed grading. These controls may include but are not limited to the following:

(a) Detention ponds, sediment ponds or infiltration pits;

(b) Dikes, filter berms or ditches;

(c) Down drains, chutes or flumes.

(4) Plastic covering may be utilized to prevent erosion of an otherwise unprotected area, along with runoff devices to intercept and safely convey the runoff.

(5) Excavated soil shall be located on the site in a manner that eliminates the possibility of sediments running off site. Soil piles shall be covered until the soil is either used or removed.

(6) No runoff from washing construction or other industrial vehicles on site shall be permitted to leave the site or enter the storm drain system.

(7) The city may, as a condition of granting a construction permit, set reasonable limits on the clearing of vegetation from construction sites, including but not limited to regulating the length of time during which soil may be bare and, in certain sensitive cases, prohibit bare soil.

6.32.055 New development/redevelopment pollution reduction.

(A) Objective: The provisions of this section establish requirements for construction activities and facility operations of development and redevelopment projects to comply with the current applicable MS4 permit to lessen the water quality impacts of development by using smart growth practices and to integrate LID practices and standards for storm water pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use.

(B) Scope: This section contains requirements for storm water pollution control measures in development and redevelopment projects, and authorizes the city to further define and adopt storm water pollution control measures, and to develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies. Except as otherwise provided herein, the city shall administer, implement and enforce the provisions of this section.

(C) Applicability. The following development and redevelopment projects shall be designated as Planning Priority Projects, which are subject to city conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution prior to completion of the projects, and shall meet the requirements of this section:

(1) Development Projects.

(a) All development projects equal to one acre or greater of disturbed area that adds more than ten thousand (10,000) square feet of impervious surface area.

(b) Industrial parks with ten thousand (10,000) square feet or more of surface area.

(c) Commercial malls with ten thousand (10,000) square feet or more of surface area.

(d) Retail gasoline outlets with five thousand (5,000) square feet or more of surface area.

(e) Restaurants with five thousand (5,000) square feet or more of surface area.

(f) Parking lots with five thousand (5,000) square feet or more of impervious surface area, or with twenty-five (25) or more parking spaces.

(g) Streets and roads construction with ten thousand (10,000) square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

(h) Automotive service facilities with five thousand (5,000) square feet or more of surface area.

(i) Projects located in or directly adjacent to, or discharging directly to an environmentally sensitive area, where the development will:

(i) Discharge storm water runoff that is likely to impact a sensitive biological species or habitat; and

(ii) Create two thousand, five hundred (2,500) square feet or more of impervious surface area.

(j) Single-family hillside properties.

(2) Redevelopment Projects.

(a) Land disturbing activity that results in the creation, addition or replacement of five thousand (5,000) square feet or more of impervious surface area on an already developed site of one of the projects identified in this subsection.

(b) Where redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction storm water quality control requirements, the entire project must be mitigated.

(c) Where redevelopment results in an alteration to less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction storm water quality control requirements, only the alteration must be mitigated, and not the entire development.

(d) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

(e) Existing single-family dwellings and accessory structures are exempt from the redevelopment requirements unless such projects create, add, or replace ten thousand (10,000) square feet or more of impervious surface area.

(D) Requirements: The site for every Planning Priority Project identified in section 6.32.055(C) shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use. The project applicant shall prepare a LID Plan which implements set LID standards and practices for storm water pollution mitigation and provides documentation to demonstrate compliance with the MS4 Permit on the plans and permit application submitted to the city. Such a LID Plan shall comply with the following:

(1) A new single-family hillside property development shall prepare a LID Plan to include mitigation measures to:

(a) Conserve natural areas;

(b) Protect slopes and channels;

(c) Provide storm drain system stenciling and signage;

(d) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

(e) Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

(2) Street and road construction of ten thousand (10,000) square feet or more of impervious surface shall follow US EPA guidance regarding managing wet weather with the city's most current Green Streets Manual to the maximum extent practicable.

(3) All other Planning Priority Projects identified in section 6.32.055(C) shall prepare an LID Plan to comply with the following:

(a) Retain storm water runoff onsite for the storm water quality design volume (SWQDv) defined as the runoff from:

(i) The 85th percentile 24-hour runoff event as determined from the Los Angeles County 85th percentile precipitation isohyetal map; or

(ii) The volume of runoff produced from a 0.75 inch, 24-hour rain event, whichever is greater.

(b) Minimize hydromodification impacts to natural drainage systems as defined in the current MS4 Permit.

(4) The LID Plan, including related grading and drainage plans, shall be designed in coordination with, and shall be controlled by, the landscape design for the subject property. LID Plan and LID BMP elements shall not displace required landscaping, but rather shall be designed to be integrated into the landscape design. All landscape planting and irrigation plans prepared in coordination with the LID Plan shall be professionally prepared by a landscape architect and shall be subject to the review and approval of the Department of Community Development and the Department of Public Works.

(E) Technical Infeasibility.

(1) To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Technical infeasibility may result from conditions including the following:

(a) The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv onsite.

(b) Locations where seasonal high groundwater is within five (5) to ten (10) feet of surface grade;

(c) Locations within one hundred (100) feet of a groundwater well used for drinking water;

(d) Brownfield development sites or other locations where pollutant mobilization is a documented concern;

(e) Locations with potential geotechnical hazards; and

(f) Smart growth and infill or redevelopment locations where the density and/or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.

(2) If partial or complete onsite retention is technically infeasible, the project site may biofiltrate 1.5 times the portion of the remaining SWQDv that is not reliably retained onsite. Biofiltration BMPs must adhere to the design specifications provided in the current applicable MS4 Permit.

(3) The remaining SWQDv that cannot be retained or biofiltered onsite must be treated onsite to reduce pollutant loading. BMPs must be selected and designed to meet pollutant-specific benchmarks as required by the MS4 Permit. Flow-through BMPs may be used to treat the remaining SWQDv and must be sized based on a rainfall intensity of 0.2

inches per hour, or the one-year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, whichever is greater.

(F) BMP Maintenance.

(1) As a condition for issuing a certificate of occupancy for a Planning Priority Project identified in this section, the Director of Public Works shall require facility operators and/or owners to build all the storm water pollution control BMPs and structural or treatment control BMPs that are shown on the approved project plans.

(2) The property owner of each Planning Priority Project shall record with the County Recorder a "Covenant And Agreement Regarding On-site LID BMP Maintenance" to the satisfaction of the Director of Public Works and prior to the clearance of the building permit final inspection, issuance of an occupancy permit or operation of the approved land use on the subject property.

(3) The transfer or lease of a property subject to maintenance requirements for LID BMPs shall include conditions requiring the transferee and its successors and assigns to either: (a) assume responsibility for maintenance of any existing LID BMP, or (b) replace an existing LID BMP with new control measures or BMPs meeting the then current standards of the city and MS4 Permit. Such requirement shall be included in any sale or lease agreement or deed for such property. The condition of transfer shall include a provision that the successor property owner or lessee conduct maintenance inspections of all LID BMPs at least once a year and retain proof of inspection.

(4) For residential properties where the LID BMPs are located within a common area which will be maintained by a homeowners' association, language regarding the responsibility for maintenance shall be included in the project's conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what LID BMPs are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

(5) If LID BMPs are located within an area proposed for dedication to a public agency, they will be the responsibility of the developer until the dedication is accepted.

6.32.060 Industrial activity sites.

(A) All persons or businesses engaged in industrial activity in the city shall acquire an NPDES industrial permit from the Regional Water Quality Control Board, before discharging any non-storm water runoff into the storm drain system. The NPDES industrial permit shall be retained on site and shall be shown to the authorized enforcement officer upon request.

(B) Industrial and commercial facility operators/owners shall prepare and submit to the Regional Water Quality Control Board a storm water pollution prevention plan that incorporates BMPs. To prepare their SWPPP, persons or businesses conducting industrial activities within the city should refer to the latest edition of the California Storm Water Best Management Practices Handbook for industrial/commercial facilities, produced and published by the Storm Water Quality Task Force of the American Public Works Association.

6.32.070 Fees.

Fees to be charged for plan checking, inspection and any other activities carried out by the city under this chapter shall be set by the city council by resolution.

6.32.080 Violation—Penalty.

(A) The violation of any provision of this chapter, or failure to comply with any of the requirements of this chapter, shall constitute a misdemeanor; except that notwithstanding any other provision of this chapter, any such violation constituting a misdemeanor under this chapter may, at the sole discretion of the authorized enforcement officer, by charged and prosecuted as an infraction.

(B) In addition to the penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to the public health, safety and welfare, is declared and deemed a nuisance, may be summarily abated and/or restored by the authorized enforcement officer, and/or civil action to abate, enjoin or otherwise compel the cessation of such nuisance.

(1) The cost of such abatement and restoration shall be borne by the owner of the property and the cost thereof shall be invoiced to the owner of the property. If the invoice is not paid with sixty days, a lien may be placed upon and against the property. If the lien is not satisfied within three months, the property may be sold in satisfaction thereof in a like manner as other real property is sold under execution.

(2) If any violation of this chapter constitutes a seasonal recurrent nuisance, the authorized enforcement officer shall so declare. Thereafter such seasonal and recurrent nuisance shall be abated every year without the necessity of any further hearing.

(3) In any administrative or civil proceeding under this chapter in which the city prevails, the city shall be awarded all costs of investigation, administrative overhead, out-of-pocket expenses, costs of suit and reasonable attorney fees.

(C) Penalties for Failure to Comply. The authorized enforcement officer shall enforce this chapter as follows:

(1) For the first failure to comply with any provision of this chapter, the authorized enforcement officer may levy a penalty of five hundred dollars ($500) for residential property violations, and five thousand dollars ($5,000) for commercial or industrial property violations. In addition, the enforcement officer shall issue to the affected person or business a written notice which includes the following information:

(a) A statement specifying the violation committed;

(b) A specified time period within which the affected person or business must correct the failure or file a written notice disputing the notice of failure to comply;

(c) A statement of the penalty for continued noncompliance.

(2) For each subsequent failure to comply with any provision of this chapter, following written notice issued pursuant to subsection (C)(1) of this section, the authorized enforcement officer may levy additional penalties of five hundred dollars ($500) for residential property violations, and five thousand dollars ($5,000) for commercial or industrial property violations each day during which a person or business fails to comply

with the provisions of this chapter. Each calendar day following written notice shall constitute a separate offense.

(D) Whenever necessary to make an inspection to enforce any of the provisions of this chapter, or whenever an authorized enforcement officer has reasonable cause to believe that there exists in any building or upon any premises any condition that constitutes a violation of the provisions of this chapter, the officer may, upon consent or upon obtaining an inspection warrant, enter such building or premises at all reasonable times to inspect the same or perform any duty imposed upon the officer by this chapter.

6.32.090 Disclaimer of liability.

The degree of protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific, engineering and other relevant technical considerations. The standards set forth herein do not imply that compliance will ensure that there will be no unauthorized discharge of pollutants into the waters of the United States. This chapter shall not create liability on the part of the city, any officer or employee thereof, for any damages that result from reliance on this chapter or any administrative decision made thereunder.

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Prior ordinance history: Ord. 748, 777.

Section 2. Severability. If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this Ordinance, or its application to any other person or circumstance. The City Council hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

Section 3. Effective Date. This Ordinance shall take effect thirty (30) days after its adoption in accordance with California Government Code section 36937.

Section 4. Certification. The City Clerk shall certify to the passage and adoption of this Ordinance and shall cause the same to be published and/or posted in accordance with applicable law.

PASSED, APPROVED and ADOPTED this 12th day of June, 2014.

Mark E. Pulido, Mayor

ATTEST:

Vida Barone, City Clerk

RESOLUTION NO. 2013- 31

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DIAMOND BAR, CALIFORNIA, APPROVING A GREEN STREETS MANUAL

The City Council of the City of Diamond Bar, California, does hereby find, resolve, and determine as follows:

Section 1. The Municipal Separate Storm Sewer System (MS4) Permit (Order No. R4-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012. Municipalities electing to prepare a Watershed Management Program or an Enhanced Watershed Management Program under this Permit are required to demonstrate that Green Street policies/manual are in place to specify the use of green street strategies for transportation corridors.

Section 2. Green streets are enhancements to street and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways and tree lined streets.

Section 3. That the City Council of the City of Diamond Bar, California, hereby directs the Director of Public Works to implement Green Streets for transportation corridors as described in the City of Diamond Bar Green Streets Manual. The Green Streets Manual is shown as Exhibit "A", which is attached hereto and incorporated herein by reference.

Section 4. Routine maintenance including but not limited to: slurry seals, grind and overlay and reconstruction to maintain original line and grade are excluded from the Green Streets Manual.

Section 5. At its regular meeting held on October 15, 2013, the City Council determined that the public interest and necessity justify the adoption of the Green Streets Manual.

PASSED, APPROVED, AND ADOPTED this 15th day of October, 2013.

Jack Tanaka, Mayor

I, Tommye Cribbins, City Clerk of the City of Diamond Bar, do hereby certify that the foregoing Resolution was duly introduced, passed, and adopted by the City Council of the City of Diamond Bar, at a regular meeting of the City Council held on the 15th Day of October, 2013 by the following vote:

AYES:	Council Member:	Chang, Tye, MPT/Everett, M/Tanaka
NOES:	Council Member:	None
ABSTAIN:	Council Member:	None
ABSENT:	Council Member:	Herrera

Tommye Cribbins, City Clerk

ORDINANCE NO. 11 (2013)

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DIAMOND BAR, CALIFORNIA, AMENDING DIVISION 5 OF CHAPTER 8.12 OF THE DIAMOND BAR MUNICIPAL CODE RELATING TO STANDARD URBAN STORM WATER MITIGATION PLAN (SUSMP) REQUIREMENTS BY IMPOSING RAINWATER LOW IMPACT DEVELOPMENT (LID) STRATEGIES ON PROJECTS THAT REQUIRE BUILDING, GRADING AND ENCROACHMENT PERMITS

THE CITY COUNCIL OF THE CITY OF DIAMOND BAR, CALIFORNIA, HEREBY FINDS AND DETERMINES AS FOLLOWS:

A. The federal Clean Water Act establishes Regional Water Quality Control Boards in order to prohibit the discharge of pollutants in stormwater runoff to waters of the United States.

B. The City is a permittee under the permit issued by the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, on November 08, 2012 which permit establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except discharges originating from the City of Long Beach MS4.

C. Order No. R4-2012-0175 ("Order") contains requirements for the City to establish a Low Impact Development (LID) Ordinance in order to participate in a Watershed Management Program and/or Enhanced Watershed Management Program.

D. The Regional Board has adopted Total Maximum Daily Loads (TMDLs) for pollutants which are numerical discharge limits that must be achieved effectively through LID implementation.

E. The City has the authority under the California Water Code to adopt and enforce ordinances imposing conditions, restrictions and limitations with respect to activity that might degrade waters of the State.

F. The City has a stormwater management program that protects water quality and water supply by employing watershed-based approaches that balance environmental and economic considerations.

G. Urbanization has led to increased impervious surface areas resulting in increased water runoff and less percolation to groundwater aquifers causing the transport of pollutants to downstream receiving waters.

H. As required by the Order the City is expanding the applicability of the existing LID requirements by providing stormwater and rainwater LID strategies for all projects development and redevelopment projects.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF DIAMOND BAR, CALIFORNIA, DOES HEREBY ORDAIN AS FOLLOWS:

Section 1: Subsection (d) of Section 8.12.1620 entitled "Findings", is deleted in its entirety and replaced with the following:

"(d) The City is a permittee under the permit issued by the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, on November 08, 2012, which permit establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except discharges originating from the City of Long Beach MS4 and as a permittee the City is required to implement procedures with respect to the entry of specified water discharges into the municipal storm water system."

Section 2: Section 8.12.1640 entitled "Definitions", is amended to add or replace the following definitions, which definitions shall be placed in alphabetical order along with the existing definitions of Section 8.12.1640. The following existing definitions in Section 8.12.1640 shall be deleted in their entirety: *Automotive service facilities, Best Management Practice, Construction, Discharge, Municipal NPDES Permit, Municipal Separate Storm Sewer System or MS4, Parking lot, Pollutant, Project, Redevelopment, Standard Urban Storm Water Mitigation Plan or SUSMP* and *Urban runoff.* If the definition of any term contained in Section 8.12.1640 conflicts with the definition of the same term in Order No. R4-2012-0175, then the definition contained in Order No. R4-2012-0175 shall govern.

Automotive Service Facility means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539 provided that these facilities have no outside activities or materials that may be exposed to stormwater.

Basin Plan means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

Best Management Practice (BMP) means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water.

Biofiltration means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this Chapter 8.12 is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's

Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales.

Bioretention means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this Ordinance, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by Order No. R4-2012-0175 as biofiltration.

Bioswale means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

Commercial Malls means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers.

Construction Activity means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that result in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan.

Discharge means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

Flow-through treatment BMPs means a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

Full Capture System means any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage area.

General Construction Activities Storm Water Permit (GCASP) means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from construction activities under certain conditions.

General Industrial Activities Storm Water Permit (GIASP) means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions.

Green Roof means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

Industrial/Commercial Facility means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition).

Industrial Park means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

Infiltration BMP means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

Low Impact Development (LID) consists of building and landscape features designed to retain or filter stormwater runoff.

Municipal Separate Storm Sewer System (MS4) means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

(ii) Designed or used for collecting or conveying stormwater;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Section 122.2.

(40 CFR Section 122.26(b) (8)).

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA Section 307, 402, 318, and 405. The term includes an "approved program".

Natural Drainage System means a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

Outfall means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR Section 122.26(b) (9)).

Parking Lot means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

Pollutant means any "pollutant" defined in Section 502(6) of the Federal Clean Water Act or incorporated into the California Water Code Section 1337.

Project means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code Section 21065).

Rainfall Harvest and Use means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department.

Receiving Water means "water of the United States" into which waste and/or pollutants are or may be discharged.

Redevelopment means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Routine Maintenance" includes, but is not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.
2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.
4. Update existing lines* and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
5. Repair leaks

Routine maintenance does not include construction of new** lines or facilities resulting from compliance with applicable codes, standards and regulations.

* Update existing lines includes replacing existing lines with new materials or pipes.

** New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

Significant Ecological Areas (SEAs) means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan. Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.
4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.
6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.

8. Special areas.

Storm Drain System means any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City.

Storm Water or Stormwater means runoff and drainage related to precipitation events (pursuant to 40 CFR Section 122.26(b)(13); 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990)).

Urban Runoff means surface water flow produced by storm and non-storm events. Non-storm events include flow from residential, commercial or industrial activities involving the use of potable and non-potable water."

Section 3: The second sentence of Section 8.12.1690(b) is amended to read as follows:

"The following shall apply to all construction activities within the City not otherwise governed by Section 8.12.1695 of this Code and such construction activities shall be required from the time of land clearing, demolition or commencement of construction until receipt of a certificate of occupancy:"

Section 4: Section 8.12.1695, entitled "Standard Urban Storm Water Mitigation Plan ((SUSMP"), is deleted in its entirety and replaced with the following:

"Section 8.12.1695. – Low Impact Development Measures for New Development and/or Redevelopment Planning and Construction Activities.

(a) *Objective.* The provisions of this Section establish requirements for construction activities and facility operations of Development and Redevelopment projects to comply with the current "Order No. R4-2012-0175," lessen the water quality impacts of development by using smart growth practices, and integrate LID practices and standards for stormwater pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use. LID shall be inclusive of new development and/or redevelopment requirements.

(b) *Scope.* This Section contains requirements for stormwater pollution control measures in Development and Redevelopment projects and authorizes the City to further define and adopt stormwater pollution control measures, and to develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies, grant waivers from the LID requirements, and collect funds for Projects that are granted waivers. Except as otherwise provided herein, the City shall administer, implement and enforce the provisions of this Section.

(c) *Applicability.* Development projects subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution, prior to completion of the project(s), are:

(1) All development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.

(2) Industrial parks 10,000 square feet or more of surface area.

(3) Commercial malls 10,000 square feet or more of surface area.

(4) Retail gasoline outlets with 5,000 square feet or more of surface area.

(5) Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of surface area.

(6) Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

(7) Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

(8) Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.

(9) Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:

a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

b. Create 2,500 square feet or more of impervious surface area

(10) Single-family hillside homes.

(11) Redevelopment Projects

a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

e. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

(d) *Effective Date.* The Planning and Land Development requirements contained in Section 7 of Order No. R4-2012-0175 shall become effective 90 days from the adoption of the Order (February 6, 2013). This includes Planning Priority Projects that are discretionary permit projects or project phases that have not been deemed complete for processing, or discretionary permit projects without vesting tentative maps that have not requested and received an extension of previously granted approvals within 90 days of adoption of the Order. Projects that have been deemed complete within 90 days of adoption of the Order are not subject to the requirements of Section 7.

(e) *Specific Requirements.* The Site for every Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use.

(1) A new single-family hillside home development shall include mitigation measures to:

a. Conserve natural areas;

b. Protect slopes and channels;

c. Provide storm drain system stenciling and signage;

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

e. Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

(2) Street and road construction of 10,000 square feet or more of impervious surface shall follow USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009) to the maximum extent practicable.

(3) The remainder of Projects shall prepare a LID Plan to comply with the following:

a. Retain stormwater runoff onsite for the Stormwater Quality Design Volume (SWQDv) defined as the runoff from:

i. The 85th percentile 24-hour runoff event as determined from the Los Angeles County 85th percentile precipitation isohyetal map; or

ii. The volume of runoff produced from a 0.75 inch, 24-hour rain event, whichever is greater.

b. Minimize hydromodification impacts to natural drainage systems as defined in Order No. R4-2012-0175.

c. To demonstrate technical infeasibility, the project applicant must demonstrate that the Project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Technical infeasibility may result from conditions including the following:

   i. The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv onsite.

   ii. Locations where seasonal high groundwater is within five to ten feet of surface grade;

   iii. Locations within 100 feet of a groundwater well used for drinking water;

   iv. Brownfield development sites or other locations where pollutant mobilization is a documented concern;

   v. Locations with potential geotechnical hazards;

   vi. Smart growth and infill or redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.

d. If partial or complete onsite retention is technically infeasible, the project Site may biofiltrate 1.5 times the portion of the remaining SWQDv that is not reliably retained onsite. Biofiltration BMPs must adhere to the design specifications provided in Order No. R4-2012-0175.

   i. Additional alternative compliance options such as offsite infiltration and groundwater replenishment projects may be available to the project Site. The Project Site should contact the City to determine eligibility.

e. The remaining SWQDv that cannot be retained or biofiltered onsite must be treated onsite to reduce pollutant loading. BMPs must be selected and designed to meet pollutant-specific benchmarks as required per Order No. R4-2012-0175. Flow-through BMPs may be used to treat the remaining SWQDv and must be sized based on a rainfall intensity of:

   i. 0.2 inches per hour, or

   ii. The one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, whichever is greater."

<u>**Section 5**</u>: VALIDITY. If any provision of this Ordinance is found to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect

the remaining provisions of this Ordinance which provisions are declared to be severable from those found to be unconstitutional or otherwise invalid.

Section 6: EFFECTIVE DATE. This ordinance shall go into effect and be in full force and operation from and after thirty (30) days after its final passage and adoption.

Section 7: The City Clerk shall certify to the passage and adoption of this Ordinance and shall post a certified copy of this Ordinance, together with the vote for and against the same, in the Office of the City Clerk.

PASSED, APPROVED AND ADOPTED THIS 5th DAY OF November, BY THE CITY COUNCIL OF THE CITY OF DIAMOND BAR.

BY: ______________________

Jack Tanaka, Mayor

I, Tommye Cribbins, City Clerk of the City of Diamond Bar, do hereby certify that the foregoing Ordinance was duly introduced at a regular meeting of the City Council of the City of Diamond Bar held on the 15th day of Oct., 2013 and was finally passed at a regular meeting of the City Council held on the 5th day of Oct, 2013, by the following vote:

AYES:	Council Members:	Chang, Herrera, Tye, MPT/Everett, M/Tanaka
NOES:	Council Members:	None
ABSENT:	Council Members:	None
ABSTAIN:	Council Members:	None

ATTEST: ______________________

Tommye Cribbins, City Clerk
City of Diamond Bar

ORDINANCE NO. 14(2013)

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DIAMOND BAR CALIFORNIA, AMENDING DIVISION 5 OF CHAPTER 8.12 OF THE DIAMOND BAR MUNICIPAL CODE RELATING TO STANDARD URBAN STORM WATER MITIGATION PLAN (SUMSP) REQUIREMENTS BY IMPOSING RAINWATER LOW IMPACT DEVELOPMENT (LID) STRATEGIES ON PROJECTS THAT REQUIRE BUILDING, GRADING AND ENCROACHMENT PERMITS.

THE CITY COUNCIL OF THE CITY OF DIAMOND BAR, CALIFORNIA, HEREBY FINDS AND DETERMINES AS FOLLOWS:

A. The federal Clean Water Act establishes Regional Water Quality Control Boards in order to prohibit the discharge of pollutants in stormwater runoff to waters of the United States.

B. The City is a permittee under the permit issued by the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, on November 08, 2012 which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except discharges originating from the City of Long Beach MS4.

C. Order No. R4-2012-0175 ("Order") contains requirements for the City to establish a LID Ordinance in order to participate in a Watershed Management Program and/or Enhanced Watershed Management Program.

D. The Regional Board has adopted Total Maximum Daily Loads (TMDLs) for pollutants which are numerical discharge limits that must be achieved effectively through LID implementation.

E. The City has the authority under the California Water Code to adopt and enforce ordinances imposing conditions, restrictions and limitations with respect to activity that might degrade waters of the State.

F. The City has a stormwater management program that protects water quality and water supply by employing watershed-based approaches that balance environmental and economic considerations.

G. Urbanization has led to increased impervious surface areas resulting in increased water runoff and less percolation to groundwater aquifers causing the transport of pollutants to downstream receiving waters.

H. As required by the Order the City is expanding the applicability of the existing LID requirements by providing stormwater and rainwater LID strategies for all projects development and redevelopment projects.

PASSED, APPROVED AND ADOPTED THIS 17th DAY OF DECEMBER, 2013, BY THE CITY COUNCIL OF THE CITY OF DIAMOND BAR.

BY: Carol Herrera
Carol Herrera, Mayor

I, Tommye Cribbins, City Clerk of the City of Diamond Bar, do hereby certify that the foregoing Ordinance was duly introduced at a regular meeting of the City Council of the City of Diamond Bar held on the 3rd day of December, 2013 and was finally passed at a regular meeting of the City Council held on the 17th day of December, 2013, by the following vote:

AYES:	Council Members:	Chang, Lyons, Tanaka, MPT/Tye, M/Herrera
NOES:	Council Members:	None
ABSENT:	Council Members:	None
ABSTAIN:	Council Members:	None

ATTEST: Tommy Cribbins
Tommye Cribbins, City Clerk

964408.1

RB-AR14219

RESOLUTION NO. 14-7485

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DOWNEY APPROVING AND ADOPTING A GREEN STREETS POLICY AND ASSOCIATED GREEN STREETS MANUAL FOR TRANSPORTATION CORRIDORS

WHEREAS, the Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012 and requires development of Watershed Management Programs (WMPs) or Enhanced Watershed Management Programs (EWMPs) for each watershed to which an agency is tributary to among other requirements; and,

WHEREAS, the City of Downey is participating in three watershed groups, the Lower San Gabriel River, the Lower Los Angeles River, and the Los Cerritos Channel which have all elected to prepare WMPs; and,

WHEREAS, Municipalities electing to prepare a WMP or an EWMP under this Permit are required to demonstrate that Green Street policies are in place that specify the use of green street strategies for transportation corridors; and,

WHEREAS, Green Streets are enhancements to street and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration measures such as bioretention and infiltration trenches and dry wells; bio-treatment/infiltration measures such flow-through planters and vegetated swales; treatment Best Management Practices (BMPs) such as catch basin filters and screens; and implementing and maintaining xeriscaped parkways and tree-lined streets; and,

WHEREAS, prior to February 26, 2013, the development of a draft Green Streets Policy and associated Green Streets Manual had been initiated by the Gateway Water Management Authority of which Downey is a participating member.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF DOWNEY DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. The City of Downey Green Streets Policy and associated Green Streets Manual for transportation corridors attached hereto are hereby approved, adopted, and ordered filed with the City Clerk.

SECTION 2. The City Council of the City of Downey, California, hereby authorizes and directs the Director of Public Works to implement the Green Streets Policy for transportation corridors as described in the City of Downey Green Streets Manual.

SECTION 3. The City Council authorizes the Director of Public Works or his/her designee to modify elements of the Green Streets Policy and associated Green Streets Manual from time to time as may be necessary to reflect changing conditions that: (1) facilitate its implementation; and (2) maintain the goal of reducing pollutants in urban runoff; and (3) are consistent with the requirements of the latest MS4 Permit; and (4) and to facilitate the use of the Manual by the City and contractors.

SECTION 4. Routine maintenance of roadways and other activities as provided in the City LID Ordinance including but not limited to: application of seal coats, slurry seals, grind and overlays, and reconstruction to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety are exempt from the Green Streets Policy and associated Green Streets Manual.

SECTION 5. The City Clerk shall certify to the adoption of this Resolution and shall cause the same to be published or posted as required by law.

APPROVED AND ADOPTED this 22nd day of April, 2014.

FERNANDO VASQUEZ, Mayor

ATTEST:

Adria M. Jimenez, CMC

ADRIA M. JIMENEZ, CMC
City Clerk

I HEREBY CERTIFY that the foregoing Resolution was adopted by the City Council of the City of Downey at a Regular Meeting held on the 22nd day of April, 2014, by the following vote, to wit:

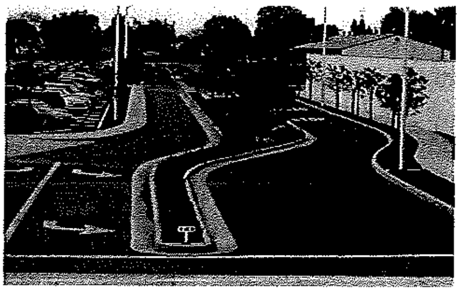
AYES:	Council Members:	Brossmer, Guerra, Saab, Marquez, Mayor Vasquez
NOES:	Council Members:	None
ABSENT:	Council Members:	None
ABSTAIN:	Council Members:	None

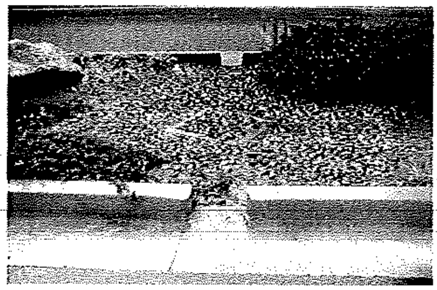
Adria M. Jimenez, CMC

ADRIA M. JIMENEZ, CMC
City Clerk

City of DOWNEY

Green Streets Manual





April 2014

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SECTION 1 - INTRODUCTION

1.1 WHAT ARE GREEN STREETS?

Roads present many opportunities for green infrastructure application. One principle of green infrastructure involves reducing and treating stormwater and urban close to its source. Urban transportation right-of-ways integrated with green techniques are often called "green streets." Green streets provide source controls for stormwater and urban runoff and pollutant loads. In addition, green infrastructure approaches complement street facility upgrades, street aesthetic improvements, and urban tree canopy efforts that also make use of the right-of-way and allow it to achieve multiple goals and benefits. Using the right-of-way for treatment of stormwater and urban runoff links green with grey infrastructure by making use of the engineered conveyance of roads and providing connections to conveyance systems when needed.

Green streets are beneficial for new road construction and retrofits. They can provide substantial economic benefits when used in transportation applications. Coordinating green infrastructure installation with broader transportation improvements can reduce the cost of runoff management by including it within larger infrastructure improvements. A large municipal concern regarding green infrastructure use is maintenance access; using roads and right-of-ways as locations for green infrastructure not only addresses a significant pollutant source, but also alleviates access and maintenance concerns by using public space. Also, right-of-way installations allow for easy public maintenance.

Green streets can incorporate a wide variety of design elements including street trees, permeable pavements, bioretention, and swales. Although the design and appearance of green streets will vary, the functional goals are the same; provide source control of stormwater and urban runoff, limit its transport and pollutant conveyance to the collection system, restore pre-development hydrology to the maximum extent practicable, and provide environmentally enhanced roads. Successful application of green techniques will encourage soil and vegetation contact and infiltration and retention of runoff to help augment local water supplies.

1.2 WHY ARE GREEN STREETS BEING REQUIRED?

This Green Streets Manual provides guidance to comply with the MS4 Permit (Order Number R4-2012-0175) which requires that jurisdictions in Los Angeles County reduce contaminants in runoff to improve water quality in waterways. These requirements stem from the National Pollutant Discharge Elimination System (NPDES) requirements of the Clean Water Act (CWA).

The MS4 Permit requires Green Streets strategies to be implemented for transportation corridors. Transportation corridors represent a large percentage of the impervious area within Los Angeles and therefore generate a substantial amount of runoff from storm events. The altered flow regime from traditional roadways, increased runoff volume, and high runoff peak flows, are damaging to the environment and a risk to property downstream.

Traditionally, street design has focused on removing water from the street as quickly as possible and transferring it to storm drains, channels, and water bodies. Stormwater and urban runoff can contain bacteria and other pollutants, and is thereby regulated at the state and local level (refer to *Table 1* for a list of pollutants typical of roads). Green Streets will help to transform the design of streets from the conventional method of moving water off-site as quickly as possible to a method of storing, treating, and infiltrating water on-site for a cleaner discharge into the waters of the U.S.

Street and road construction applies to major arterials, state routes, highways, or rail lines used for the movement of people or goods by means of bus services, trucks, and vehicles, and transportation corridors within larger projects. Projects which are required to follow this Green Streets Guidance Manual include the following:

1. Street and road construction of 10,000 square feet or more of impervious surface area.
2. Street and road redevelopment resulting in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include repaving, application of seal coats, slurry seals, grind and overlays, or reconstruction of existing roads to maintain original line and grade.
3. Project is designated by the Director of Public Works as an applicable Green Streets project.

Table 1: Examples of Stormwater Pollutants Typical of Roads (*Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets, 2008*).

Pollutant	Source	Effects
Trash	Littering	Physical damage to aquatic animals and fish, release of poisonous substances
Sediment/solids	Construction, unpaved areas	Increased turbidity, increased transport of soil bound pollutants, negative effects on aquatic organisms reproduction and function
Metals (Copper, Zinc, Lead, Arsenic)	Vehicle brake pads, vehicle tires, motor oil, vehicle emissions and engines, vehicle emissions, brake linings, automotive fluids	Toxic to aquatic organisms and can accumulate in sediments and fish tissues
Organics associated with petroleum (e.g., PAHs)	Vehicle emissions, automotive fluids, gas stations	Toxic to aquatic organisms
Nutrients	Vehicle emissions, atmospheric deposition	Promotes eutrophication and depleted dissolved oxygen concentrations

1.3 PLANNING AND DEVELOPMENT

Ideally, a site would be designed to capture and use or infiltrate the entire runoff volume of a storm, however site and design constraints make it difficult to achieve that goal. This Green Streets Manual is designed to provide guidance with BMP selection based on site constraints typical to street design. Streetscape geometry, topography, and climate determine the types of controls that can be implemented. The initial step in selecting a stormwater and urban runoff tool is determining the available open space and constraints. Stormwater and urban runoff controls should be selected using the hierarchy represented in *Figure 1*, the site guidelines represented in *Table 2*, and the location opportunities listed in *Table 3*. Note that the BMP type may be selected with the project size, complexity, and cost taken into consideration.

1.3.1 Site Considerations

Specific elements which should be given special consideration in the site assessment process for applicable Green Streets include:

- **Ownership of land adjacent to right of ways.** The opportunity to provide stormwater and urban runoff treatment may depend on the ownership of land adjacent to the right-of-way. Acquisition of additional right-of-way and/or access easements may be more feasible if land bordering the project is owned by relatively few land owners.
- **Location of existing utilities.** The location of existing storm drainage utilities can influence the opportunities for Green Streets infrastructure. For example, stormwater planters can be designed to overflow along the curb-line to an existing storm drain inlet, thereby avoiding the infrastructure costs associated with an additional inlet. The location of other utilities may limit the allowable placement of BMPs to only those areas where a clear pathway to the storm drain exists.
- **Grade differential between road surface and storm drain system.** Some BMPs require more head from inlet to outlet than others; therefore, allowable head drop may be an important consideration in BMP selection. Storm drain elevations may be constrained by a variety of factors in a roadway project (utility crossings, outfall elevations, etc.) that cannot be overcome and may override stormwater and urban runoff management considerations.
- **Longitudinal slope.** The suite of BMPs which may be installed on steeper road sections is more limited. Specifically, permeable pavement and swales are more suitable for gentle grades. Other BMPs may be more readily terraced to be used on steeper slopes.
- **Soil suitability.** Infiltration BMPs require specific types of soil. The site assessment should determine the type of soils on the site and the infiltration rate of the soils if infiltration BMPs are proposed.
- **Potential access opportunities.** A significant concern with installation of BMPs in major right of ways is the ability to safely access the BMPs for maintenance considering traffic hazards. Vehicle travel lanes and specific areas potentially hazardous for maintenance crews should be identified during the site assessment. The Green Streets Plan should provide subsequent steps to avoid placing BMPs in the identified hazardous areas.

1.3.2 Design Considerations

The drainage patterns of the project should be developed so that drainage can be routed to areas with BMP opportunities before entering storm drains. For example, if a median strip is present, a reverse crown should be considered, where allowed, so that stormwater and urban runoff can drain to a median swale. Likewise, standard peak-flow curb inlets should be located downstream of areas with potential for stormwater planters so that water can first flow into the planter, and then overflow to the downstream inlet if capacity of the planter is exceeded. It is more difficult to apply green infrastructure after water has entered the storm drain.

Green Streets projects are not required to treat off-site runoff; however, treatment of comingled off-site runoff may be used to off-set the inability to treat areas within the project for which significant constraints prevent the ability to provide treatment.

Applicable Green Streets projects should apply the following site design measures to the maximum extent practicable and as specified in the local permitting agency's codes:

- Minimize street width where feasible while maintaining traffic flow and public safety.
- Add tree canopy by planting or preserving trees/shrubs.
- Use porous pavement or pavers for low traffic roadways, on-street parking, shoulders or sidewalks.
- Integrate traffic calming measures in the form of bioretention curb extensions.

1.3.3 BMP Sizing for Applicable Green Streets Projects

An 85th percentile standard design storm should be used to determine the appropriate size, slope, and materials of each facility. After identifying the appropriate stormwater facilities for a site, an integrated approach using several BMPs is encouraged. To increase water quality and functional hydrologic benefits, several stormwater management BMPs can be used in succession. This is called a treatment train approach. The control measures should be designed using available topography to take advantage of gravity for conveyance to and through each facility. All Green Streets designs must be based off of a published design standard.

The following steps should be used to size BMPs for applicable Green Streets projects:

1. Delineate drainage areas tributary to BMP locations and compute imperviousness.
2. Look up the recommended sizing method for the BMP selected in each drainage area and calculate target sizing criteria.
3. Design BMPs per a published design standard.
4. Attempt to provide the calculated sizing criteria for the selected BMPs.
5. If sizing criteria cannot be achieved, document the constraints that override the application of BMPs and provide the largest portion of the sizing criteria that can be reasonably provided given constraints. If BMPs cannot be sized to provide the calculated volume for the tributary area, it is still essential to design the BMP inlet, energy dissipation, and overflow capacity for the full tributary area to ensure that flooding and scour is avoided. It is strongly recommended that BMPs which are designed to less than their target design volume be designed to bypass peak flows.

1.3.4 Alternative Compliance Options for Applicable Green Streets Projects

Alternative compliance programs should be considered for applicable Green Streets projects if on-site green infrastructure approaches cannot practicably treat the design volume. The primary alternative compliance option for applicable Green Streets projects is the completion of off-site mitigation projects. The proponent would implement a project to reduce stormwater pollution for other portions of roadway or similar land uses when being reconstructed to the project in the same hydrologic unit, ideally as close to the project as possible and discharging to the same outfall.

1.3.5 Infiltration Considerations

Appropriate soils, infiltration media, and infiltration rates should be used for infiltration BMPs. If infiltration is proposed, a complete geotechnical or soils report should be undertaken to determine infiltration rates, groundwater depth, soil toxicity and stability, and other factors that will affect the ability and the desirability of infiltration. At a minimum, the infiltration capacity of the underlying soils shall be deemed suitable for infiltration (0.3 inches per hour or greater), appropriate media should be used in the BMP itself, the groundwater shall be located at a depth of ten feet or greater.

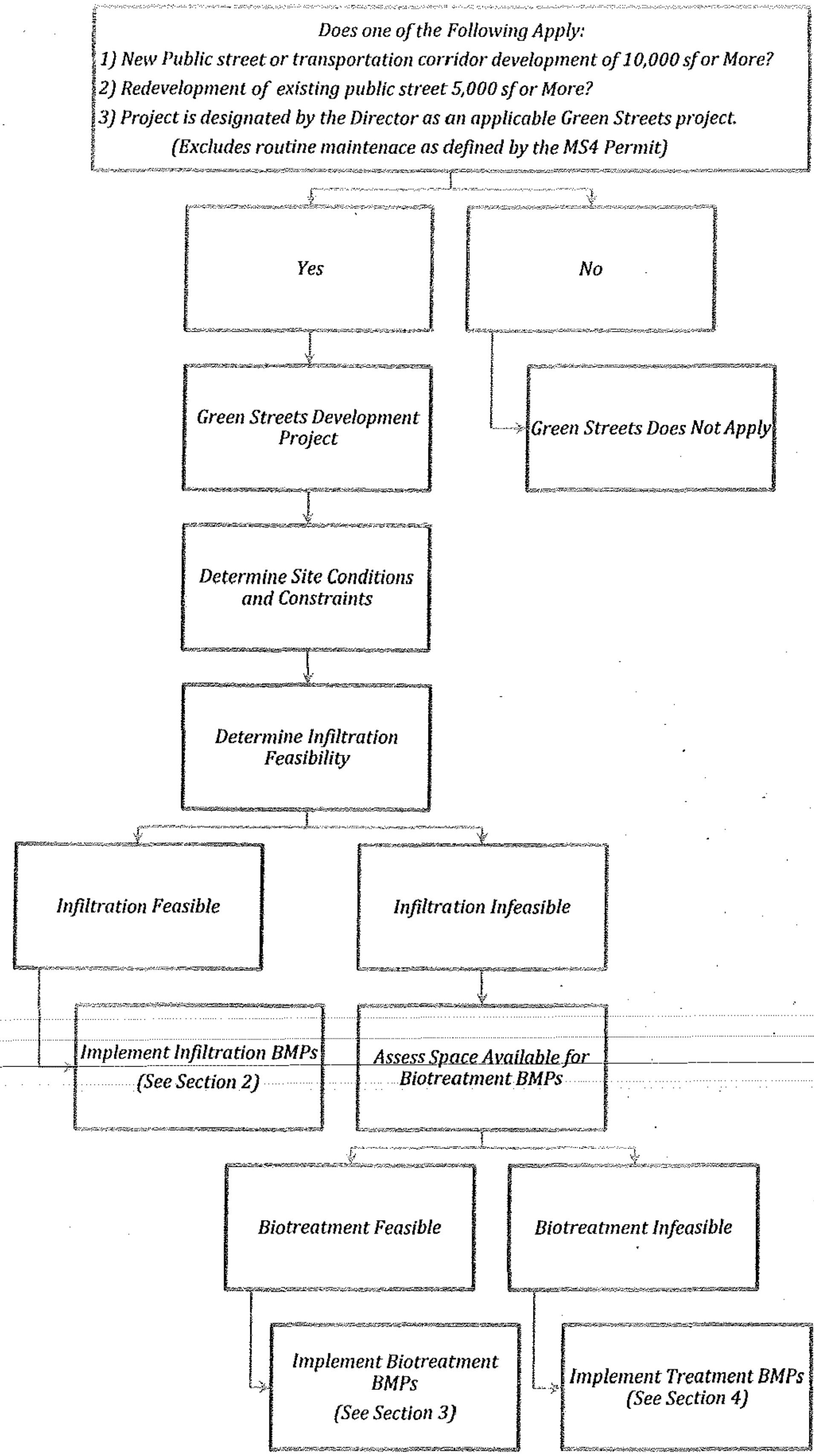

Figure 1: BMP Selection Flow Chart.

RB-AR14228

Table 2: BMP Selection by Street Context (*Model for Living Streets Design Manual, 2011*).

	STREET CONTEXT	BIORETENTION			DETENTION		PAVING	INLET PROTECTIONS		
		Swales	Planters	Vegetated Buffer Strips	Rain Gardens	Infiltration Trenches & Dry Wells	Permeable Pavement	Storm Drain Inlet Screens	Storm Drain Filter Inserts	Pipe Filter Inserts
Commercial	Downtown Commercial		✓			✓	✓	✓	✓	✓
	Commercial Throughway		✓	✓		✓	✓	✓	✓	✓
	Neighborhood Commercial		✓	✓	✓	✓	✓	✓	✓	✓
Residential	Downtown Residential	✓	✓		✓	✓	✓	✓	✓	✓
	Residential Throughway	✓	✓		✓	✓	✓	✓	✓	✓
	Neighborhood Residential	✓	✓		✓	✓	✓	✓	✓	✓
Industrial And Mixed-Use	Industrial	✓	✓		✓	✓	✓	✓	✓	✓
	Mixed-Use		✓	✓	✓	✓	✓	✓	✓	✓
Special	Sidewalk Furniture Zone	✓	✓		✓	✓	✓	✓	✓	✓
	Park Edge	✓	✓		✓	✓	✓	✓	✓	✓
	Boulevard	✓	✓		✓	✓	✓	✓	✓	✓
	Ceremonial (Civic)						✓	✓	✓	✓
Small	Alley		✓			✓	✓	✓	✓	✓
	Shared Public Way		✓			✓	✓	✓	✓	✓
	Walk Street		✓	✓		✓	✓	✓	✓	✓

Table 3: BMP Location Opportunity Summary.

BMP	Location Opportunity Summary
Bioretention	• Adjacent to traveled way and in frontage or furniture sidewalk zones • Can be located in curb extensions, medians, traffic circles, roundabouts, and any other landscaped area • Suitable for constrained locations
Infiltration Trench/Dry Well	• Can be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians
Rain Gardens	• Can be integrated medians, islands, circles, street ends, chicanes, and curb extensions • Can be located at the terminus of swales in the landscape
Permeable Pavement	• Suitable for parking or emergency access lanes • Can be located in furniture zones of sidewalks especially adjacent to tree wells • Cannot be placed in areas with large traffic volume or heavy load lanes • Avoid steep streets • Cannot be placed within 20 feet of sub-sidewalk basements • Cannot be within 50 feet of domestic water wells
Flow-Through Planters	• Above-grade planters should be structurally separate from adjacent sidewalks • At-grade planter systems can be installed adjacent to curbs within the frontage and/or furniture zones
Vegetated Swales	• Can be located adjacent to roadways, sidewalks, or parking areas • Can be integrated into traffic calming devices such as chicanes and curb extensions • Can be placed in medians where the street drains to the median • Can be placed alongside streets and pathways • Should be designed to work in conjunction with the street slope
Vegetated Buffer Strips	• Can be located in multi-way boulevards, park edge streets, or sidewalk furniture zones • Can serve as pre-treatment
Treatment BMPs	• Can be located in a catch basin, manhole, or vault • Can be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow • Can be placed on existing curbside catch basins and flush grate openings • Can be installed on the existing wall of a catch basin and on the curb side wall of a catch basin • Minimum set-backs from foundations and slopes should be observed if the BMP is not lined
Street Trees	• Can be placed on sidewalks, in furniture zones, and on medians • Adequate spacing must be provided between trees and street lights, pedestrian lights, accessible parking spaces, bus shelters, awnings, canopies, balconies, and signs

SECTION 2 - INFILTRATION

Infiltration systems utilize rock, gravel, and other highly permeable materials for on-site infiltration. In these systems, stormwater and urban runoff is directed to the system and allowed to infiltrate into the soils for on-site retention and groundwater recharge. During small storm events, infiltration systems can result in significant or even complete volume reduction of stormwater runoff.

Infiltration should be used to the maximum extent practicable. Biotreatment BMPs should be considered if infiltration is found to be infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

Infiltration BMPs may become damaged by stormwater carrying high levels of sediment, therefore pre-treatment features should be designed to treat street runoff prior to discharging to infiltration features. Media filters, filter inserts, vortex type units, bioretention devices, sumps, and sedimentation basins are several pre-treatment tools effective at removing sediment.

2.1 INFILTRATION TRENCHES AND DRY WELLS

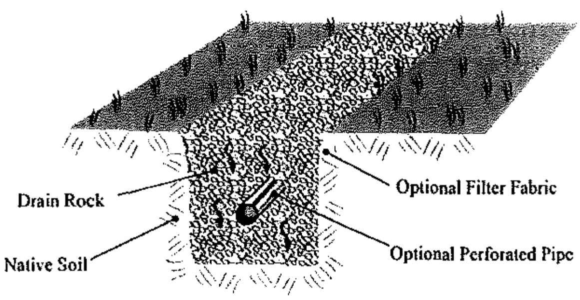

Figure 2: Infiltration Trench ***(Model for Living Streets Design Manual, 2011).***

Description

Infiltration trenches are linear, rock-filled features that promote infiltration by providing a high ratio of sub-surface void space in permeable soils. They provide on-site stormwater retention and may contribute to groundwater recharge. Infiltration trenches may accept stormwater and urban runoff from sheet flow, concentrated flow from a swale or other surface feature, or piped flow from a catch basin. Because they are not flow-through BMPs, infiltration trenches do not have outlets but may have overflow outlets for large storm events.

Dry wells are typically distinguished from infiltration trenches by being deeper than they are wide. They are usually circular, resembling a well, and are backfilled with the same materials as infiltration trenches. Dry wells typically accept concentrated flow from surface features or from pipes and do not have outlets.

Infiltration trenches and dry wells are typically designed to infiltrate all flow they receive. In large storm events, partial infiltration of runoff can be achieved by providing an overflow outlet. In these systems, significant or even complete volume reduction is possible in smaller storm events. During large storm events, these systems may function as detention facilities and provide a limited amount of retention and infiltration.

Location and placement guidelines

Infiltration trenches and dry wells typically have small surface footprints so they are potentially some of the most flexible elements of landscape design. However, because they involve sub-surface excavation, these features may interfere with surrounding structures. Care needs to be taken to ensure that surrounding building foundations, pavement bases, and utilities are not damaged by infiltration features. Once structural soundness is ensured, infiltration features may be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians. When located in medians, they are most effective when the street is graded to drain to the median. Dry wells require less surface area than trenches and may be more feasible in densely developed areas.

Infiltration features should be sited on uncompacted soils with acceptable infiltration capacity. They are best used where soil and topography allow for moderate to good infiltration rates (0.3 inches per hour or better) and the depth to groundwater is at least 10 feet. Prior to design of any retention or infiltration system, proper soil investigation and percolation testing shall be conducted to determine appropriate infiltration design rates, depth to groundwater, and if soil will exhibit instability as a result of infiltration. Any site with potential for previous underground contamination shall be investigated. Infiltration trenches and dry wells can be designed as stand-alone systems when water quality is not a concern or may be combined in series with other stormwater tools.

Perforated pipes and piped inlets and outlets may be included in the design of infiltration trenches. Cleanouts should be installed at both ends of any piping and at regular intervals in long sections of piping, to allow access to the system. Access ports are recommended for both trenches and wells and can be combined with clean-outs. If included, the overflow inlet from the infiltration trench should be properly designed for anticipated flows.

2.2 RAIN GARDENS

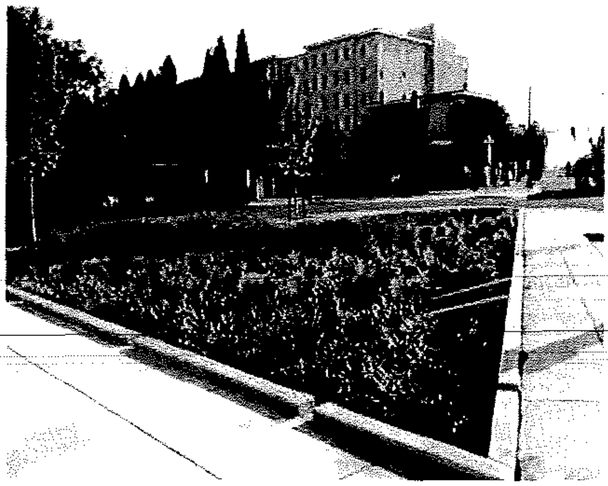

Figure 3: Rain garden (*Model for Living Streets Design Manual, 2011*).

Description

Rain gardens are vegetated depressions in the landscape. They have flat bottoms and gently sloping sides. Rain gardens can be similar in appearance to swales, but their footprints may be any shape. Rain gardens hold water on the surface, like a pond, and have overflow outlets. The detained water is infiltrated through the topsoil and subsurface drain rock unless the volume of water is so large that some must overflow. Rain gardens can reduce or eliminate off-site stormwater and urban runoff discharge while increasing on-site recharge.

Location and Placement Guidelines

Rain gardens may be placed where there is sufficient area in the landscape and where soils are suitable for infiltration. Rain gardens can be integrated with traffic calming measures installed along streets, such as medians, islands, circles, street ends, chicanes, and curb extensions. Rain gardens are often used at the terminus of swales in the landscape.

2.3 PERMEABLE PAVEMENT

Figure 4: Permeable pavement during a storm event (*Model for Living Streets Design Manual, 2011).*

Description

Permeable pavement is a system with the primary purpose of slowing or eliminating direct runoff by absorbing rainfall and other urban runoff and allowing it to infiltrate into the soil. Permeable pavement also filters and cleans pollutants such as petroleum deposits on streets, reduces water volumes for existing overtaxed pipe systems, and decreases the cost of offsite or onsite downstream infrastructure. This BMP is impaired by sediment-laden run-on which diminishes its porosity. Care should be taken to avoid flows from landscaped areas reaching permeable pavement. Permeable pavement is, in certain situations, an alternative to standard pavement. Conventional pavement is designed to move stormwater off-site quickly. Permeable pavement, alternatively, accepts the water where it falls, minimizing the need for management facilities downstream.

Location and Placement Guidelines

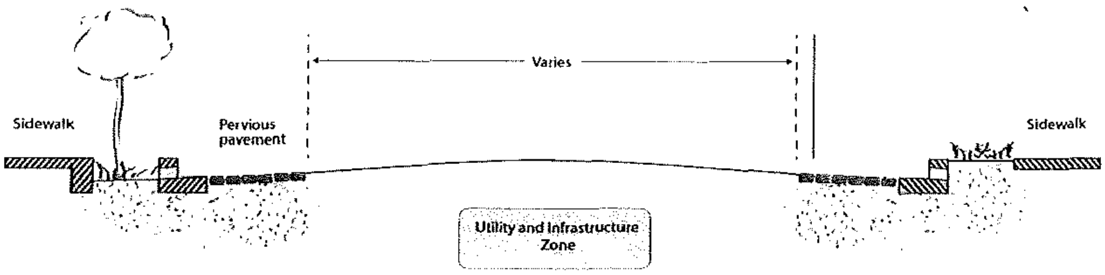

Figure 5: Possible pervious pavement design layout (*Model for Living Streets Design Manual, 2011*).

Conditions where permeable pavement should be encouraged include:

- Sites where there is limited space in the right-of-way for other BMPs;
- Parking or emergency access lanes; and
- Furniture zones of sidewalks especially adjacent to tree wells

Conditions where permeable pavement should be avoided include:

- Large traffic volume or heavy load lanes;
- Where runoff is already being harvested from an impervious surface for direct use, such as irrigation of bioretention landscape areas;
- Steep streets;
- Gas stations, car washes, auto repair, and other sites/sources of possible chemical contamination;
- Areas with shallow groundwater;
- Within 20 feet of sub-sidewalk basements; and
- Within 50 feet of domestic water wells.

Material and Design Guidelines

A soil or geotechnical report should be conducted to provide information about the permeability rate of the soil, load-bearing capacity of the soil, the depth to groundwater (10 feet or more required), and if soil will exhibit instability as a result of implementation. Infiltration rate and load capacity are key factors in the functionality of this BMP. Permeable pavement generally does not have the same load-bearing capacity as conventional pavement, so this BMP may have limited applications depending on the underlying soil strength and pavement use. Permeable pavement should not be used in general traffic lanes due to the possible variety of vehicles weights and heavy volumes of traffic.

When used as a road paving, permeable pavement that carries light traffic loads typically has a thick drain rock base material. Pavers should be concrete as opposed to brick or other light-duty materials. Other possible permeable paving materials include porous concrete and porous asphalt. These surfaces also have specific base materials that detain infiltrated water and provide structure for the road surface. Base material depths should be specified based on design load and the soils report.

Plazas, emergency roads, and other areas of limited vehicular access can also be paved with permeable pavement. Paving materials for these areas may include open cell paver blocks filled with stones or grass and plastic cell systems. Base material specifications may vary depending on the product used, design load, and underlying soils.

When used for pedestrian paths, sidewalks, and shared-use paths, appropriate materials include those listed above as well as rubber pavers and decomposed granite or something similar (washed or pore-clogging fine material). Pedestrian paths may also use broken concrete pavers as long as ADA requirements are met. Paths should drain into adjoining landscapes and should be higher than adjoining landscapes to prevent run-on. Pavement used for sidewalks and pedestrian paths should be ADA compliant, especially smooth, and not exceed a 2 percent slope or have gaps wider than 0.25 inches. In general, tripping hazards should be avoided.

Design considerations for permeable pavement include:

- The location, slope and load-bearing capacity of the street, and the infiltration rate of the soil;
- The amount of storage capacity of the base course;
- The traffic volume and load from heavy vehicles;
- The design storm volume calculations and the quality of water; and
- Drain rock, filter fabrics, and other subsurface materials.

Maintenance Guidelines

Maintenance of permeable pavement systems is essential to their continued functionality. Regular vacuuming and street sweeping should be performed to remove sediment from the pavement surface. The bedding and base material should be selected for long life and sufficient infiltration rates.

SECTION 3 - BIOTREATMENT

Biotreatment BMPs are landscaped, shallow depressions that capture and filter stormwater and urban runoff. These types of BMPs are an increasingly common type of stormwater treatment device that are installed at curb level and filled with a bioretention type soil. They are designed as soil and plant-based filtration devices that remove pollutants through a variety of physical, biological, and chemical treatment processes. They typically consist of a ponding area, mulch layer, planting soils, and plants. Runoff is directed to the system and pollutants are treated as the runoff drains through the planting soil and either infiltrated or collected by an underdrain and directed to a collection system.

Biotreatment should only be used in cases where infiltration has been proven infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

3.1 BIORETENTION

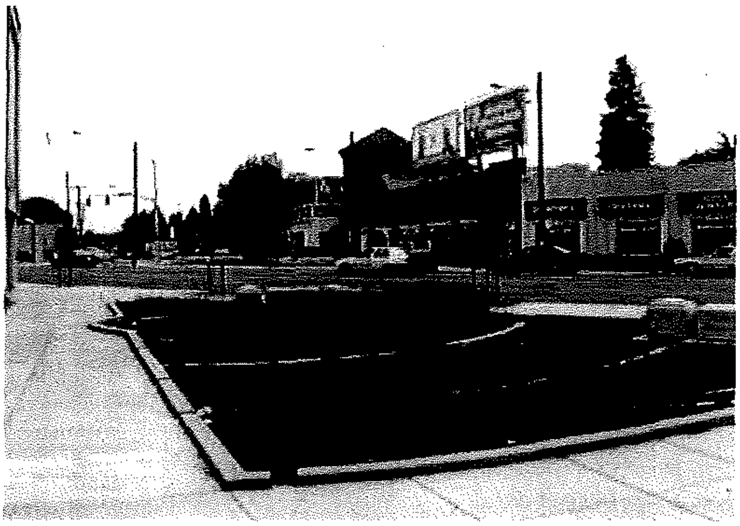

Figure 6: Bioretention system (*Model for Living Streets Design Manual, 2011*).

Description

Bioretention is a stormwater and urban runoff management process that cleans runoff by mimicking natural soil filtration processes as water flows through a bioretention BMP. It incorporates mulch, soil pores, microbes, and vegetation to reduce and remove sediment and pollutants from stormwater. Bioretention is designed to slow, spread, and, subsequently infiltrate water. Each component of the bioretention BMP is designed to assist in retaining water, evapotranspiration, and adsorption of pollutants into the soil matrix. As runoff passes through the vegetation and soil, the combined effects of filtration, absorption, adsorption, and biological uptake of plants remove pollutants.

For areas with low permeability or other soil constraints, bioretention can be designed as a flow-through system with a barrier protecting runoff from native soils. Bioretention areas can be designed with an underdrain system that directs the treated runoff to infiltration areas, cisterns, or the storm drain system, or may treat the water exclusively through surface flow. Examples of bioretention BMPs include swales, planters, and vegetated buffer strips.

Location and Placement Guidelines

Bioretention facilities can be included in the design of all street components; adjacent to the traveled way and in the frontage or furniture sidewalk zones. They can be designed into curb extensions, medians, traffic circles, roundabouts, and any other landscaped area. Depending on the feature, maintenance and access should always be considered in locating the device. Bioretention systems are also appropriate in constrained locations where other stormwater facilities requiring more extensive subsurface materials are not feasible.

If bioretention devices are designed to include infiltration, native soil should have a minimum permeability rate of 0.3 inches per hour and at least 10 feet to the groundwater table. Sites that have more than a 5 percent slope may require other stormwater and urban runoff management approaches or special engineering.

3.2 FLOW-THROUGH PLANTERS

Figure 7: Flow-through planter (*Model for Living Streets Design Manual, 2011).*

Description

Flow-through planters are typically above-grade or at-grade with solid walls and a flow-through bottom. Often, they are contained within an impermeable liner (permeable applications are available where allowed) and use an underdrain to direct treated runoff back to the collection system. Where space permits, buildings can direct roof drains first to building-adjacent planters. Both underdrains and surface overflow drains are typically installed with building-adjacent planters.

At-grade street-adjacent planter boxes are systems designed to take street runoff and/or sidewalk runoff and incorporate bioretention processes to treat runoff. These systems may or may not include underdrains.

Location and Placement Guidelines

Above-grade planters should be structurally separate from adjacent sidewalks to allow for future maintenance and structural stability per the City Department of Public Work standards. At-grade planter systems can be installed adjacent to curbs within the frontage and/or parkway zones.

All planters should be designed to pond water for less than 48 hours after each storm. Flow-through planters designed to detain roof runoff can be integrated into a building's foundation walls, and may be either raised or at grade.

For at-grade planters, small localized depressions may be included in the curb opening to encourage flow into the planter. Following the inlet, a sump (depression) to capture sediment and debris may be integrated into the design to reduce sediment loadings.

3.3 VEGETATED SWALES

Figure 8: Vegetated Swale (*Downey, CA*).

Description

Swales are linear, vegetated depressions that capture rainfall and runoff from adjacent surfaces. The swale bottom should have a gradual slope to convey water along its length. Swales can reduce off-site stormwater and urban runoff discharge and remove pollutants along the way. In a swale, water is slowed by traveling through vegetation on a relatively flat grade. This gives particulates time to settle out of the water while contaminants are removed by the vegetation.

Location and Placement Guidelines

Swales can easily be located adjacent to roadways, sidewalks, or parking areas. Roadway runoff can be directed into swales via flush curbs or small evenly-spaced curb cuts into a raised curb. Swale systems can be integrated into traffic calming devices such as curb extensions.

Swales can be placed in medians where the street drains to the median. Placed alongside streets and pathways, vegetated swales can be landscaped with native plants which filter sediment and pollutants and provide habitat for wildlife. Swales should be designed to work in conjunction with the street slope to maximize filtration and slowing of stormwater and urban runoff.

Swales are designed to allow water to slowly flow through the system. Depending on the landscape and design storm, an overflow or bypass for larger storm events may be needed. Curb openings should be designed to direct flow into the swale. Following the inlet, a sump may be built to capture sediment and debris.

3.4 VEGETATED BUFFER STRIPS

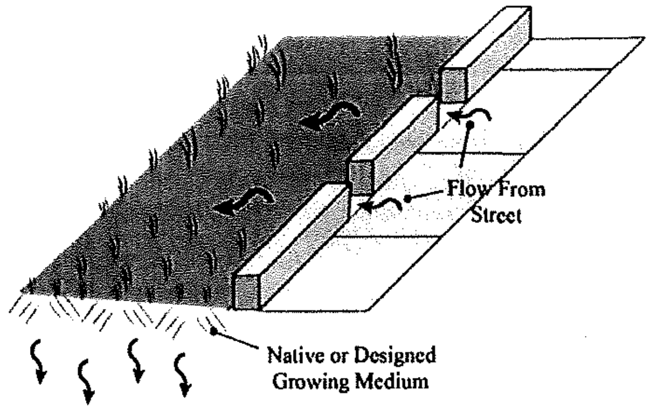

Figure 9: Vegetated buffer strip detail (*Model for Living Streets Design Manual, 2011)*.

Description

Vegetated buffer strips are sloping planted areas designed to treat and absorb sheet flow from adjacent impervious surfaces. These strips are not intended to detain or retain water, only to treat it as a flow-through feature. They should not receive concentrated flow from swales or other surface features, or concentrated flow from pipes.

Location and Placement Guidelines

Vegetated buffer strips are well-suited to treating runoff from roads and highways, small parking lots, and pervious surfaces. They may be commonly used on multi-way boulevards, park edge streets, or sidewalk furniture zones with sufficient space. When selecting potential placement the need for supplemental irrigation should be considered. Vegetated buffers can also be situated so they serve as pre-treatment for another stormwater management feature, such as an infiltration BMP.

SECTION 4 - TREATMENT BMPS

4.1 SAND FILTERS & STORM DRAIN INLET PROTECTIONS

As described in Section 1 of this Green Streets Manual, it may be infeasible for specific projects to apply infiltration or biotreatment BMPs. In these cases, sand filters or filter inserts as treatment BMPs can be considered as an alternative. Sand filters and filter inserts can be designed to prevent particulates, debris, metals, and petroleum-based materials conveyed by runoff from entering the storm drain system. All treatment BMP units should have an overflow system that allows the storm drain to remain functional if the filtration system becomes clogged during rainstorms. All storm drain inlet protections must be of a style and configuration approved by the agency with ownership of the inlet.

Typical maintenance of catch basins includes scheduled trash removal if a screen or other debris capturing device is used. Street sweeping should be performed by vacuum sweepers with occasional weed and large debris removal. Maintenance should include keeping a log of the amount of sediment collected and the data of removal.

The following are examples of acceptable treatment BMPs:

- **Sand Filters:** Sand filters are designed to filter stormwater and urban runoff through a constructed media bed and to an underdrain system. As runoff flows through the media pollutants are filtered out of the water. The filtered water is conveyed through the underdrain to a collection system. Pretreatment is necessary to eliminate significant sediment load or other large particles which would clog the system. Minimum set-backs from foundations and slopes should be observed if the facility is not lined. Filters should be designed and maintained such that ponded water should not persist for longer than 48 hours following a storm event.

- **Cartridge Media Filters:** Cartridge media filters contain multiple modular filters which contain engineered media. The filters can be located in a catch basin, manhole, or vault. The manhole or vault may be divided into multiple chambers so that the first chamber may act as a pre-settling basin for removal of coarse sediment while the next chamber may act as the filter chamber. Cartridge media filters are recommended for drainage areas with limited available surface area or where surface BMPs would restrict uses. Depending on the number of cartridges, maintenance events can have long durations. Locations should be chosen so that maintenance events will not significantly disrupt businesses or traffic. Inlet inserts should be sized to capture all debris and should therefore be selected to match the specific size and shape of each catch basin and inlet. Filter media should be selected to target pollutants of concern. A combination of media may be used to remove a variety of pollutants. Systems with lower maintenance requirements are preferred.

- **Storm Drain Inlet Screens:** Inlet screens are designed to prevent large litter and trash from entering the storm drain system while allowing smaller particles to pass through. The screens function as the first preventive measure in removing pollutants from the storm water system. The City's Public Works Department should be consulted to ensure compliance with local specifications and to schedule regular maintenance. Annual inspection of the screen is recommended to ensure functionality. Note that most LA River drainage areas are already protected using connector pipe screens through collective systems.

- **Storm Drain Pipe Filter Insert:** The storm drain outlet pipe filter is designed to be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow. This filter removes debris, particulates, and other pollutants from runoff as it leaves the storm drain system. This BMP is less desirable than a protection system that prevents debris from entering the storm drain system because the system may become clogged with debris. Outlet pipe filters can be placed on existing curbside catch basins and flush grate openings. Regular maintenance is required and inspection should be performed rigorously. Because this filter is located at the outlet of a storm drain system, clogging with debris is not as apparent as with filters at street level. This BMP may be used as a supplemental filter with an inlet screen or inlet insert unit.

SECTION 5 - STREET TREES

5.1 STREET TREES

Figure 10: Street Trees (*Downey, CA).*

Description

Healthy urban trees are powerful stormwater management tools. Leaves and branches catch and slow rain as it falls, helping it to soak into the ground. The plants themselves take up and store large quantities of water that would otherwise contribute to surface runoff. Part of this moisture is then returned to the air through evaporation to further cool the city. As an important element along sidewalks, street trees must be provided with conditions that allow them to thrive, including adequate uncompacted soil, water, and air.

The goal of adding street trees is to increase the canopy cover of the street, the percentage of its surface either covered by or shaded by vegetation. The selection, placement, and management of all elements in the street should enhance the longevity of a city's street trees and healthy, mature plantings should be retained and protected whenever possible.

Benefits to adding street trees include:

- Creation of shade to lower temperatures in a city, reduces energy use, and makes the street a more pleasant place in which to walk and spend time
- Slowing and capture of rainwater, helping it soak into the ground to restore local hydrologic functions and aquifers
- Improving air quality by cooling air, producing oxygen, and absorbing and storing carbon in woody plant tissues

RB-AR14242

SECTION 6 – DEFINITIONS

Best Management Practice (BMP)
Operating methods and/or structural devices used to reduce stormwater volume, peak flows, and/or pollutant concentrations of stormwater runoff through evapotranspiration, infiltration, detention, filtration, and/or biological and chemical treatment.

Bioretention
Soil and plant-based retention practice that captures and biologically degrades pollutants as water infiltrates through sub-surface layers containing microbes that treat pollutants. Treated runoff is then slowly infiltrated and recharges the groundwater.

Conveyance
The process of water moving from one place to another.

Design Storm
A storm whose magnitude, rate, and intensity do not exceed the design load for a storm drainage system or flood protection project.

Detention
Stormwater runoff that is collected at one rate and then released at a controlled rate. The volume difference is held in temporary storage.

Filtration
A treatment process that allows for removal of solid (particulate) matter from water by means of porous media such as sand, soil, vegetation, or a man-made filter. Filtration is used to remove contaminants.

Hardscape
Impermeable surfaces, such as concrete or stone, used in the landscape environment along sidewalks or in other areas used as public space.

Infiltration
The process by which water penetrates into soil from the ground surface.

Parkway Zone
The parkway zone is the area which lies between the curb and City right-of-way line and is intended to house utilities and pedestrian amenities.

Permeability/Impermeability
The quality of a soil or material that enables water to move through it, determining its suitability for infiltration.

Retention
The reduction in total runoff that results when stormwater is diverted and allowed to infiltrate into the ground through existing or engineered soil systems.

Runoff
Water from rainfall that flows over the land surface that is not absorbed into the ground.

Sedimentation
The deposition and/or settling of particles suspended in water as a result of the slowing of the water.

Stormwater
Water runoff from rain or snow resulting from a storm.

Transportation Corridor
A major arterial, state route, highway, or rail line used for the movement of people or goods by means of bus services, trucks, and vehicles.

SECTION 7 – REFERENCES

1. Los Angeles County. *Model for Living Streets Design Manual*. 2011.
2. U.S. Environmental Protection Agency (EPA). *Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets*. December 2008.
3. Orange County. *Technical Guidance Document*. May 2011.
4. Los Angeles Regional Water Quality Control Board. *Los Angeles County MS4 Permit (Order No. R4.2012-0175) Early Action Requirements for Permittees Pursuing an Enhanced Water Management Program or 18-Month Watershed Management Program – Low Impact Development Ordinances and Green streets Policies*. January 24, 2014.

ORDINANCE NO. 14 -1330

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DOWNEY AMENDING ARTICLE V, CHAPTER 7 OF THE DOWNEY MUNICIPAL CODE (DMC) AS IT RELATES TO STORM WATER AND URBAN RUNOFF POLLUTION AND CONVEYANCE CONTROLS, TO EXPAND THE APPLICABILITY OF THE EXISTING POLLUTANT SOURCE REDUCTION REQUIREMENTS, BY IMPOSING RUNOFF LOW IMPACT DEVELOPMENT (LID) STRATEGIES ON PROJECTS THAT REQUIRE BUILDING, GRADING, AND CONSTRUCTION PERMITS

WHEREAS, the City of Downey City Council has previously adopted Ordinances 1036, 1095, 1130, and 1142 in response to requirements of prior Municipal Separate Storm Sewer System (MS4 or NPDES or Stormwater) Permits and more recently Ordinance 1320 in response to the latest MS4 Permit that have been issued by the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB); and,

WHEREAS, additional changes to the Downey Municipal Code will be required to comply with the new MS4 Permit requirements (Order No. R4-2012-0175) including but not limited to, enforcement of restrictive water quality criteria, and new regulations directed at achieving receiving water beneficial use objectives, that the City must anticipate shall be more strictly enforced in the immediate future; and,

WHEREAS, the new MS4 Permit includes provisions and measures outlining significant fines and penalties for municipal non-compliance with its requirements; and,

WHEREAS, is it the intent of the City to expand the applicability of the existing Low Impact Development (LID) requirements by providing stormwater and urban runoff LID strategies for all projects for Development and Redevelopment projects as defined under "Applicability"; and,

WHEREAS, adopting this ordinance reduces potential environmental and public health and safety risks for the residential and business communities of the City of Downey; and,

WHEREAS, the specified amendments to this chapter of the Downey Municipal Code will facilitate compliance with the latest MS4 Permit by the City of Downey, its residents and businesses; and,

WHEREAS, the specified amendments to this chapter of the Downey Municipal Code will result in improved staff efficiency in anticipating and complying with these changing water quality initiatives.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF DOWNEY DOES ORDAIN AS FOLLOWS:

SECTION 1. Article V, Chapter 7 of the Downey Municipal Code is hereby amended and changed in its entirety to read as follows:

"Chapter 7 – STORM WATER AND URBAN RUNOFF POLLUTION AND CONVEYANCE CONTROLS

SECTION 5700. DEFINITIONS.

Except as specifically provided herein, any term used in this Chapter shall be defined as provided in the most recent Los Angeles County National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, as this document may from time to time be amended and submitted to the Los Angeles Regional Water Quality Control Board (LARWQCB). If not defined in the current MS4 Permit, then such term shall be used as defined in the Federal Clean Water Act, as amended, or the regulations promulgated thereunder. If any definition contained in this Chapter conflicts with the same term in the current MS4 Permit, then the definition contained in the current MS4 Permit shall govern. Any term used herein may be extended to include examples or cases identified elsewhere in Chapter 7 or as directed by the LARWQCB.

"Automotive Service Facility" means a facility that is categorized with the Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539 or equivalent North American Industry Classification System (NAICS) codes.

"Authorized Enforcement Officer" shall mean the "Director" or a City Code Enforcement Officer.

"Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

"Best Management Practices" or "BMPs" shall mean practices or physical devices or systems designed to prevent or reduce pollutant loading from storm water or non-storm water discharges to receiving water, or designed to reduce the volume of storm water or non-storm water discharged to the receiving water.

"Biofiltration" means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this Ordinance is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales.

"Bioretention" means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this Ordinance, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by Order No. R4-2012-0175 as biofiltration.

"Bioswale" means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

"Clean Water Act (CWA)" means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

"Commercial Development" means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes (Order No. R4-2012-0175).

"Commercial Malls" means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers (Order No. R4-2012-0175).

"Construction Activity" means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan (Order No. R4-2012-0175).

"Construction/Industrial General Permit" or "CGP/IGP" shall mean the general NPDES permits adopted by the State Board, authorizing the discharge of storm water associated with construction or industrial activities respectively under certain conditions.

"Control" means to minimize, reduce or eliminate by technological, legal, contractual, or other means, the discharge of pollutants from an activity or activities.

"Development" shall mean any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does include it include emergency construction activities required to immediately protect public health and safety.

"Director" shall mean the Director of Public Works or his/her designee(s).

"Directly Adjacent" means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Discharge" means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

"Discharge ~~of~~ pollutants" shall mean any addition of "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or, any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" of the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owner treatment works.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation (Order No. R4-2012-0175).

"Downey Municipal Codes" or "DMC" shall mean the official governmental record of all regulatory, penal and certain administrative ordinances of the City of Downey, California, as it may be amended.

"Flow-through treatment BMPs" means a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

"Full Capture System" means any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage area.

"Governmental" shall mean a municipal corporation, county, state, federal, or governmental body, agency or entity.

"Green Roof" means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

"Hillside" means a property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

"Illicit Connection" shall mean any man-made conveyance that is connected to the MS4 without a permit, excluding roof drains and other similar types of connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

"Illicit Discharge" shall mean any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illicit discharge includes any non-storm water discharge, except: authorized non-storm water discharges; conditionally exempt non-storm water discharges; and non-storm water discharges resulting from natural flows specifically identified in Part III.A.1.d of the MS4 Permit.

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

"Industrial Park" means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

"Infiltration BMP" means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

"California Regional Water Quality Control Board – Los Angeles Region" or "LARWQCB" shall mean the Board members, its Executive Officer, and their staff.

"Low Impact Development (LID)" consists of building and landscape features designed to retain or filter stormwater runoff.

"Maximum Extent Practicable" or "MEP" In selecting BMPs which will achieve MEP, it is important to remember that municipalities will be responsible to reduce the discharge of pollutants in storm water to the maximum extent practicable. This means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive. The following factors may be useful to consider:

(1) Effectiveness: Will the BMP address a pollutant of concern?

(2) Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?

(3) Public acceptance: Does the BMP have public support?

(4) Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?

(5) Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc.?

After selecting a menu of BMPs, it is of course the responsibility of the discharger to insure that all BMPs are implemented.

"MS4 Permit" shall mean the Waste Discharge Requirement for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach issued by the LARWQCB. The provisions of this Ordinance shall be interpreted to provide legal authority to support applicable sections of subsequent LARWQCB MS4 Permit Orders, as they may apply within the City of Downey. Aspects of this Ordinance were developed based on discharge requirements contained in LARWQCB Orders 90-079, 96-054, 01-182, and R4-2012-0175.

"Municipal Separate Storm Sewer System" or "MS4" shall mean a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(1) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges to waters of the United States; and

(2) Designed or used for collecting or conveying storm water; and

(3) Which is not a combined sewer; and

(4) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR § 122.26(b)(8).

"National Pollutant Discharge Elimination System" or "NPDES" shall mean the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Clean Water Act § 307, 402, 318 and 405, as amended. This term includes an "approved program".

"Natural Drainage System" means a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

"New Development" shall mean land disturbing activities, structural development, including construction or installation of a building or structure, creation of impervious surfaces, and land subdivision.

"Non-Stormwater Discharge" means any discharge to a municipal storm drain system that is not composed entirely of stormwater.

"Owner" shall mean the legal owner of a parcel of real property, except when the legal owner of the property is the holder of the mortgage, note, or other such security, in which case it is beneficiary of said real property.

"Outfall" means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR Section 122.26(b)(9)).

"Parcel" shall mean the smallest lot, unit or plot of land having an owner, boundaries, surface area and Los Angeles County Tax Assessor Number.

"Parking Lot" means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

"Planning Priority Projects" shall mean those new development and redevelopment projects that are required by the MS4 Permit to incorporate appropriate storm water mitigation measures into their design plan.

"Pollutant(s)" means any "pollutant" defined in Section 502(6) of the Federal Clean Water Act or incorporated into the California Water Code Section 13373.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code Section 21065).

"Rainfall Harvest and Use" means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department and other necessary local, state, and federal agencies as required.

"Receiving Water" means "water of the United States" into which waste and/or pollutants are or may be discharged.

"Redevelopment" shall mean any construction activity that results in the creation, addition, or replacement of five thousand (5,000) square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land-disturbing activities related to structural or impervious surfaces. Redevelopment does not include routine maintenance activities to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency construction activities to immediately protect public health and safety.

"Regional Board" means the California Regional Water Quality Control Board, Los Angeles Region.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

"Retail Gasoline Outlet" means any facility engaged in selling gasoline and lubricating oils.

"Routine Maintenance" includes, but is not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.
2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.
4. Update existing lines* and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
5. Repair leaks

Routine maintenance does not include construction of new** lines or facilities resulting from compliance with applicable codes, standards and regulations.

* Update existing lines includes replacing existing lines with new materials or pipes.

** New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

"Runoff" shall mean any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

"Significant Ecological Areas (SEAs)" means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan. Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.
4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.

6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.
8. Special areas.

"Site" means land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Standard Industrial Classification" or "SIC" shall mean the four digit code system used to identify business types in the MS4 Permit and Clean Water Act Amendments. The six digit North American Industrial Classification System (NAICS) is supplanting the SIC. Cross-references between SIC and NAICS codes shall follow those of the Economic Classification Policy Committee of the United States Office of Management and Budget, which is distributed by the National Technical Information Service.

"Storm Drain System" means any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City.

"Storm Water" shall mean storm water runoff, snow melt runoff, and surface runoff and drainage related to precipitation events.

"Storm Water Pollution Prevention Plan" or "SWPPP" shall mean a plan, as required by the State Construction General and Industrial General Permits identifying potential pollutant sources and describing the design, placement, and implementation of BMPs, to effectively prevent non-stormwater discharges and reduce pollutants in stormwater discharges during activities covered by these permits.

"Structural BMP" shall mean any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution, including source control and treatment control BMPs.

"Treatment Control BMP" shall mean any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological or chemical process.

"Urban Runoff" means surface water flow produced by storm and non-storm events. Non-storm events include flow from residential, commercial or industrial activities involving the use of potable and non-potable water.

"Urban Runoff Mitigation Plan" shall mean an appropriate LID, SUSMP, or Site Specific Mitigation Plan.

"Watershed Management Program" shall mean the City's stormwater program to implement the requirements of the NPDES MS4 permit.

SECTION 5701. WATERSHED MANAGEMENT PROGRAM.

Notwithstanding other provisions in the Downey Municipal Codes, the MS4 Permit requires the City of Downey to implement the Watershed Management Program (WMP) as an enforceable element of the permit. Applicable program elements set forth in the WMP, and any subsequent amendments, are hereby incorporated into this Ordinance by reference.

SECTION 5702. PROHIBITED POLLUTANT(S).

(a) Pollutant(s) prohibited from discharge to the MS4 shall include:

(1) Any water constituent found at concentrations or levels that may potentially cause a beneficial use impairment in a downstream receiving water body that has been nominated or is currently on, a LARWQCB 303(d), Monitoring, Enforceable Limit, or similar list;

(2) Any sediment, settleable, or suspended solid;

(3) Any living or dead animal or their biological waste products;

(4) Any food, food processing or medical waste;

(5) Any thermal, color, conductive, oxygen demanding, growth inducing, corrosive, or radioactive waste;

(6) Any chemical waste, salt, organic compound, pesticide, or metal;

(7) Any hydrocarbon based fuel, oil, lubricant, fluid, or additive; and

(8) Any substance designated as a pollutant by the LARWQCB.

SECTION 5703. ILLICIT CONNECTION AND ILLICIT DISCHARGE PROHIBITION.

(a) No owner, responsible party, or person, shall use, allow, or suffer, an illicit connection to the MS4; and must therefore remove or terminate such illicit connection.

(b) No person or responsible party shall cause, nor contribute, to the exceedance of water quality standards, nor impair attainable beneficial use objectives in receiving waters of the State.

(c) All non-storm water discharges are prohibited unless they're identified in Part III.A of the MS4 Permit. A discharge may be exempt or conditionally exempt if:

(1) It consists entirely of storm water; or

(2) It is authorized by an NPDES permit; or

(3) It is identified in Part III.A of the MS4 Permit; or

(4) It is authorized by the Executive Officer of the LARWQCB.

(d) Illicit Discharges that are prohibited from entering the MS4 shall include, but are not limited to, the following:

(1) The discharge of wash waters to the MS4 from the cleaning of gas stations, auto repair garages, or other automotive service facilities;

(2) The discharge of runoff to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;

(3) The discharge of runoff to the MS4 from areas where repair of machinery and equipment, which are visibly leaking oil, fluid or antifreeze, is undertaken;

(4) The discharge of runoff or wash down to the MS4 from paved or unpaved storage areas where materials containing grease, oil, paint, toxic or other hazardous substances, and uncovered receptacles containing hazardous materials are, or have been, located;

(5) The discharge of chlorinated or brominated, swimming pool or spa water and filter backwash or diatomaceous earth to the MS4;

(6) The washing of materials or impervious surfaces that result in discharges to the MS4;

(7) The discharge of concrete or cement laden wash water from concrete trucks, pumps, tools, and equipment to the MS4; and

(8) Dumping or disposal of materials into the MS4, other than storm water, such as:

a. Solid waste as defined in California Public Resources Code, Section 40191;

b. Solid waste, including, but not limited to, trash, litter, food wastes, packaging, paper bags, newspaper, and garbage;

c. Construction or landscape debris, such as leaves, dirt, grass clippings, bark, fertilizer, bags, plant cans or bedding packs;

d. Any governmentally banned or unregistered pesticide, insecticide, fungicide, nematicide, acaricide, or herbicide;

e. Automotive, fuel and chemical wastes including batteries;

f. Animal, biological, food processing, or medical wastes; and

g. Other material that may have an adverse impact on water quality, wildlife, or receiving water habitat value.

SECTION 5704. CONTROL OF POLLUTANTS AND RUNOFF FROM SITES REQUIRING A STORMWATER ACTIVITIES PERMIT.

(a) It shall be a violation of this Chapter for any person or entity, required by governmental law to obtain a NPDES stormwater activities permit, to conduct a construction, commercial, or industrial activity in the City of Downey, without the appropriate Construction General Permit (CGP) or Industrial General Permit (IGP).

(b) Any person or entity, required to have an NPDES Stormwater activities permit for a parcel within the City of Downey, shall retain at said parcel the following evidence of compliance with the CGP or IGP and make said documents available upon request from an Authorized Enforcement Officer: (i) a copy of the submitted Notice of Intent (NOI) to comply with State Stormwater Waste Discharge Requirements or a waste discharge identification (WDID) number issued by the SWRCB; (ii) a SWPPP; and (iii) site specific storm water quality data.

(c) Any person or entity in the City of Downey requiring a CGP or IGP for facilities under their control or operation, shall characterize the adequacy of the facility SWPPP in applying source and treatment control BMPs to at least the MEP standard and comply with the requirements of the SWPPP.

(d) No person or entity shall obfuscate or otherwise attempt to conceal the nature or operation of a construction, commercial, or industrial site, or facility, in order to avoid obtaining the appropriate governmental stormwater permits.

(e) Industrial and construction facilities not subject to the IGP and CGP that are subject to pollution control requirements under the municipal NPDES permit shall implement BMPs prescribed by the regional board or its executive officer, through programs or actions made pursuant to the municipal NPDES permit.

SECTION 5705. BMP REQUIREMENTS FOR URBAN RUNOFF REDUCTION.

The owner, occupant or other person in charge of day-to-day operation or maintenance of each parcel within the City of Downey shall adhere to the following BMP requirements in order to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations:

(a) For premises exposed to storm water, the owner, occupant or other person in charge of day-to-day operations shall use appropriate BMPs, or other steps to reduce the discharge of pollutants to at least the MEP standard.

(b) No person or entity shall dump, release, spill, leak, pump, pour, emit, empty, discharge, inject, bury or dispose into the environment, any solid or liquid wastes, including any pollutant, in or upon any part of MS4, or upon any public or private premises in the City of Downey.

(c) No person or entity shall cause, suffer, or permit any solid or liquid waste or pollutant, to come to be located upon, in, on, or under any premises in the City of Downey, expect in the original manufacturers container or a governmentally authorized container, waste facility, or treatment works.

(d) No person shall dispose of any hazardous substance or material, into any litter or waste container, without the written authorization of the site or container, owner or operator.

(e) Water used for irrigation purposes shall not be allowed to run off of a site.

(f) Washing down paved areas shall be prohibited unless it conforms to the definition of sidewalk rinsing given in the MS4 Permit. If necessary for health or safety purposes, and not in violation of any other provision of this Code, then washing down paved areas is authorized when all applicable BMP measures are implemented to remove pollutants, or if the resulting wastewater is collected and discharged to a sanitary sewer.

(g) Uncovered outdoor storage of unsealed containers of building materials, lawn and automotive care products, or other substances that may contribute pollutants to the storm water conveyance system, is prohibited.

(h) Commercial tenants, multi-family building managers and industrial owners shall inspect trash receptacles and refuse storage areas on a weekly basis for loose garbage and liquid waste residue and shall not allow such garbage and residue to enter the storm drain system. Trash receptacles shall be maintained with solid unbroken closed covers to prevent the entry of rain, or exit of wind-blown or animal-strewn litter and leaking fluids.

(i) Premises with twenty-five (25) or more motor vehicle parking spaces, or five thousand (5,000) square feet of parking lot area, and upon which runoff water is conveyed, shall be vacuum swept monthly and shall employ other BMPs as may be necessary, to reduce discharges to the MEP.

(j) Premises with between ten (10) and twenty-four (24) motor vehicle parking spaces, and upon which runoff water is conveyed, shall be vacuum swept quarterly and shall employ other BMP's as may be necessary, to reduce discharges to the MEP.

(k) For premises where machinery or other equipment is repaired or maintained, the owner, occupant or other person in charge of the day-to-day operations shall use BMPs or other steps to prevent discharge of maintenance or repair related pollutants to the MS4.

(l) Materials and equipment necessary for pollutant source control activities, that are commensurate with facility operations and materials, shall be maintained and kept readily available and accessible to all employees.

(m) Any BMP, runoff reduction, discharge control structure, or activity must be designed, operated and maintained to prevent the release of odors, or entrance and proliferation of pathogens or their vectors, or other nuisance microbe, invertebrate or vertebrate organisms.

(n) If the Director determines that water quality criteria may be compromised by discharges from a parcel or development, the Director shall have the authority to require BMP implementation until the discharge of runoff or pollutants to the MS4, or receiving water, have been reduced to the MEP.

SECTION 5706. SOURCE CONTROL FOR NEW DEVELOPMENT.

(a) The following pollution source control requirements shall apply to all persons submitting applications for new development or redevelopment projects within the City of Downey.

(1) During application review for new development or redevelopment projects, the applicant shall submit an appropriate project specific Urban Runoff Mitigation Plan to the Director.
(2) Structural and design elements that typically increase infiltration, reduce pollutant conveyance, and decrease runoff include:

a. Using landscaped/vegetated areas, sand filters, swales, infiltration basins, biofilters, and planters to maximize infiltration;
b. Replacing impermeable surfaces with porous materials;
c. Directing impervious surface runoff to permeable areas;
d. Grading the site to encourage runoff to permeable areas;
e. Directing runoff to dry wells, perforated pipes, infiltration trenches, or other source reduction BMPs;
f. Designing curbs and landscaping to facilitate infiltration;
g. Using cisterns or retention basins to store precipitation; and
h. Installing treatment control BMPs to remove pollutants.

(3) All Urban Runoff Mitigation Plans must include a structural and treatment control BMP maintenance schedule, the applicant's signed statement of responsibility for continued BMP maintenance, and plan for continued maintenance responsibilities.
(4) The applicant shall retain responsibility for such maintenance until responsibility is legally transferred in accordance with this chapter.
(5) Applicant, facility operators and/or owners shall also provide, as requested by the Director, any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction structural or treatment control BMPs.
(6) The Urban Runoff Mitigation Plan must indicate that subsequent property transfers, include, as a written condition and are subject to, the transferee assuming full responsibility for maintenance of any structural, treatment and/or source control BMPs.
(7) As a condition for issuing a certificate of occupancy for a new development or redevelopment project, the Director shall require the applicant, facility operators and/or owners, as appropriate, to construct all storm water pollution control BMPs and structural or treatment control BMPs shown on the approved project plans.
(8) As a condition for issuing a certificate of occupancy for a new development or redevelopment project, the Director shall require the applicant, facility operators and/or owners to submit, for review and approval, a BMP maintenance schedule and inspection plan.
(9) As a condition for issuing a certificate of occupancy for a new development or redevelopment project, the Director shall require that the applicant file a signed statement that the project site and all structural or treatment control BMPs shall be maintained in compliance with the Urban Runoff Mitigation Plan.

SECTION 5707. SOURCE CONTROLS FOR SPECIFIC DEVELOPMENT CATEGORIES.

(a) The following design elements shall be required for all new development or redevelopment projects, except single-family residences:

(1) Preparation and Director approval of the Urban Runoff Mitigation Plan, as a condition of Planning or Building Department approval.

(2) Runoff shall not be conveyed to, or through, the following areas:
a. Loading and unloading dock areas;
b. Repair and maintenance bays; and
c. Vehicle and equipment wash and fueling areas

(3) Developments which include outdoor material storage areas that may discharge MS4 pollutants, must include design elements to:
a. Place the materials within enclosures, such as cabinets, sheds, or awnings, which prevent contact with rain, runoff, or other liquids that might flow to the MS4.
b. Liquid handling areas shall use impervious spill containing floors, drains, sumps, vessels, berms, dikes, and curbs to contain materials and eliminate discharges to the MS4.

(4) Waste material bins with a capacity greater than 1/4 cubic yard (or fifty (50) gallons) must be stored in a covered area to prevent rainfall or roof drainage, from any structure, through the waste.

(5) Any project including down spouts, roof gutters or subsurface drainage shall utilize perforated pipe in approved infiltration areas, infiltration trenches, "French Drain" or similar systems, unless prohibited by the Director.

(6) Each Urban Runoff Management Plan shall be individually evaluated to ascertain whether the proposed project and site characteristics meet governmental standards.

(7) The Urban Runoff Mitigation Plan must demonstrate to the Director's satisfaction that proposed BMPs, numeric design criteria, or design elements meet the requirements of this chapter.

(8) The Director shall approve or disapprove of any proposed project plans. If the plans are disapproved, the developer may request a written explanation for the disapproval. No city grading or building permit shall be issued until the Director has approved an Urban Runoff Mitigation Plan.

(b) Development projects subject to Permittee permitting and approval for the design and implementation of post-construction controls to mitigate storm water pollution, prior to completion of the project(s), are:.

(1) All development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.
(2) Industrial parks 10,000 square feet or more of surface area.
(3) Commercial malls 10,000 square feet or more of surface area.
(4) Retail gasoline outlets with 5,000 square feet or more of surface area.
(5) Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of surface area.
(6) Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.
(7) Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects. Specific requirements in Subsection (c)(2).

(8) Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.
(9) Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:
  a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and
  b. Create 2,500 square feet or more of impervious surface area
(10) Single-family hillside homes.
(11) Redevelopment Projects
  a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.
  b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.
  c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.
  d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet or more of impervious surface area.

(c) **Specific Requirements.** The Site for every Planning Priority Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use.

(1) A new single-family hillside home development shall include mitigation measures to:
  a. Conserve natural areas;
  b. Protect slopes and channels;
  c. Provide storm drain system stenciling and signage;
  d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and
  e. Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.
(2) Street and road construction of 10,000 square feet or more of impervious surface shall follow USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009) or similar guidance manual to the maximum extent practicable.

(3) The remainder of Planning Priority Projects shall prepare a LID Plan to comply with the following:

a. Retain stormwater runoff onsite for the Stormwater Quality Design Volume (SWQDv) defined as the runoff from:
   i. The 85th percentile 24-hour runoff event as determined from the Los Angeles County 85th percentile precipitation isohyetal map; or
   ii. The volume of runoff produced from a 0.75 inch, 24-hour rain event, whichever is greater.

b. Minimize hydromodification impacts to natural drainage systems as defined in Order No. R4-2012-0175.

c. To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Technical infeasibility may result from conditions including the following:
   i. The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv onsite.
   ii. Locations where seasonal high groundwater is within five to ten feet of surface grade;
   iii. Locations within 100 feet of a groundwater well used for drinking water;
   iv. Brownfield development sites or other locations where pollutant mobilization is a documented concern;
   v. Locations with potential geotechnical hazards;
   vi. Smart growth and infill or redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.

d. If partial or complete onsite retention is technically infeasible, the project Site may biofiltrate 1.5 times the portion of the remaining SWQDv that is not reliably retained onsite. Biofiltration BMPs must adhere to the design specifications provided in Order No. R4-2012-0175.
   i. Additional alternative compliance options such as offsite infiltration and groundwater replenishment projects may be available to the project Site. The project Site should contact the Department of Public Works to determine eligibility.

e. The remaining SWQDv that cannot be retained or biofiltered onsite must be treated onsite to reduce pollutant loading. BMPs must be selected and designed to meet pollutant-specific benchmarks as required per Order No. R4-2012-0175. Flow-through BMPs may be used to treat the remaining SWQDv and must be sized based on a rainfall intensity of:
   i. 0.2 inches per hour, or
   ii. The one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, whichever is greater.

(d) Additional Requirements. The site for projects not classified with general applicability listed in Section 5707(b)of this Ordinance, but resulting in the creation or addition or replacement of 800 square feet or more of impervious surface area shall be designed to control pollutants, pollutant loads, and runoff volume as approved by the city.

SECTION 5707.5 STANDARD URBAN STORM WATER MITIGATION PLAN (SUSMP) – DEVELOPMENT PROJECTS.

(Added by Ord. 1095, adopted 01-23-01; amended by Ord. 1130, adopted 08-27-02; repealed by Ord. 1142, adopted 02-11-03)

SECTION 5708. URBAN RUNOFF REDUCTION REQUIREMENTS.

The following urban runoff reduction requirements shall apply to all persons submitting applications for new development or redevelopment projects within the City of Downey:

(a) New development and redevelopment projects within the City of Downey are required to prepare current condition and post proposed development hydrology studies based on current Los Angeles County Department of Public Works Design Storm and Hydrology methods.

(b) Where proposed development is expected to generate higher peak runoff flows, as compared to that which currently exists, the Director shall require reasonable drainage improvements within the lot, or public right-of-way, to accommodate the potential effect of such additional water flows.

(c) Where such proposed development may affect the existing flow of water, the flow of water in natural drainage courses, or within streets or other public rights-of-way, the Director shall require reasonable drainage improvements within the lot, water course, or public right-of-way, to accommodate the potential effect of such additional water flows.

SECTION 5709. TRANSFER OF PROPERTIES SUBJECT TO BMP MAINTENANCE REQUIREMENTS.

The transfer, sale, deed, or lease of a parcel, which is subject to a requirement for maintenance of structural and treatment control BMPs shall include conditions requiring and assigning the transferee, and its successors, to:

(a) Assume responsibility for maintenance and operation of any existing structural or treatment control BMP to at least MEP standard; or

(b) Replace any degraded structural or treatment control BMP with new control measures or BMPs meeting, the then current, standards of the City.

(c) Conduct BMP maintenance and inspections as required in the approved Low Impact Development (LID) Plan, Urban Runoff Mitigation-Plan, or the LID ordinance.

(d) Insure that all structural or treatment control BMPs are inspected at least yearly and retain proof of such inspections for at least three (3) years.

(e) For conditions, covenants and restrictions for properties which include structural or treatment control BMPs that are to be maintained by a homeowner's association, such conditions, covenants and restrictions shall provide for maintenance of the BMPs by the association.

(f) BMPs that are to be maintained by individual property owners, shall include a written explanation of the maintenance responsibilities with any deed transferring title to said property, as well as being attached to any property conditions, covenants and restrictions.

(g) If property, on which structural or treatment control BMPs are located, is to be dedicated to a governmental agency, the transferor shall remain responsible for the BMPs until the agency provides a signed assumption of responsibility and conformation that they meet agency design standards.

(h) All structural BMPs are required to be properly operated and maintained according to product specifications and site characteristics to maintain effectiveness in reducing the discharge of pollutants. Documentation on operation and maintenance activities shall be retained onsite at all times, and made available upon request by an authorized enforcement officer.

SECTION 5710. ENFORCEMENT.

Persons, and entities, discharging runoff or pollutants are made accountable for their actions through the mechanisms in this Section.

(a) Discharges to the MS4 are required to comply with the provisions and conditions of this Chapter and applicable Federal, State or LARWQCB permits, orders, contracts, model programs, or plans.

(b) Each of the following is hereby determined to be a threat to the public health, safety and welfare, and is declared and deemed a public nuisance, which may be abated or restored by any Authorized Enforcement Officer. A civil or criminal action to abate, enjoin or otherwise compel the cessation of such nuisance may be brought by the City Attorney, pursuant to the City's authority to abate nuisances:

(1) Any condition caused or permitted to exist in violation of any of the provisions of this Chapter; or

(2) Any failure to comply with applicable requirements of an approved LID Plan, Urban Runoff Mitigation Plan, or LID ordinance with respect to a property; or

(3) Any failure to comply with any applicable requirement of a contract to which the City is a party; or

(4) Any failure to comply with any applicable order or notice issued pursuant to this Section; or

(5) Any false certification or verification; or

(6) Any failure to comply with a certification or verification provided by a project applicant or the applicant's successor in interest; or

(7) Any failure to properly operate and maintain any structural or treatment control BMP in accordance with an approved LID Plan, Urban Runoff Mitigation Plan, or LID ordinance.

(c) The cost of nuisance abatement as provided in subsection (b), shall be borne by the property owner from which the discharge originated and the cost shall be assessed to that owner, pursuant to the procedure for cost recovery set forth in Chapter 2 of Article V of the DMC.

(d) If any violation of this Chapter constitutes a seasonal or recurrent nuisance, the Director shall so declare. The failure of any person to take appropriate annual precautions to prevent such pollution, after written notice of a determination under this subsection, shall constitute a public nuisance and a violation of this Chapter.

(e) Causing, permitting, aiding, abetting, or concealing a violation of any provision of this Chapter shall constitute a violation of this Chapter.

(f) In addition to other remedies in this Section, violations of this Chapter may be enforced by civil action brought by the City. During such action, the City many seek, as appropriate, any or all of the following remedies:

(1) A temporary or permanent injunction;

(2) Assessment upon the owner or violator of any investigation, inspection, or monitoring costs, which led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action under this subsection;

(3) Costs incurred in removing, correcting, or terminating the adverse effects resulting from violation;

(4) Compensatory damages for loss or destruction to water quality, wildlife, fish and aquatic life.

(g) When an Authorized Enforcement Officer finds that a discharge has taken or may take place in violation of this Chapter, the officer may issue an order to cease and desist said practice or operation causing, or likely to cause, such discharge. The Authorized Enforcement Officer may then direct that those persons not complying shall:

(1) Comply with the requirement;

(2) Comply with a time schedule for compliance, and

(3) Take appropriate remedial or preventive action to prevent the violation from recurring.

(h) Whenever an Authorized Enforcement Officer finds any pollutant upon any right of way, land, or ground adjoining an adjacent parcel, the officer may give notice to the owner of the adjacent property to remove such pollutant in any reasonable manner. The recipient of such notice shall undertake the activities as described in the notice.

(i) Violation of this Chapter shall be punishable as a misdemeanor as provided in Chapter 2 of Article 1 of this Code. Each day that a violation continues shall constitute a separate offense.

(j) To the extent the City makes compliance with this Chapter, or any provision of this Chapter, a condition of approval to the issuance of a permit or license, any person in violation of such condition is subject to the permit revocation procedures set forth elsewhere in this Code.

(k) Remedies contained within this Chapter are in addition to, and do not supersede or limit, any and all other remedies, whether they be civil or criminal. The remedies provided for in this Chapter shall be cumulative and not exclusive.

(l) Whenever necessary, interagency coordination will be employed to enforce the provisions of this chapter.

SECTION 5711. INSPECTIONS, SEARCHES, AND REPORT ACCESS.

Whenever necessary to make an inspection to enforce any provisions of this Chapter, an Authorized Enforcement Officer may enter any property in the City of Downey in a manner authorized by State law. The inspection authority pursuant to this Section shall include the authority to enter, sample, inspect, review records, copy records, and require regular reports from industrial, commercial and construction facilities and sites, with the potential to discharge pollution to the MS4.

SECTION 5712. FEES.

The City Council may establish fees for the services provided under this Chapter and such fees may be adjusted from time to time by City Council Resolution.

SECTION 2. The City Council finds, pursuant to State CEQA Guidelines Section 15378(a), that this Ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) in that it is not a "Project" as defined by CEQA. This Ordinance is further exempt from environmental review pursuant to the "general rule" at State CEQA Guidelines Section 15061(b)(3) because it can be seen with certainty that there is no possibility that it may have a significant effect on the environment.

SECTION 3. If any section, subsection, paragraph, sentence, clause or phrase of this Ordinance is declared by a court of competent jurisdiction to be unconstitutional or otherwise invalid, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council declares that it would have adopted this Ordinance, and each section, subsection, sentence, clause, phrase or portion thereof, irrespective of the fact that any one or more sections, subsections, phrases, or portions be declared invalid or unconstitutional.

SECTION 4. The City Clerk shall certify to the adoption of this Ordinance and cause the same to be published and posted in the manner required by law.

APPROVED AND ADOPTED this 22nd day of April, 2014.

FERNANDO VASQUEZ, Mayor

ATTEST:

ADRIA M. JIMENEZ, CMC
City Clerk

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.
CITY OF DOWNEY)

I HEREBY CERTIFY that the foregoing Ordinance No. 14 -1330 was introduced at a Regular Meeting of the City Council of the City of Downey held on the 8th day of April, 2014 and adopted at a Regular Meeting of the City Council of the City of Downey held on the 22nd day of April, 2014 by the following vote, to wit:

AYES:	Council Members:	Guerra, Saab, Marquez, Mayor Vasquez
NOES:	Council Member:	None
ABSENT:	Council Member:	None
ABSTAIN:	Council Member:	Brossmer.

I FURTHER CERTIFY that a Summary of the foregoing Ordinance No. 14 -1330, was published in a newspaper of general circulation in the City of Downey, on April 10, 2014 (after introduction), and on April 24, 2014 (after adoption, including the vote thereon). It was also posted in the regular posting places in the City of Downey on the same dates.

ADRIA M. JIMENEZ, CMC
City Clerk

RESOLUTION NO. 051-2013

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HAWAIIAN GARDENS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, APPROVING A GREEN STREET POLICY

WHEREAS, The Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012; and

WHEREAS, Municipalities electing to prepare a Watershed Management Program or an Enhanced Watershed Management Program under this Permit are required to demonstrate that Green Street policies are in place that specify the use of green street strategies for transportation corridors; and

WHEREAS, the City is a Permittee under the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, issued on November 08, 2012 which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County; and

WHEREAS, Green Streets are enhancements to streets and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways and tree lined streets; and

WHEREAS, routine maintenance including but not limited to slurry seals, grind and overlay and reconstruction to maintain original line and grade are excluded from the Green Street Policy;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF HAWAIIAN GARDENS AS FOLLOWS:

Section 1. That the City Council hereby approves the Green Streets Policy and directs Community Development Director to implement Green Streets for transportation corridor for publicly owned streets and road projects that add more than 10,000 square feet or more of impervious areas.

Section 2. The Mayor or his/her presiding officer is hereby authorized to affix his/her signature to this resolution signifying its passage and adoption by the City Council of the City of Hawaiian Gardens.

Section 3. The City Clerk, or her duly appointed Deputy, is directed to attest thereto and forward a certified copy of this resolution to Gateway Water Management Authority.

Section 4. The City Clerk or his/her designee shall attest and shall certify to the adoption of the Resolution and shall cause this Resolution and his/her certification to be entered into the Book of Resolutions of the City of Hawaiian Gardens.

PASSED, APPROVED, AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF HAWAIIAN GARDENS ON THIS 9th DAY OF JULY 2013.

Victor Farfan, Mayor

ATTEST:

Suzanne Underwood

Suzanne Underwood
City Clerk

CITY OF HAWAIIAN GARDENS
CITY CLERK'S OFFICE
CERTIFICATION

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF HAWAIIAN GARDENS)

I, SUZANNE UNDERWOOD, City Clerk/Records Manager of the City of Hawaiian Gardens, do hereby certify that **Resolution No. 051-2013**, was duly and regularly passed and adopted by the City Council of the City of Hawaiian Gardens at its meeting on this **9th day of JULY 2013**, by the following votes as the same appears on file and of record in the Office of the City Clerk.

AYES: OYAMA-CANADA, RODRIGUEZ, BRUCE, FARFAN
NOES: NONE
ABSENT: GOMEZ
ABSTAIN: NONE

Suzanne Underwood
SUZANNE UNDERWOOD
CITY CLERK/RECORDS MANAGER

ORDINANCE NO. 545

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF HAWAIIAN GARDENS, CALIFORNIA, ADDING CHAPTER 13.20 TO TITLE 13 OF THE HAWAIIAN GARDENS MUNICIPAL CODE ESTABLISHING STORMWATER LOW IMPACT DEVELOPMENT STANDARDS FOR DEVELOPMENT PROJECTS.

WHEREAS, the federal Clean Water Act establishes prohibits the discharge of pollutants in stormwater runoff to waters of the United States unless the discharge is in accordance with an National Pollutant Discharge Elimination System permit; and

WHEREAS, the California Porter Cologne Act established Regional Water Quality Control Boards to implement the mandates of the Clean Water Act, including the issuance of NPDES permits by said Regional Boards; and

WHEREAS, the City is a Permittee under the California Regional Water Quality Control Board, Los Angeles Region National Pollutant Discharge Elimination System (NPDES) Permit No. CAS004001 adopted per Order No. R4-2012-0175, issued on November 08, 2012, which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4 (the NPDES Permit); and

WHEREAS, the NPDES Permit requires municipalities to establish regulations and policies applicable to development and redevelopment to prevent pollutants from being washed onto watersheds during rain events, including Low Impact Development (LID) standards that may be formulated through participation in a Watershed Management Program and/or Enhanced Watershed Management Program; and

WHEREAS, the Regional Board has adopted Total Maximum Daily Loads (TMDLs) for pollutants which are numerical limits of the amount of such pollutants allowed in a watershed that must be achieved effectively through LID implementation; and

WHEREAS, urbanization has led to increased impervious surface areas resulting in increased water runoff and less percolation to groundwater aquifers causing the transport of pollutants to downstream receiving waters; and

WHEREAS, the City is committed to a stormwater management program that protects water quality and water supply by employing watershed-based approaches that balance environmental and economic considerations.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF HAWAIIAN GARDENS, CALIFORNIA, DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. Chapter 13.20 (Low Impact Development Standards) is hereby added to Title 13 (Utilities) of the Hawaiian Gardens Municipal Code to read as follows:

CHAPTER 13.20

LOW IMPACT DEVELOPMENT STANDARDS

Sections:
13.20.010 Purpose
13.20.020 Definitions
13.20.030 Application
13.20.040 Low Impact Development Standards for Development and Redevelopment Planning and Construction Activities
13.20.050 Effective Date

13.20.010 Purpose.

The provisions of this Chapter establish requirements for development and redevelopment to comply with the latest NPDES Permit to lessen water quality impacts by using smart growth practices, and integrate Low Impact Development (LID) practices and standards for stormwater pollution mitigation through means of infiltration, evapotranspiration, bioretention, biofiltration, and rainfall harvest and use.

13.20.020 Definitions.

For purposes of this Chapter, the following terms shall be defined as follows. If the definition of any term contained in this Chapter conflicts with the definition of the same term in the latest NPDES permit, then the definition contained in the NPDES permit shall apply.

"Automotive Service Facility" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes: 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539.

"Best Management Practice" or "BMP" means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water.

"Biofiltration" means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this Chapter is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMPs include bioretention systems with an under-drain and bio-swales.

"Bioretention" means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this Ordinance, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the NPDES permit as biofiltration.

"Bio-swale" means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

"City" means the City of Hawaiian Gardens.

"Clean Water Act" or "CWA" means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

"Commercial Malls" means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers.

"Development" means construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail, and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Directly Adjacent" means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the significant ecological area.

"Discharge" means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Flow-through treatment BMPs" means a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

"Green Roof" means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

"Industrial Park" means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

"Infiltration" means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

"Low Impact Development (LID)" consists of building and landscape features designed to retain or filter stormwater runoff.

"Municipal Separate Storm Sewer System" or "MS4" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

2. Designed or used for collecting or conveying stormwater;

3. Which is not a combined sewer; and

4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR § 122.2 (40 CFR § 122.26(b) (8)).

"National Pollutant Discharge Elimination System or "NPDES" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA Section 307, 402, 318, and 405. The term includes an "approved program."

"Natural Drainage System" means a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

"Non-Stormwater Discharge" means any discharge to a municipal storm drain system that is not composed entirely of stormwater.

"Parking Lot" means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

"Pollutant" means any "pollutant" defined in Section 502(6) of the Federal Clean Water Act or incorporated into the California Water Code Section 13373.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code Section 21065).

"Rainfall Harvest and Use" means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department.

"Receiving Water" means "water of the United States" into which waste and/or pollutants are or may be discharged.

"Redevelopment" means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Regional Board" means the California Regional Water Quality Control Board, Los Angeles Region.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

"Retail Gasoline Outlet" means any facility engaged in selling gasoline and lubricating oils.

"Routine Maintenance" includes, but is not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.

3. Includes road shoulder work, re-grading dirt or gravel roadways and shoulders and performing ditch cleanouts.

4. Update existing lines* and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.

5. Repair leaks.

6. Routine maintenance does not include construction of new** lines or facilities resulting from compliance with applicable codes, standards and regulations.

* Update existing lines includes replacing existing lines with new materials or pipes.

** New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines.

"Significant Ecological Areas (SEAs)" means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan. Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.

3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.

4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.

5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.

6. Areas important as game species habitat or as fisheries.

7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.

8. Special areas.

"Site" means land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Storm Drain System" means any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City.

"Storm Water or Stormwater" means runoff and drainage related to precipitation events (pursuant to 40 CFR § 122.26(b) (13); 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990)).

13.20.030 Application.

A. The provisions of this Chapter shall apply to the following development and redevelopment:

1. All development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.

2. Industrial parks 10,000 square feet or more of surface area.

3. Commercial malls 10,000 square feet or more of surface area.

4. Retail gasoline outlets with 5,000 square feet or more of surface area.

5. Restaurants (Standard Industrial Classification 5812) with 5,000 square feet or more of surface area.

6. Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

7. Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

8. Automotive service facilities (Standard Industrial Classification 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.

9. Projects located in or directly adjacent to, or discharging directly to a significant ecological area, where the development will:

a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

b. Create 2,500 square feet or more of impervious surface area.

10. The following redevelopment projects, subject to the following conditions and exemptions:

a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site.

b. Where redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

c. Where redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

e. Existing single-family dwelling and accessory structures are exempt from the redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

13.20.040 Low Impact Development Standards for Development and Redevelopment Planning and Construction Activities.

Each development and redevelopment subject to the provisions of this Chapter shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use. The minimum required standards shall be as follows:

A. Street and road construction of 10,000 square feet or more of impervious surface shall follow USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009), to the maximum extent practicable.

B. All other projects shall prepare a LID Plan to comply with the following:

1. Retain stormwater runoff onsite for the Stormwater Quality Design Volume (SWQDv) defined as the runoff from:

a. The 85th percentile 24-hour runoff event as determined from the Los Angeles County 85th percentile precipitation isohyetal map; or

b. The volume of runoff produced from a 0.75 inch, 24-hour rain event, whichever is greater.

2. Minimize hydromodification impacts to natural drainage systems as defined in the NPDES permit.

3. To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted

and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Technical infeasibility may result from conditions including the following:

a. The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv onsite.

b. Locations where seasonal high groundwater is within five to ten feet of surface grade;

c. Locations within 100 feet of a groundwater well used for drinking water;

d. Brownfield development sites or other locations where pollutant mobilization is a documented concern;

e. Locations with potential geotechnical hazards;

f. Smart growth and infill or redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.

4. If partial or complete onsite retention is technically infeasible, the project site may biofiltrate 1.5 times the portion of the remaining SWQDv that is not reliably retained onsite. Biofiltration BMPs must adhere to the design specifications provided in the NPDES permit.

a. Additional alternative compliance options such as offsite infiltration and groundwater replenishment projects may be available to the project site. The project applicant should contact the City to determine eligibility.

5. The remaining SWQDv that cannot be retained or biofiltered onsite must be treated onsite to reduce pollutant loading. BMPs must be selected and designed to meet pollutant-specific benchmarks as required per the NPDES permit. Flow-through treatment BMPs may be used to treat the remaining SWQDv and must be sized based on a rainfall intensity of:

a. 0.2 inches per hour, or

b. The one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, whichever is greater.

13.20.050 Effective Date.

The requirements of this Chapter shall become effective on August 12, 2013. This includes projects subject to discretionary permits or project phases that have not been deemed complete for processing or discretionary permit projects without vesting tentative maps that have not requested and received an extension of previously granted approvals.

SECTION 2. Ordinance Severability. If any section, subsection, subdivision, paragraph, sentence, clause or phrase in this Ordinance or any part thereof is for any reason, held to be unconstitutional or invalid, or ineffective by any court of competent jurisdiction such decision shall not affect the validity of effectiveness of the remaining portions of this Ordinance or any part thereof. The City Council hereby declares that it would have passed this Ordinance and each section, subsection, subdivision, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, subdivisions, sentences, clauses or phrases be declared unconstitutional.

SECTION 3. Effective Date. This Ordinance shall take effect thirty days after its adoption. The City Clerk or the City Clerk's duly appointed deputy shall certify to the adoption of this Ordinance and shall cause this Ordinance to be published as required by law.

PASSED, APPROVED, AND ADOPTED at a regular meeting of the City Council of the City of Hawaiian Gardens, California, on this 9th day of July 2013.

Victor Farfan, Mayor

ATTEST:

Suzanne Underwood, City Clerk

CITY OF HAWAIIAN GARDENS
CITY CLERK'S OFFICE
CERTIFICATION

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF HAWAIIAN GARDENS)

I, Suzanne Underwood, City Clerk of the City of Hawaiian Gardens, do hereby certify that **Ordinance No. 545,** was duly and regularly introduced and placed upon its first reading at a Regular meeting of the City Council on **JUNE 25, 2013** and that thereafter, said Ordinance was duly adopted and passed at a Regular meeting of the City Council on this **9th day of JULY 2013**, by the following votes as the same appears on file and of record in the Office of the City Clerk.

AYES: OYAMA-CANADA, RODRIGUEZ, BRUCE, FARFAN
NOES: NONE
ABSENT: GOMEZ
ABSTAIN: NONE

Suzanne Underwood
SUZANNE UNDERWOOD
CITY CLERK/RECORDS MANAGER

RESOLUTION NO. 2013-50

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LAKEWOOD ADOPTING A GREEN STREETS POLICY

WHEREAS, the Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012. Municipalities electing to prepare a Watershed Management Program under this Permit are required to demonstrate that Green Streets Policies are in place that specify the use of green street strategies for transportation corridors.; and

WHEREAS, Green Streets are enhancements to street and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways and tree lined streets.; and

WHEREAS, the City initiated the development of a Green Streets Policy and a corresponding Green Streets Manual prior to February 26, 2013.

THE CITY COUNCIL OF THE CITY OF LAKEWOOD DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. The City Council of the City of Lakewood, hereby adopts the Green Street Policy as required by the Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) and as set forth in the City of Lakewood's Green Streets Manual.

SECTION 1. The Director of Public Works is hereby directed to implement the Green Streets policy for transportation corridors as described in the City of Lakewood's Green Streets Manual. Routine maintenance, including but not limited to: slurry seals, grind and overlay, and reconstruction to maintain original line grade, are excluded from the Green Streets Policy.

SECTION 2. The Director of Public Works is authorized to modify the City of Lakewood's Green Streets Manual from time to time to maintain consistency with the latest MS4 permit and developments in technology.

ADOPTED AND APPROVED THIS 8TH DAY OF OCTOBER, 2013.

Mayor

ATTEST:

City Clerk

ORDINANCE NO. 2013-7

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LAKEWOOD, CALIFORNIA, AMENDING THE LAKEWOOD MUNICIPAL CODE PERTAINING TO LOW IMPACT DEVELOPMENT

THE CITY COUNCIL OF THE CITY OF LAKEWOOD DOES FIND AND ORDAIN AS FOLLOWS:

SECTION 1. FINDINGS.

A. The City of Lakewood is authorized by Article XI, §5 and §7 of the State Constitution to exercise the police power of the State by adopting regulations to promote public health, public safety and general prosperity.

B. The City of Lakewood has authority under the California Water Code to adopt and enforce ordinances imposing conditions, restrictions and limitations with respect to any activity which might degrade the quality of waters of the State.

C. The City is a permittee under the "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach MS4," issued by the California Regional Water Quality Control Board-Los Angeles Region," (Order No. R4-2012-0175) which also serves as a National Pollutant Discharge Elimination System (NPDES) Permit under the Federal Clean Water Act (NPDES No. CAS004001), as well as Waste Discharge Requirements under California law (the "Municipal NPDES permit"). In order to participate in a Watershed Management Program and/or Enhanced Watershed Management Program, the Municipal NPDES permit requires permittees to develop and implement a Low Impact Development (LID) Ordinance.

D. The City of Lakewood is committed to a stormwater management program that protects water quality and water supply by employing watershed-based approaches that balance environmental, social, and economic considerations.

E. Urbanization has led to increased impervious surface areas resulting in increased water runoff and less percolation to groundwater aquifers causing the transport of pollutants to downstream receiving waters.

F. The City of Lakewood needs to take a new approach to managing rainwater and urban runoff while mitigating the negative impacts of development and urbanization.

G. LID is widely recognized as a sensible approach to managing the quantity and quality of stormwater runoff by setting standards and practices to maintain or restore the natural hydrologic character of a development site, reduce off-site runoff, improve water quality, and provide groundwater recharge.

H. It is the intent of the City of Lakewood to replace the existing Standard Urban Stormwater Mitigation Plan (SUSMP) requirements by providing stormwater and rainwater LID strategies for Development and Redevelopment projects as defined under "Applicability." Where there are conflicts between this Ordinance and previously adopted SUSMP and/or LID standards, the standards in this Ordinance shall prevail.

I. The proposed LID Ordinance qualifies for a Class 8 California Exemption under the provisions of the California Environmental Quality Act (CEQA) Section 15308. Class 8 exempts actions taken by regulatory agencies as authorized by State or local ordinance to assure the maintenance, restoration, enhancement or protection of the environment where the regulatory process involves procedures for protection of the environment.

SECTION 2. Chapter 8 of Article V of the Lakewood Municipal Code pertaining to Stormwater and Runoff Pollution Control is hereby amended to repeal and delete Sections 5810 through 5832 and to add Section 5802 to read as follows:

5802. LOW IMPACT DEVELOPMENT. Provisions regarding the requirements for stormwater controls on private property are specified in Section 9379 et. seq. of the Lakewood Municipal Code.

SECTION 3. LOW IMPACT DEVELOPMENT ORDINANCE. Part 7 of Chapter 3 of Article IX of the Lakewood Municipal Code pertaining to General Provisions Relating to Uses is hereby amended by adding the following:

9379. LOW IMPACT DEVELOPMENT - DEFINITIONS.
For the purposes of this Section, the following definitions apply:

A. AUTOMOTIVE SERVICE FACILITY. Automotive Service Facility means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5541, 5511, provided that these facilities have no outside activities or materials that may be exposed to stormwater (Source: Order No. R4-2012-0175).

B. BASIN PLAN. Basin Plan means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments (Source: Order No. R4-2012-0175).

C. BEST MANAGEMENT PRACTICE (BMP). BMP means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water (Source: Order No. R4-2012-0175).

D. BIOFILTRATION. Biofiltration means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this Ordinance is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales (Modified from: Order No. R4-2012-0175).

E. **BIORETENTION.** Bioretention means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in the Municipal NPDES permit, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the Municipal NPDES permit as biofiltration (Modified from: Order No. R4-2012-0175).

F. **BIOSWALE.** Bioswale means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes (Source: Order No. R4-2012-0175).

G. **CITY.** City means the City of Lakewood.

H. **CLEAN WATER ACT (CWA).** CWA means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

I. **COMMERCIAL DEVELOPMENT.** Commercial Development means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes (Order No. R4-2012-0175).

J. **COMMERCIAL MALLS.** Commercial Malls means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers (Source: Order No. R4-2012-0175).

K. **CONSTRUCTION ACTIVITY.** Construction Activity means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that result in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan (Source: Order No. R4-2012-0175).

L. CONTROL. Control means to minimize, reduce or eliminate by technological, legal, contractual, or other means, the discharge of pollutants from an activity or activities (Source: Order No. R4-2012-0175).

M. DEVELOPMENT. Development means construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail, and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety (Source: Order No. R4-2012-0175).

N. DIRECTLY ADJACENT. Directly Adjacent means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area (Source: Order No. R4-2012-0175).

O. DISCHARGE. Discharge means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

P. DISTRUBED AREA. Disturbed Area means an area that is altered as a result of clearing, grading, and/or excavation (Source: Order No. R4-2012-0175).

Q. FLOW-THROUGH BMPS. Flow-through BMPs means modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain (Modified from: Order No. R4-2012-0175).

R. FULL CAPTURE SYSTEM. Full Capture System means any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage area (Order No. R4-2012-0175).

S. GENERAL CONSTRUCTION ACTIVITIES STORM WATER PERMIT (GCASP). GCASP means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from construction activities under certain conditions.

T. GENERAL INDUSTRIAL ACTIVITIES STORM WATER PERMIT (GIASP) GIASP means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions.

U. GREEN ROOF. Green Roof means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain (Source: Order No. R4-2012-0175).

V. HAZARDOUS MATERIAL(S). Hazardous Material(s) means any material(s) defined as hazardous by Division 20, Chapter 6.95 of the California Health and Safety Code.

W. HILLSIDE. Hillside means a property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes (Source: Order No. R4-2012-0175).

X. IMPREVIOUS SURFACE. Impervious Surface means any man-made or modified surface that prevents or significantly reduces the entry of water into the underlying soil, resulting in runoff from the surface in greater quantities and/or at an increased rate, when compared to natural conditions prior to development. Examples of places that commonly exhibit impervious surfaces include parking lots, driveways, roadways, storage areas, and rooftops. The imperviousness of these areas commonly results from paving, compacted gravel, compacted earth, and oiled earth.

Y. INDUSTRIAL/COMMERCIAL FACILITY. Industrial/Commercial Facility means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition (Order No. R4-2012-0175).

Z. INDUSTRIAL PARK. Industrial Park means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry (Source: Order No. R4-2012-0175).

AA. INFILTRATION BMP. Infiltration BMP means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement (Source: Order No. R4-2012-0175).

BB. LOW IMPACT DEVELOPMENT (LID). LID consists of building and landscape features designed to retain or filter stormwater runoff (Source: Order No. R4-2012-0175).

CC. MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4). The MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
2. Designed or used for collecting or conveying stormwater;
3. Which is not a combined sewer; and
4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2. (40 CFR § 122.26(b)(8)) (Source: Order No. R4-2012-0175)

DD. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES). NPDES means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405. The term includes an "approved program" (Source: Order No. R4-2012-0175).

EE. NATURAL DRAINAGE SYSTEM. Natural Drainage System means a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system (Source: Order No. R4-2012-0175).

FF. NEW DEVELOPMENT. New Development means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision (Source: Order No. R4-2012-0175).

GG. NON-STORMWATER DISCHARGE. Non-Stormwater Discharge means any discharge to a municipal storm drain system that is not composed entirely of stormwater (Source: Order No. R4-2012-0175).

HH. OUTFALL. Outfall means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR Section 122.26(b)(9)) (Order No. R4-2012-0175).

II. PARKING LOT. Parking Lot means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces (Source: Order No. R4-2012-0175).

JJ. PERSON. Person means any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, state, governmental entity or any other legal entity, or their legal representatives, agents or assigns. The masculine gender shall include the feminine and the singular shall include the plural where indicated by the context.

KK. PLANNING PRIORITY PROJECTS. Planning Priority Projects means development projects subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s) (Modified from: Order No. R4-2012-0175).

LL. POLLUTANT. Pollutant means any "pollutant" defined in Section 502(6) of the Federal Clean Water Act or incorporated into the California Water Code Sec. 13373. Pollutants may include, but are not limited to the following:

1. Commercial and industrial waste (such as fuels, solvents, detergents, plastic pellets, hazardous substances, fertilizers, pesticides, slag, ash, and sludge).
2. Metals (such as cadmium, lead, zinc, copper, silver, nickel, chromium, and non- metals such as phosphorus and arsenic).
3. Petroleum hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants, and grease).
4. Excessive eroded soil, sediment, and particulate materials in amounts that may adversely affect the beneficial use of the receiving waters, flora, or fauna of the State.
5. Animal wastes (such as discharge from confinement facilities, kennels, pens, recreational facilities, stables, and show facilities).
6. Substances having characteristics such as pH less than 6 or greater than 9, or unusual coloration or turbidity, or excessive levels of fecal coliform, or fecal streptococcus, or enterococcus.

MM. PROJECT. Project means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code §21065) (Source: Order No. R4-2012-0175).

NN. RAINFALL HARVEST AND USE. Rainfall Harvest and Use means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department (Source: Order No. R4-2012-0175).

OO. RECEIVEING WATER. Receiving Water means "water of the United States" into which waste and/or pollutants are or may be discharged (Source: Order No. R4-2012-0175).

PP. REDEVELOPMENT. Redevelopment means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety (Source: Order No. R4-2012-0175).

QQ. REGIONAL BOARD. Regional Board means the California Regional Water Quality Control Board, Los Angeles Region.

RR. RESTAURANT. Restaurant means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812) (Source: Order No. R4-2012-0175).

SS. RETAIL GASOLINE OUTLET. Retail Gasoline Outlet means any facility engaged in selling gasoline and lubricating oils (Source: Order No. R4-2012-0175).

TT. ROUTINE MAINTENANCE. Routine Maintenance projects include, but are not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.

3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.

4. Update existing lines[1] and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.

5. Repair leaks

Routine maintenance does not include construction of new[2] lines or facilities resulting from compliance with applicable codes, standards and regulations.

UU. SIGNIFICANT ECOLOGICAL AREAS (SEAs). SEAs means an area that is determined to possess an example of biotic resources that cumulatively represent

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[1] Update existing lines includes replacing existing lines with new materials or pipes.

[2] New lines are those that are not associated with existing facilities and are not part of a project to update or replace existing lines (Source: Order No. R4-2012-0175).

biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan. Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.
4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.
6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.
8. Special areas (Source: Order No. R4-2012-0175).

VV. SITE. Site means land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity (Source: Order No. R4-2012-0175).

WW. STORM DRAIN SYSTEM. Storm Drain System means any facilities or any part of those facilities, including streets, gutters, conduits, natural or artificial drains, channels, and watercourses that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City of Lakewood.

XX. STORM WATER OR STORMWATER. Storm Water or Stormwater means water that originates from atmospheric moisture (rain or snow) and that falls onto land, water, or other surfaces. Without any change in its meaning, this term may be spelled or written as one word or two separate words.

YY. STORMWATER RUNOFF. Stormwater Runoff means that part of precipitation (rainfall or snowmelt) which travels across a surface to the storm drain system or receiving waters.

ZZ. SUSMP. SUSMP means the Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP was required as part of the previous Municipal NPDES Permit (Order No. 01-182, NPDES No. CAS004001) and required plans that designate best management practices (BMPs) that must be used in specified categories of development projects.

AAA. URBAN RUNOFF. Urban Runoff means surface water flow produced by storm and non-storm events. Non-storm events include flow from residential, commercial, or industrial activities involving the use of potable and non-potable water.

9379.1. STORMWATER POLLUTION CONTROL MEASURES FOR DEVELOPMENT PLANNING AND CONSTRUCTION ACTIVITIES

A. OBJECTIVE. The provisions of this Section establish requirements for construction activities and facility operations of Development and Redevelopment projects to comply with the current "Order No. R4-2012-0175," lessen the water quality impacts of development by using smart growth practices, and integrate LID practices and standards for stormwater pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use. LID shall be inclusive of new development and/or redevelopment requirements.

B. SCOPE. This Section contains requirements for stormwater pollution control measures in Development and Redevelopment projects and authorizes the City of Lakewood to further define and adopt stormwater pollution control measures, develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies, grant waivers from the requirements of the LID requirements, and collect funds for projects that are granted waivers. Except as otherwise provided herein, the City of Lakewood shall administer, implement and enforce the provisions of this Section.

C. APPLICABILITY. The following Development and Redevelopment projects, termed "Planning Priority Projects," shall comply with the requirements of Article IX, Section 9379 et seq. The design of any required BMP's shall be subject to plan check by Building and Safety prior to the issuance of building permits for the project.

1. <u>**Development Projects.**</u>

(a) All development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.

(b) Industrial parks 10,000 square feet or more of impervious surface area.

(c) Commercial malls 10,000 square feet or more of impervious surface area.

(d) Retail gasoline outlets with 5,000 square feet or more of impervious surface area.

(e) Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of impervious surface area.

(f) Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

(g) Streets and roads construction of 10,000 square feet or more of impervious surface area.

(h) Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.

(i) Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:

1) Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

2) Create 2,500 square feet or more of impervious surface area.

(j) New single-family dwelling and accessory structures are exempt from the Development Project requirements, as are any projects approved subject to a previously approved Vesting Tentative Map.

2. **Redevelopment Projects.**

(a) Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

(b) Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

(c) Where redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

(d) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety.

(e) Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity.

(f) Redevelopment does not include the repaving of existing roads to maintain original line and grade.

(g) Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements.

D. STORMWATER POLLUTION CONTROL REQUIREMENTS. The Site for every Planning Priority Project shall be designed in conformance with the City of Lakewood's "Low Impact Development (LID) Best Management Practices (BMP) Design Manual" to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use.

1. Street and road construction of 10,000 square feet or more of impervious surface shall follow the "City of Lakewood's Green Street Policy and Guidelines".

2. The remainder of Planning Priority Projects shall prepare a LID Plan to comply with the following:

(a) Retain stormwater runoff onsite for the Stormwater Quality Design Volume (SWQDv) defined as the runoff from:

(1) The 85th percentile 24-hour runoff event as determined from the Los Angeles County 85th percentile precipitation isohyetal map; or

(2) The volume of runoff produced from a 0.75 inch, 24-hour rain event, whichever is greater.

(b) Minimize hydromodification impacts to natural drainage systems as defined in order NO. R4-2012-0175.

(c) When, as determined by the Approving Agency, 100 percent onsite retention of the SWQDv is technically infeasible, partially or fully, the infeasibility shall be demonstrated in the submitted LID Plan. The technical infeasibility may result from conditions that may include, but are not limited to:

(1) The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv onsite;

(2) Locations where seasonal high groundwater is within five to ten feet of surface grade;

(3) Locations within 100 feet of a groundwater well used for drinking water;

(4) Brownfield development sites or other locations where pollutant mobilization is a documented concern;

(5) Locations with potential geotechnical hazards;

(6) Smart growth and infill or redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.

(d) If partial or complete onsite retention is technically infeasible, the project Site may biofiltrate 1.5 times the portion of the remaining SWQDv that is not reliably retained onsite. Biofiltration BMPs must adhere to the design specifications provided in the Municipal NPDES Permit.

(1) Additional alternative compliance options such as offsite infiltration may be available to the project Site.

(2) The project Site should contact the Approving Agency to determine eligibility. Alternative compliance options are further specified in CASQA's Post-Construction BMP Handbook.

(e) The remaining SWQDv that cannot be retained or biofiltered onsite must be treated onsite to reduce pollutant loading. BMPs must be selected and designed to meet pollutant-specific benchmarks as required per the Municipal NPDES Permit. Flow-through BMPs may be used to treat the remaining SWQDv and must be sized based on a rainfall intensity of:

(1) 0.2 inches per hour, or

(2) The one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, whichever is greater.

(f) A Multi-Phased Project may comply with the standards and requirements of this section for all of its phases by:

(1) Designing a system acceptable to the Approving Agency to satisfy these standards and requirements for the entire Site during the first phase, and

(2) Implementing these standards and requirements for each phase of Development or Redevelopment of the Site during the first phase or prior to commencement of construction of a later phase, to the extent necessary to treat the stormwater from such later phase. For purposes of this section, "Multi-Phased Project" shall mean any Planning Priority Project implemented over more than one phase and the Site of a Multi-Phased Project shall include any land and water area designed and used to store, treat

or manage stormwater runoff in connection with the Development or Redevelopment, including any tracts, lots, or parcels of real property, whether Developed or not, associated with, functionally connected to, or under common ownership or control with such Development or Redevelopment.

E. BIENNIAL STORMWATER FACILITY PERMIT AND INSPECTION. Each Planning Priority Project shall obtain and maintain a valid Biennial Stormwater Facility Permit issued by the Lakewood Public Works Department.

1. The Biennial Stormwater Facility Permit shall be obtained prior to clearance of the building permit final inspection.
2. Once every two years, or more often as need, an inspection shall be conducted to confirm that the BMP's are being maintained and are operating properly.
3. The property owner shall correct any deficiency in the BMP's within 14 days of a notice of maintenance failure or other deficiency.
4. The property owner shall pay the appropriate fees as established by separate resolution for the biennial permits and/or any special BMP inspections required for enforcement of the provisions of this Section.

F. COVENANT AND AGREEMENT. The property owner of each Planning Priority Project shall record with the County Recorder a "Covenant And Agreement Regarding On-site LID BMP Maintenance", to the satisfaction of the Public Works Director and prior to the clearance of the building permit final inspection, issuance of an occupancy permit or operation of the approved land use on the subject property.

1. The transfer or lease of a property subject to maintenance requirements for LID BMPs shall include conditions requiring the transferee and its successors and assigns to either:

- **(a)** Assume responsibility for maintenance of any existing LID BMP, or
- **(b)** Replace an existing LID BMP with new control measures or BMPs meeting the then current standards of the City and MS4 Permit.
- **(c)** Such requirement shall be included in any sale or lease agreement or deed for such property.

2. The condition of transfer shall include a provision that the successor property owner or lessee conduct maintenance inspections of all LID BMPs at least once every two years and retain proof of inspection

SECTION 4. OTHER AGENCIES OF THE CITY. All City departments, offices, entities and agencies, shall establish administrative procedures necessary to implement the provisions of this Article on their development projects and report their activities annually to the Public Works Department.

SECTION 5. SEVERABLITY. The City Council hereby declares it would have passed this Ordinance sentence by sentence, paragraph by paragraph and section by section, and does hereby declare the provisions of this Ordinance are severable, and if for any reason any section of this Ordinance should be held invalid, such decision shall not affect the validity of the remaining parts of this Ordinance.

SECTION 6. The City Clerk shall certify to the adoption of this Ordinance. The City Council hereby finds and determines there are no newspapers of general circulation both published and circulated within the City and, in compliance with Section 36933 of the Government Code, directs the City Clerk to cause said Ordinance within fifteen (15) days after its passage to be posted in at least three (3) public places within the City as established by ordinance.

SECTION 7. This Ordinance shall become effective thirty (30) calendar days from and after its adoption.

ADOPTED AND APPROVED THIS 12TH DAY OF NOVEMBER, 2013, BY THE FOLLOWING ROLL CALL VOTE:

	AYES	NAYS	ABSENT
Council Member Rogers	X		
Council Member Piazza	X		
Council Member DuBois	X		
Council Member Wood	X		
Mayor Croft	X		

Mayor

ATTEST:

City Clerk

I, DENISE R. HAYWARD, do hereby certify that I am the City Clerk of the City of Lakewood, and the foregoing Ordinance was adopted and approved by the City Council of the City of Lakewood voting for and against the Ordinance as above set forth at a regular meeting thereof on the 12th day of November, 2013.

City Clerk

RESOLUTION NO. 14-12

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LA MIRADA ESTABLISHING A GREEN STREETS POLICY

A. Recitals.

(i) The Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region, on November 8, 2012. Municipalities electing to prepare a Watershed Management Plan under this permit are required to demonstrate that Green Streets policies are in place that specify the use of green street strategies for transportation corridors.

(ii) Green Streets are enhancements to street and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways, and tree lined streets.

(iii) The City has worked in conjunction with the Gateway Water Management Authority for the development of its Green Streets Policy.

B. Resolution.

NOW, THEREFORE, BE IT FOUND, DETERMINED AND RESOLVED as follows:

1. The City Council hereby adopts as its Green Streets Policy the Green Streets Manual as shown in Exhibit "A," attached hereto and incorporated herein by this reference.

2. The Director of Public Works will implement Green Streets for City-owned transportation corridors and road projects that add 10,000 square feet or more of impervious area following the City of La Mirada's Green Streets Manual as shown in Exhibit "A" which is based on the USEPA's Wet Weather with Green Infrastructure guidance (December 2008 EPA-833-F-08-009).

3. Routine maintenance including, but not limited to slurry seals, grind and overlay, and reconstruction to maintain original line of grade are excluded from the Green Streets Policy.

4. The Director of Public Works is authorized to make non-substantive changes to the City of La Mirada's Green Streets Manual consistent with the requirements of the MS4 Permit.

5. This Resolution has been reviewed with respect to the applicability of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) ("CEQA"). Pursuant to the State CEQA Guidelines (14 Cal Code Regs 15000 et seq.) (the "Guidelines"), the City Council has determined that the Green Streets Manual will not have a significant effect on the environment and is listed under the City of La Mirada local CEQA Guidelines as a Class 8 Categorical Exemption from the requirements of the California Environmental Quality Act. Staff is hereby directed to prepare and post a notice of exemption pursuant to Guidelines Section 15062.

6. At its regular meeting held on June 10, 2014, after holding a duly noticed Public Hearing and passing on all protests, the City Council determined that the public interest and necessity justify the adoption of the Green Streets Policy.

APPROVED AND ADOPTED this 10th day of June 2014.

Lawrence P. Mowles, Mayor

ATTEST:
I, Anne Haraksin, City Clerk of the City of La Mirada, do hereby certify the foregoing Resolution No. 14-12 was duly adopted at a regular meeting of the City Council of the City of La Mirada held on the 10th day of June 2014 by the following roll call vote:

AYES:	**Councilmembers Jones, Sarega, Mayor Pro Tem Deal, Mayor Mowles**
NOES:	**None**
ABSENT:	**Councilmember De Ruse**
ABSTAIN:	**None**

Anne Haraksin, City Clerk

RB-AR14298

CITY OF LA MIRADA
AFFIDAVIT OF POSTING

I, Anne Haraksin, certify that I caused to be posted the following document in the areas designated for posting on May 28, 2014:

ORDINANCE NO. 671

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LA MIRADA AMENDING IN ITS ENTIRETY CHAPTER 13.12 (URBAN RUNOFF) OF THE LA MIRADA MUNICIPAL CODE AND MAKING A DETERMINATION OF EXEMPTION UNDER CEQA

Anne Haraksin, City Clerk

NOTICE OF ADOPTION OF ORDINANCE NO. 671 OF THE CITY COUNCIL OF THE CITY OF LA MIRADA AMENDING IN ITS ENTIRETY CHAPTER 13.12 (URBAN RUNOFF) OF THE LA MIRADA MUNICIPAL CODE AND MAKING A DETERMINATION OF EXEMPTION UNDER CEQA

PLEASE TAKE NOTICE that on May 27, 2014, the City Council of the City of La Mirada adopted Ordinance No. 671 entitled "An Ordinance of the City Council of the City of La Mirada Amending in its Entirety Chapter 13.12 (Urban Runoff) of the La Mirada Municipal Code and Making a Determination of Exemption Under CEQA." A summary of that Ordinance is as follows:

Summary of Ordinance No. 671

The Ordinance amends in its entirety Chapter 13.12, relating to the regulation of municipal stormwater, of the La Mirada Municipal Code to be consistent with the current Municipal Separate Storm Sewer System ("MS4") Permit, issued by the Los Angeles Regional Quality Control Board. The Ordinance further expands the existing stormwater ordinance to be consistent with the current MS4 Permit, and will assist the City in regulating and enforcing illegal discharge as required by federal law. The purpose of the Ordinance is to: (a) reduce pollutants in stormwater discharges to the maximum extent practicable; (b) regulate illicit connections and illicit discharges and reduce the level of contamination of stormwater and urban runoff in the municipal stormwater system; (c) regulate non-stormwater discharges to the municipal stormwater system; and (d) protect and enhance water quality.

Section 13.12.110 of the Ordinance constitutes the low impact development ("LID") ordinance component of the City's overall stormwater ordinance. The LID provisions of the Ordinance will reduce the impacts of development by using smart growth practices and will integrate LID practices and standards for storm water pollution mitigation for new development and redevelopment projects. Projects that are required to incorporate appropriate storm water mitigation measures into their design plans are set forth in Section 13.12.110 of the Ordinance.

A certified copy of the entirety of the text of Ordinance No.671 is available in the office of the City Clerk in City Hall and is open for public inspection during regular business hours at that location.

Dated: May 28, 2014

Anne Haraksin, City Clerk
City of La Mirada

ORDINANCE NO. 671

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LA MIRADA AMENDING IN ITS ENTIRETY CHAPTER 13.12 (URBAN RUNOFF) OF THE LA MIRADA MUNICIPAL CODE AND MAKING A DETERMINATION OF EXEMPTION UNDER CEQA

WHEREAS, the federal Clean Water Act provides for the regulation and reduction of pollutants discharged into the waters of the United States by extending National Pollutant Discharge Elimination System ("NPDES") requirements to stormwater and urban runoff discharged into municipal storm drain systems.

WHEREAS, the City of La Mirada (the "City") is a co-permittee under the "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach MS4, Order No. R4-2012-0175, NPDES Permit No. CAS00401" ("MS4 Permit") issued by the California Regional Water Quality Control Board—Los Angeles Region, and, as a co-permittee under the MS4 Permit, the City is required to adopt ordinances and implement procedures with respect to discharges into the municipal separate storm sewer system ("MS4").

WHEREAS, the City has previously adopted ordinances to ensure that it possesses the legal authority necessary to control discharges to and from those portions of the MS4 over which it has jurisdiction, in order to comply with the MS4 Permit, and to specifically prohibit certain discharges identified in the MS4 Permit.

WHEREAS, Chapter 13.12 of the La Mirada Municipal Code is being revised in order to comply with the current MS4 Permit.

NOW, THEREFORE, the City Council of the City of La Mirada does hereby ordain as follows:

Section 1. Chapter 13.12 (Urban Runoff) of Title 13 (Health and Safety) of the La Mirada Municipal Code is hereby amended in its entirety to read as follows:

"Chapter 13.12 URBAN RUNOFF

13.12.010 Title.

This chapter shall be known as the City of La Mirada Stormwater Management and Discharge Control Ordinance.

13.12.020 Findings.

A. The federal Clean Water Act (33 U.S.C. Section 1251, *et seq.*,) provides for the regulation and reduction of pollutants discharged into the waters of the United States by extending National Pollutant Discharge Elimination System ("NPDES") requirements to stormwater and urban runoff discharge into municipal storm drain systems;

B. Stormwater and urban runoff flows from individual properties onto streets, then through storm drains passing through the City and finally into the waters of the United States;

C. The City is a co-permittee under the "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") discharges within the Coastal Watersheds of Los Angeles County, except those discharges originating from the City of Long Beach MS4, which also serves as a NPDES Permit under the federal Clean Water Act (NPDES No. CAS614001), as well as waste discharge requirements under California law (the "Municipal NPDES Permit") and, as a co-permittee under the Municipal NPDES Permit, the City is required to adopt ordinances and implement procedures with respect to the entry of non-stormwater discharges into the municipal stormwater system;

D. Part III, Section A of the Municipal NPDES Permit requires the City to effectively prohibit non-stormwater discharges from within its boundaries, into that portion of the MS4 which it owns or operates and into watercourses, except where such discharges are: (1) in compliance with a separate individual or general NPDES permit, or (2) identified and in compliance with Part III.A (non-stormwater discharges) of the Municipal NPDES Permit, or (3) originate from federal, state or other facilities which the City is preempted from regulating, and further provides that compliance with the terms of the Municipal NPDES Permit through the development and implementation of the programs described in the Municipal NPDES Permit will constitute compliance with the discharge prohibition in the Municipal NPDES Permit;

E. Part VI, Section A.2 of the Municipal NPDES Permit requires the City to establish and maintain the legal authority necessary to control discharges to and from those portions of the MS4 over which it has jurisdiction, so as to comply with the Municipal NPDES Permit and to specifically prohibit certain discharges identified in the Municipal NPDES Permit;

F. The Municipal NPDES Permit contemplates the development of a Watershed Management Program in which the City will participate, which will in turn require the development and the implementation of programs for, among other things, the elimination of illicit connections and illicit discharges, development planning, development construction, and public information and education requirements, and which may require the later adoption of additional legal authority to implement such programs as they are developed by the permittees and approved by the Regional Board;

G. In order to control, in a cost-effective manner, the quantity and quality of stormwater and urban runoff to the maximum extent practicable, the adoption of the ordinance codified in this chapter is essential.

13.12.030 Purpose and intent.

A. The purpose of this chapter is to ensure the future health, safety and general welfare of the citizens of the City and the water quality of the receiving waters of the County of Los Angeles and surrounding coastal areas by:

1. Reducing pollutants in stormwater discharges to the maximum extent practicable;
2. Regulating illicit connections and illicit discharges and reducing the level of contamination of stormwater and urban runoff in the municipal stormwater system; and
3. Regulating non-stormwater discharges to the municipal stormwater system.

B. The intent of this chapter is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the Municipal NPDES Permit.

C. This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal stormwater system over which it has jurisdiction as required by the Municipal NPDES Permit, and fully and timely comply with the terms of the Municipal NPDES Permit while the Watershed Management Program is being developed by the permittees under the Municipal NPDES Permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequently adopted Watershed Management Program, or other programs developed under the Municipal NPDES Permit.

D. This chapter also sets forth requirements for the construction and operation of certain commercial development, new development and redevelopment and other projects (as further defined herein) which are intended to ensure compliance with the stormwater mitigation measures prescribed in the current MS4 Permit This chapter authorizes the Director to define and adopt applicable best management practices and other stormwater pollution control measures, as provided herein, to carry out all inspections including entering entities discharging to the MS4, conduct surveillance, conduct monitoring, cite infractions and to impose fines pursuant to this chapter. Except as otherwise provided herein, the Director shall administer, implement and enforce the provisions of this section.

E. The City Council shall approve and enter into interagency agreements as deemed necessary by the City Council to control the contribution of pollutants of the shared MS4.

13.12.040 Definitions.

Except as specifically provided herein, any term used in this chapter shall be defined as that term is defined in the current Municipal NPDES Permit, or if it is not specifically defined in the Municipal NPDES Permit, then as such term is defined in the Federal Clean Water Act, as amended, or the regulations promulgated thereunder. If the definition of any term contained in this section conflicts with the definition of the same term in the current Municipal NPDES Permit, then the definition contained in the Municipal NPDES Permit shall govern. The following words and phrases shall have the following meanings when used in this chapter:

"Area susceptible to runoff" means any surface directly exposed to precipitation or in the path of runoff caused by precipitation which path leads off the parcel on which the surface is located.

"Automotive service facilities" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539 provided that these facilities have no outside activities or materials that may be exposed to stormwater

"Best Management Practices (BMPs)" means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water. Examples of BMPs may include public education and outreach, proper planning of development projects, proper cleaning of catch basin inlets, and proper sludge- or waste-handling and disposal, among others.

"Biofiltration" means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this chapter is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales.

"Bioretention" means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this Ordinance, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the Municipal NPDES Permit as biofiltration.

"Bioswale" means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

"City" means the City of La Mirada, California.

"Clean Water Act (CWA)" means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

"Commercial development" means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

"Commercial Malls" means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers

"Construction" means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that result in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See

"Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan

"Control" means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

"Development" means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single family, multi-unit or planned unit development); industrial, commercial, retail and other nonresidential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Directly adjacent" means situated within two hundred (200) feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Director" means the City's Director of Community Development or his or her designee.

"Discharge" means when used without qualification the discharge of a pollutant.

"Discharge of a pollutant" means any addition of any pollutant or combination of pollutants to waters of the United States from any point source or, any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by a state, municipality, or other person which do not lead to treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

"Discharging" directly means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

"Discretionary project" is defined in the same manner as Section 15357 of the Guidelines for Implementation of the California Environmental Quality Act contained in Title 14 of the California Code of Regulations, as amended, and means a project which requires the exercise of judgment or deliberation when the City decides to approve or disapprove a particular activity, as distinguished from situations where the City merely has to determine whether there has been conformity with applicable statutes, ordinances or regulations.

"Disturbed area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Environmentally sensitive area (ESA)" means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements are areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning (1976) and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Games Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the Basin Plan as supporting the Rare, Threatened, or Endangered Species (RARE) beneficial use; and an area identified by the City as environmentally sensitive.

"Flow-through treatment BMPs" means a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

"Full Capture System" means any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage area.

"Good housekeeping practices" means common practices related to the storage, use or cleanup of materials, performed in a manner that minimizes the discharge of pollutants. Examples include, but are not limited to, purchasing only the quantity of materials to be used at a given time, use of alternative and less environmentally harmful products, cleaning up spills and leaks, and storing materials in a manner that will contain any leaks or spills.

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from construction activities under certain conditions.

"General Industrial Activities Storm Water Permit (GIASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions.

"Green Roof" means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

"Hillside" means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is twenty-five percent (25%) or greater and where grading contemplates cut or fill slopes.

"Illicit connection" means any human-made conveyance that is connected to the storm drain system without a permit, excluding gutters, roof-drains and other similar connections. Examples include channels, pipelines, conduits, inlets or outlets that are connected directly to the storm drain system.

"Illicit discharge" means any discharge to the. storm drain system that is prohibited under local, state or federal statutes, ordinances, codes or regulations. This includes all non-stormwater discharges except discharges pursuant to a separate NPDES permit and discharges that are exempted or conditionally exempted in accordance with Part III the Municipal NPDES permit.

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

"Industrial Park" means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

"Infiltration BMP" means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

"Infiltration" means the downward entry of water into the surface of the soil.

"Low Impact Development (LID)" consists of building and landscape features designed to retain or filter stormwater runoff.

"Material" means any substance including, but not limited to: garbage and debris; lawn clippings, leaves, and other vegetation; biological and fecal waste; sediment and sludge; oil and grease; gasoline; paints, solvents, cleaners, and any fluid or solid containing chemicals.

"Municipal NPDES Permit" means the Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach, Order No. R4-2012-0175, NPDES Permit No. CAS00401, issued by the California Regional Water Quality Control Board—Los Angeles Region, and any successor permit to that permit.

"Municipal Separate Storm Sewer System (MS4)" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

2. Designed or used for collecting or conveying stormwater;

3. Which is not a combined sewer; and

4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Section 122.2.

"New development" means land-disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

"Non-stormwater discharge" means any discharge to a municipal stormwater system that is not composed entirely of stormwater.

"NPDES permit" means any waste discharge requirements issued by the Regional Board or the State Water Resources Control Board in the form of an NPDES permit pursuant to Water Code Section 13370 (other than the Municipal NPDES Permit).

"Outfall" means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR Section 122.26(b)(9))

"Parking lot" means land area or a facility for the parking or storage of motor vehicles used for businesses, commerce, industry or personal use with a lot size of five thousand (5,000) square feet or more of surface area, or with twenty-five (25) or more parking spaces.

"Planning priority projects" means those projects specified in Section 13.12.110.C of this chapter that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective projects.

"Pollutant" means those pollutants defined in Section 502(6) of the federal Clean Water Act (33 U.S.C. Section 1362(6)), or incorporated into California Water Code Section 13373. Examples of pollutants include, but are not limited to the following:

1. Commercial and industrial waste (such as fuels, solvents, detergents, plastic pellets, hazardous substances, fertilizers, pesticides, slag, ash and sludge);

2. Metals such as cadmium, lead, zinc, copper, silver, nickel, chromium, and nonmetals such as phosphorus and arsenic;

3. Petroleum hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants and grease);

4. Excessive eroded soils, sediment and particulate materials in amounts which may adversely affect the beneficial use of the receiving waters, flora or fauna of the state;

5. Animal wastes (such as discharge from confinement facilities, kennels, pens, recreational facilities, stables and show facilities);

6. Substances having characteristics such as pH less than six or greater than nine, or unusual coloration or turbidity, or excessive levels of fecal coliform, or fecal streptococcus, or enterococcus;

The term "pollutant" shall not include uncontaminated stormwater, potable water or reclaimed water generated by a lawfully permitted water treatment facility.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (California Public Resources Code Section 21065).

"Rainfall Harvest and Use" means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department (Order No. R4-2012-0175).

"Receiving Water" means "water of the United States" into which waste and/or pollutants are or may be discharged.

"Redevelopment" means land-disturbing activity that result in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Regional Board" means the California Regional Water Quality Control Board—Los Angeles Region.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. (SIC Code 5812).

"Retail gasoline outlet" means any facility engaged in selling gasoline and lubricating oils.

"Routine Maintenance" includes, but is not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.

3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.

4. Update existing lines and facilities, which include replacing existing lines with new materials or pipes, to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.

5. Repair leaks.

Routine maintenance does not include construction of new lines or facilities resulting from compliance with applicable codes, standards and regulations.

"Runoff" means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

"Site" means the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Source control BMP" means any schedule of activities, prohibition of practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution.

"Standard urban stormwater mitigation plan" or "SUSMP" means a report submitted by an applicant for approval by the Director prior to issuance of a building, grading, planning or similar permit outlining the necessary LID requirements and BMPs which must be incorporated into design plans for development or redevelopment projects.

"Storm Drain System" means any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City.

"Stormwater runoff" means that part of precipitation (rainfall) which travels via flow across a surface to the MS4 or receiving waters from impervious, semi-pervious or pervious surfaces. When all other factors are equal, runoff increases as the perviousness of a surface decreases.

"Structural BMP" means any structural facility designed and constructed to mitigate the adverse impacts of stormwater and urban runoff pollution (e.g. canopy, structural enclosure). Structural BMPs may include both treatment control BMPs and source control BMPs.

"Treatment" means the application of engineered systems that use physical, chemical or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media adsorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

"Treatment control BMP" means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological or chemical process.

"Urban runoff" means surface water flow produced by non-stormwater resulting from residential, commercial and industrial activities involving the use of potable and nonpotable water.

13.12.050 Construction and application.

This chapter shall be construed to assure consistency with the requirements of the federal Clean Water Act and acts amendatory or supplementary to the Federal Clean Water Act, applicable implementing regulations, and the Municipal NPDES Permit, and any amendment, revision or reissuance of the Municipal NPDES Permit.

13.12.060 No taking.

The provisions of this chapter shall not operate to deprive any property owner of substantially all of the market value of such owner's property or otherwise constitute an unconstitutional taking without compensation.

13.12.070 Prohibited activities.

A. Illicit Discharges and Connections. It is prohibited to commence, establish, use, maintain or continue any illicit connections to the MS4 or any illicit discharges to the MS4. This prohibition against illicit connections applies to the use, maintenance or continuation of any illicit connection, whether that connection was established prior to or after the effective date of this chapter.

B. Littering. No person shall throw, deposit, place, leave, maintain, keep or permit to be thrown, deposited, placed, left or maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles or accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place, or upon any or private plot of land in the City, so that the same might be or become a pollutant. No person shall throw or deposit litter in any fountain, pond, lake, stream, or other body of water within the City. This section shall not apply to refuse, rubbish or garbage deposited in containers, bags or other appropriate receptacles which are placed in designated locations for regular solid waste pick-up and disposal.

C. Disposal of Landscape Debris. No person shall dispose of leaves, dirt, or other landscape debris into the municipal separate stormwater system.

D. Non-stormwater Discharges. The following non-stormwater discharges into the MS4 are prohibited unless in compliance with a separate NPDES permit or pursuant to a discharge exemption by the Regional Board, the Regional Board's Executive Officer, or the State Water Resources Control Board:

1. The discharge of untreated wash waters to the MS4 when gas stations, auto repair garages, or other type of automotive service facilities are cleaned;

2. The discharge of untreated wastewater to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;

3. To the maximum extent practicable, discharges to the MS4 from areas where repair of machinery and equipment, including motor vehicles, which are visibly leaking oil, fluid or antifreeze, is undertaken;

4. Discharges of untreated runoff to the MS4 from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials;

5. Discharges of commercial/municipal swimming pool filter backwash to the MS4;

6. Discharges of untreated runoff from the washing of toxic materials from paved or unpaved areas to the MS4; provided, however, that nonindustrial and noncommercial activities which incidentally generate urban runoff, such as the hosing of sidewalks, shall be excluded from this prohibition;

7. To the maximum extent practicable, discharges to the MS4 from washing impervious surfaces in industrial/commercial areas which results in a discharge of untreated runoff to the MS4, unless specifically required by state law, or the City's Municipal code, or Los Angeles County's Health and Safety Codes, or permitted under a separate NPDES permit;

8. Discharges from the washing out of concrete trucks into the MS4;

9. Discharges to the MS4 of any pesticide, fungicide or herbicide, banned by the USEPA or the California Department of Pesticide Regulation; or

10. The disposal of hazardous wastes into trash containers used for municipal trash disposal where such disposal causes or threatens to cause a direct or indirect discharge to the MS4.

E. Car Washing. No motor vehicle, boat, trailer, or other type of mobile transportation may be washed, other than at a commercial carwash, unless such vehicle is being washed by:

1. A resident at their residence using a hand-held bucket or a water hose equipped with an automatic shutoff nozzle as long as water does not flow onto streets; or

2. A business that has an approved car wash facility for its fleet vehicles, provided that water does not flow onto streets.

13.12.080 Exempted discharges, conditionally exempted discharges or designated discharges.

A. Discharges from those activities specifically identified in, or pursuant to, Part III.A.1-3 of the Municipal NPDES Permit as being exempted discharges, conditionally exempted discharges or designated discharges shall not be considered a violation of this chapter; provided that, consistent with Part III.A.1-3 of the Municipal NPDES Permit:

1. Any applicable BMPs developed pursuant to the Municipal NPDES Permit are implemented to minimize any adverse impacts from such identified sources;

2. The discharger meets all notification, reporting and recordkeeping requirements; and

3. The discharge has conducted all applicable monitoring requirements.

B. Discharges in Violation of the Municipal NPDES Permit. Any discharge that would result in or contribute to a violation of the Municipal NPDES Permit, either separately or in combination with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the person(s) causing or responsible for the discharge, and such person(s) shall defend, indemnify and hold harmless the City from all losses, liabilities, claims or causes of actions in any administrative or judicial action relating to such discharge.

13.12.090 Good housekeeping provisions.

Owners and occupants of property within the City shall comply with the following requirements:

A. Septic Waste. No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste to precipitation in an area where a discharge to City streets or MS4 may or does occur.

B. Use of Water. Runoff of water used for irrigation purposes shall be minimized to the maximum extent practicable. Runoff of water from the permitted washing down of paved areas shall be minimized to the maximum extent practicable.

C. Storage of Materials, Machinery and Equipment. Machinery or equipment that is to be repaired or maintained in areas susceptible to or exposed to stormwater, shall be placed in a manner so that leaks, spills and other maintenance-related pollutants are not discharged to the MS4.

D. Removal and Disposal of Debris from Industrial/Commercial Motor Vehicle Parking Lots. Industrial/commercial motor vehicle parking lots with more than twenty-five (25) parking spaces that are located in areas potentially exposed to stormwater shall be swept regularly or other equally effective measures shall be utilized to remove debris from such parking lots.

E. Food Wastes. Food wastes generated by nonresidential food service and food distribution sources shall be properly disposed of and in a manner so such wastes are not discharged to the MS4.

F. Best Management Practices. Best management practices shall be used in areas exposed to stormwater for the removal and lawful disposal of all fuels, chemicals, fuel and chemical wastes, animal wastes, garbage, batteries, or other materials which have potential adverse impacts on water quality.

G. Maintenance of Structural BMPs. Structural BMPs shall be properly operated and maintained, consistent with the approved SUSMP. Records and documentation of such maintenance shall be provided to the Director upon request.

13.12.100 Requirements for industrial/commercial and construction activities.

A. Industrial/Commercial and Construction Related Dischargers Generally. Each discharger associated with industrial/commercial activity or construction activity, or other discharger described in any general NPDES permit addressing such discharges, as may be issued by the U.S. Environmental Protection Agency, the State Water

Resources Control Board, or the Regional Board shall comply with all requirements of such NPDES permit and the City's development construction program. Each discharger identified in an individual NPDES permit shall comply with and undertake all activities required by such permit. Proof of compliance with any such NPDES permit and the City's development construction program may be required in a form acceptable to the Director prior to the issuance of any grading, building or occupancy permits, or any other type of permit or license issued by the City.

B. Industrial/Commercial and Construction Related Non-Storm Water Discharges. Non-storm water discharges to the MS4 from industrial, commercial or construction activities in violation of any applicable NPDES permit or the City's development construction program are prohibited.

C. Source Control BMPs for Industrial/Commercial Facilities. Industrial/commercial facilities shall implement the effective source control BMPs listed in Table 10 of Part VI.D.6.f. of the Municipal NPDES Permit, unless a particular pollutant generating activity does not occur on a facility's site.

13.12.110 Standard urban stormwater mitigation plan (SUSMP) and low impact development (LID) requirements for new development and redevelopment projects.

A. Objective. Pursuant to Part VI.D.7.b of the Municipal NPDES Permit, the provisions of this section establish requirements for construction activities and facility operations of development and redevelopment projects to comply with the current Municipal NPDES Permit to lessen the water quality impacts of development by using smart growth practices and integrate LID practices and standards for stormwater pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use. Except as otherwise provided herein, the City shall administer, implement and enforce the provisions of this section.

B. . Scope. This section contains requirements for stormwater pollution control measures in development and redevelopment projects and authorizes the City to further define and adopt stormwater pollution control measures, and to develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies. As specified in this section, certain Planning Priority Projects shall meet the requirements of this section through the preparation and submittal of a standard urban stormwater mitigation plan (SUSMP), which shall include the applicable LID requirements set forth in this section as an element of the SUSMP.

C. Applicability – Planning Priority Projects. The following development and redevelopment projects shall be designated as Planning Priority Projects, which are subject to City conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution prior to completion of the projects, and shall meet the requirements of this section:

(1) New Development Projects.

a. All development projects equal to one (1) acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.

b. Industrial parks 10,000 square feet or more of surface area.

c. Commercial malls 10,000 square feet or more of surface area.

d. Retail gasoline outlets with 5,000 square feet or more of surface area.

e. Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of surface area.

f. Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

g. Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

h. Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.

i. Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:

(i) Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

(ii) Create 2,500 square feet or more of impervious surface area.

j. Single-family hillside homes.

(2) Redevelopment Projects

a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

e. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

D. Specific Requirements. The site for every Planning Priority Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use. In addition, the following specific requirements apply:

(1) New Single-Family Hillside Homes. A new single-family hillside home development project shall include mitigation measures to:

a. Conserve natural areas;

b. Protect slopes and channels;

c. Provide storm drain system stenciling and signage;

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

e. Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

(2) Street and Road Construction of 10,000 square feet or more. Street and road construction of 10,000 square feet or more of impervious surface shall follow the City's Green Street Manual developed by the Director and approved by City Council resolution. The City's Green Street Manual shall be based on the USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009).

(3) Remainder of Planning Priority Projects Require a SUSMP. Except for the projects listed in paragraphs (1) and (2) of subsection D of this section, all other Planning Priority Projects shall prepare and submit to the Director for review and approval a SUSMP which shall also contain LID requirements consistent with Parts

VI.D.7.c and VI.D.7.d(iii) of the Municipal NPDES Permit. In addition, Planning Priority Projects subject to this paragraph (3) shall do the following:

a. Incorporate the SUSMP into Project Plans. An applicant for a Planning Priority Project identified in paragraph (3) of subsection D of this section shall incorporate into the applicant's project plans a Storm Water Mitigation Plan (SWMP), which includes those BMPs necessary to control storm water pollution from construction activities and facility operations, as set forth in the SUSMP applicable to the applicant's project. Structural or Treatment Control BMPs (including, as applicable, post-construction treatment control BMPs) set forth in project plans shall meet the design standards set forth in the SUSMP and the current Municipal NPDES Permit.

b. Verify Maintenance of BMPs. If a project applicant has included or is required to include structural or treatment control BMPs in project plans, the applicant shall provide verification of maintenance provisions. The verification shall include the applicant's signed statement, as part of its project application, accepting responsibility for all structural and treatment control BMP maintenance until such time, if any, the property is transferred.

E. Issuance of Discretionary Permits. No discretionary permit may be issued for any Planning Priority Project identified in this section until the Director confirms the project plans comply with the applicable requirements of this section.

F. Issuance of Certificates of Occupancy. As a condition for issuing a certificate of occupancy for a Planning Priority Project identified in this section, the Director shall require facility operators and/or owners to build all the stormwater pollution control BMPs and structural or treatment control BMPs that are shown on the approved project plans and to submit a signed certification statement stating that the site and all structural or treatment control BMPs will be maintained in compliance with the SUSMP and other applicable regulatory requirements.

G. Transfer of Properties Subject to Requirement for Maintenance of Structural and Treatment Control BMPs.

1. The transfer or lease of a property subject to a requirement for maintenance of structural and treatment control BMPs shall include conditions requiring the transferee and its successors and assigns to either (a) assume responsibility for maintenance of any existing structural or treatment control BMP or (b) to replace an existing structural or treatment control BMP with new control measures or BMPs meeting the then current standards of the City and the SUSMP. Such requirement shall be included in any sale or lease agreement or deed for such property. The condition of transfer shall include a provision that the successor property owner or lessee conduct maintenance inspections of all structural or treatment control BMPs at least once a year and retain proof of inspection.

2. For residential properties where the structural or treatment control BMPs are located within a common area which will be maintained by a homeowners association, language regarding the responsibility for maintenance shall be included in the projects conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what stormwater management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

3. If structural or treatment control BMPs are located within an area proposed for dedication to a public agency, said BMPs shall be the responsibility of the developer until the dedication is accepted by the public agency.

H. CEQA. Provisions of this section shall be complementary to, and shall not replace, any applicable requirements for stormwater mitigation required under the California Environmental Quality Act.

13.12.120 Enforcement.

A. Violations Deemed a Public Nuisance.

1. The following violations shall be deemed a public nuisance:

a. Any condition caused or permitted to exist in violation of any of the provisions of this chapter; or

b. Any failure to comply with any applicable requirement of either the SUSMP or an approved stormwater mitigation plan with respect to a property; or

c. Any false certification or verification, or any failure to comply with a certification or verification provided by a project applicant or the applicant's successor in interest; or

d. Any failure to properly operate and maintain any structural or treatment control BMP on a property in accordance with an approved stormwater mitigation plan or the SUSMP, is determined to be a threat to the public health, safety and welfare, is declared and deemed a public nuisance, and may be abated or restored by any Director, and a civil or criminal action to abate, enjoin or otherwise compel the cessation of such nuisance may be brought by the City Attorney.

2. The cost of such abatement and restoration shall be borne by the owner of the property and the cost shall be billed to the owner of the property, as provided by law or ordinance for the recovery of nuisance abatement costs,

3. If any violation of this chapter constitutes a seasonal and recurrent nuisance, the Director shall so declare. The failure of any person to take appropriate annual precautions to prevent stormwater pollution after written notice of a determination under this section shall constitute a public nuisance and a violation of this chapter.

B. Concealment. Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of such provision.

C. Civil Actions. In addition to any other remedies provided in this chapter, any violation of this chapter may be enforced by civil action brought by the City. In any such action, the City may seek any or all of the following remedies:

1. A temporary and/or permanent injunction;

2. Assessment of the violator for the costs of any investigation, inspection or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action under this section;

3. Costs incurred in removing, correcting or terminating the adverse effects resulting from the violation;

4. Compensatory damages for loss or destruction to water quality, wildlife, fish and aquatic life.

D. Administrative Enforcement Powers. In addition to the other enforcement powers and remedies established by this chapter, the Director has the authority to utilize the following administrative remedies:

1. Cease and Desist Orders. When a discharge has taken place or is likely to take place in violation of this chapter, the Director may issue an order to cease and desist such discharge, or practice or operation likely to cause such discharge and direct that those persons not complying shall: (a) comply with the requirement; (b) comply with a time schedule for compliance; and (c) take appropriate remedial or preventive action to prevent the violation from recurring.

2. Notice to Clean. Whenever the Director finds any oil, earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or any other material of any kind, in or upon the sidewalk abutting or adjoining any parcel of land, or upon any parcel

of land or grounds, which may result in pollutants entering the MS4 or a non-stormwater discharge to the MS4, he or she may give notice to the owner or occupant of the adjacent property to remove such oil earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or other material, in any manner that he or she may reasonably provide. The recipient of such notice shall undertake the activities as described in the notice.

E. Penalties. Violation of this chapter shall be punishable as provided in Chapter 1.08 of this code. Each day that a violation continues shall constitute a separate offense.

F. Permit Revocation. To the extent the City makes a provision of this chapter or any identified BMP a condition of approval to the issuance of a permit or license, any person in violation of such condition is subject to the permit revocation procedures set forth in this code.

G. Burden of Proof. In an enforcement action, the burden of proof shall be on the person who is the subject of such action to establish that the reduction or elimination of the discharge to the maximum extent practicable has been accomplished through compliance with the best management practices available, including applicable monitoring, notifications and reporting requirements.

H Remedies. Remedies under this chapter are in addition to and do not supersede or limit any and all other available remedies, civil or criminal. The remedies provided for in this chapter shall be cumulative and not exclusive."

Section 2. **<u>Severability</u>**. If any section, subsection, sentence, clause, phrase or portion of this ordinance for any reason is held to be invalid or unconstitutional by any court of competent jurisdiction, such decision shall not affect the validity or the remaining portions of this ordinance. The City Council of the City of La Mirada hereby declares that it would have adopted this ordinance and each section, subsection, sentence, clause, phrase or portion thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases or portions were to be declared invalid or unconstitutional.

Section 3. **<u>CEQA</u>.** The City Council hereby finds, in the exercise of its independent judgment and analysis, that this ordinance is exempt from the California Environmental Quality Act ("CEQA") because this ordinance is an administrative and enforcement activity of the City that will not result any direct or indirect physical changes in the environment pursuant to CEQA Guidelines Section 15378(b)(5). Additionally, the adoption of this ordinance is also exempt from CEQA because the adoption of this Ordinance and the timing thereof is mandated by the action of the Los Angeles Regional Water Quality Control Board ("LARWQCB"). In this case, the City is acting at the direction of the LARWQCB and federal law to protect, maintain, restore and enhance natural resources and the environment. To comply with the requirements of the LARWQCB, the City Council finds that the adoption of this Ordinance is categorically exempt from the requirements of the California Environmental Quality Act ("CEQA") pursuant to CEQA Guidelines Sections 15307 and 15308.

Section 4. **Publication.** The City Clerk shall certify to the adoption of this Ordinance and shall cause the same to be published or posted in the manner prescribed by law.

APPROVED and ADOPTED this 27th day of May, 2014.

Lawrence P. Mowles, Mayor

Attest:
I, Anne Haraksin, City Clerk of the City of La Mirada, do hereby certify that the foregoing Ordinance was introduced at a regular meeting of the City Council of the City of La Mirada held on the 13th day of May 2014, and was finally passed at a regular meeting of the City Council of the City of La Mirada held on the 27th day of May, 2014, by the following vote:

AYES:	**Councilmembers De Ruse, Jones, Sarega, Mayor Pro Tem Deal, Mayor Mowles**
NOES:	**None**
ABSENT:	**None**
ABSTAIN:	**None**

Anne Haraksin, City Clerk

ORDINANCE NO. ORD-13-0024

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LONG BEACH AMENDING THE LONG BEACH MUNICIPAL CODE BY AMENDING AND RESTATING TITLE 18 IN ITS ENTIRETY; AND BY REPEALING CHAPTER 21.65, ALL RELATING TO THE ADOPTION AND AMENDMENTS TO THE 2013 EDITION OF THE CALIFORNIA BUILDING STANDARDS CODES AND THE 1997 EDITION OF THE UNIFORM HOUSING CODE TO BE KNOWN AS THE LONG BEACH BUILDING STANDARDS CODE

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

The City Council of the City of Long Beach ordains as follows:

Section 1. Title 18 of the Long Beach Municipal Code is hereby amended in its entirety and restated as shown on Exhibit "A", which is attached hereto and incorporated herein by this reference as if set forth in full.

Section 2. Chapter 21.65 of the Long Beach Municipal Code is hereby repealed.

Section 3. The City Clerk shall certify to the passage of this ordinance by the City Council and cause it to be posted in three (3) conspicuous places in the City of Long Beach, and it shall take effect on the thirty-first (31st) day after it is approved by the Mayor, but in no event prior to January 1, 2014, with the exception that the "Low Impact Development Standards" codified in Chapter 18.74 shall become effective in accordance with Long Beach City Charter Section 210; and that the provisions of Chapter 18.76 relating to "Water Submeters" shall not become effective unless and until the City Council considers the adoption of "Consumer Protection Standards" relating to water

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submetering.

I hereby certify that the foregoing ordinance was adopted by the City Council of the City of Long Beach at its meeting of November 12, 2013 by the following vote:

Ayes:	Councilmembers:	Lowenthal, DeLong, O'Donnell, Andrews, Johnson, Austin, Neal.
Noes:	Councilmembers:	None.
Absent:	Councilmembers:	Garcia, Schipske.

Lg Herrera

City Clerk

Approved: 11/14/13
(Date)

Mayor

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

CHAPTER 18.74 LOW IMPACT DEVELOPMENT STANDARDS

18.74.010 – Purpose.
18.74.020 – Definitions.
18.74.030 – LID requirements and applicability.
18.74.040 – LID plan review.
18.74.050 – LID plan review, permit and Offsite Runoff Mitigation fees.
18.74.060 – LID Best Management Practices Manual.
18.74.070 – Hardship determination.

CHAPTER 18.74
LOW IMPACT DEVELOPMENT STANDARDS

18.74.010 – Purpose.

The purpose of this chapter is to require the use of low impact development (LID) standards in the planning and construction of development projects. LID standards promote the goal of environmental sustainability by helping improve the quality of receiving waters, protecting the Los Angeles and San Gabriel River watersheds, maintaining natural drainage paths, and protecting potable water supplies within the City. The LID objective of controlling and maintaining flow rate is addressed through land development and stormwater management techniques that imitate the natural hydrology (or movement of water) found on the site. Using site design and best management practices that allow for storage and retention, infiltration, filtering, and flowrate adjustments achieve the goals of LID, advances sustainability and reduces the overall cost of stormwater management. The use of engineered systems, structural devices, and vegetated natural designs distributes stormwater and urban runoff across a development site maximizing the effectiveness of LID.

18.74.020 – Definitions.

"Brownfield" means a piece of industrial or commercial property that is abandoned or underused and often environmentally contaminated, especially one considered as a potential site for redevelopment.

"Development" means any constructionto build any new public or private residential projects (whether single-family, multi unit or planned unit development); new industrial, commercial, retail and other non-residential projects, including public agency projects; new impervious surface area; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"LID Best Management Practices Manual" means a manual of LID standards and practices for stormwater pollution mitigation, including technical feasibility and implementation parameters, alternative compliance for technical infeasibility, as well as other rules, requirements and procedures as the City deems necessary, for implementing the provisions of this section of the Long Beach Municipal Code.

"Multi-Phased Project" shall mean any Development or Redevelopment implemented over more than one phase and the Site of a Multi-Phased Project shall include any land and water area designed and being used to store, treat or manage stormwater runoff in connection with the Development or Redevelopment, including any tracts, lots, or parcels of real property, whether Developed or not, associated with, functionally connected to, or under common ownership or control with such Development or Redevelopment.

"Offsite Runoff Mitigation Fee" means fee paid to the City for the management of storm water runoff generated from the 0.75-inch water quality storm in excess of the storm water runoff that is infiltrated, evapotranspired and/or stored for use. The Offsite Runoff Mitigation Fee shall be used by the City to construct or apply towards the construction of an offsite mitigation project within the same sub-watershed that will achieve at least the same level of water quality protection as if all of the runoff was retained on site.

"Redevelopment" means land-disturbing activities that result in the replacement of more than fifty percent (50%) of an existing building, structure or impervious surface area on an already developed site. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety or grinding/overlaying and replacement of existing parking lots.

"Site" means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land use in connection with the facility or activity.

18.74.030 – LID requirements and applicability.

A. The provisions of this section set forth the requirements for and shall apply to all new Development and Redevelopment projects in the City of Long Beach. The following Development or Redevelopment projects are exempt from the requirements of this chapter:

   1. Any Development or Redevelopment projects that creates, adds or replaces less than five hundred (500) square feet of impervious surface area;

   2. Any Development or Redevelopment projects involving emergency construction activities required to immediately protect public health and safety;

   3. Any Development or Redevelopment projects involving the grinding/overlaying and replacement of existing parking lots;

   4. Any Development or Redevelopment projects where land disturbing activities result in the replacement of fifty percent (50%) or less of an existing building, structure or impervious surface area; or

   5. Any Development or Redevelopment projects that are technically infeasible pursuant to Subsection 18.74.040.B; or

   6. Any Development or Redevelopment projects that do not require a building permit.

B. LID requirements for new Development or Redevelopment projects:

   1. Residential Development of 4 units or less

      a. For new Development less than one (1) acre, or if Redevelopment alters more than fifty percent (50%) of existing buildings, structures or impervious surfaces of an existing developed site, comply with the standards and requirements of this chapter and implement at least two (2) adequately sized LID BMP alternatives from the LID Best Management Practices Manual.

      b. For new Development that is one (1) acre and greater, the entire Site shall comply with the standards and requirements of this chapter and the LID Best Management Practices Manual.

   2. Residential Developments of 5 units or more and nonresidential Developments

      For new Development, or if Redevelopment alters more than fifty percent (50%) of existing buildings, structures or impervious surfaces of an existing developed site, the entire Site shall comply with the standards and requirements of this chapter and of the LID Best Management Practices Manual.

   3. Nonresidential Developments in the Port of Long Beach Harbor District

      For new Development or Redevelopment projects located in the Port of Long Beach Harbor District as designated in Title 21 Zoning Regulations, the site shall comply with the LID BMP alternatives set forth in the Port of Long Beach Post-Construction Design Guidance Manual and in the LID Best Management Practices Manual.

C. This chapter shall not apply to those projects for which a building permit application has been filed for and deemed complete by the Building Official prior to February 19, 2013.

18.74.040 – LID plan review.

A. Compliance with the LID standards of this chapter shall be demonstrated through a LID plan review. Permit applicant shall be required to submit a LID plan for review to the Building Official. The LID plan shall demonstrate how the project will meet the standards and requirements of this chapter and of the LID Best Management Practices Manual. A submitted LID plan shall indicate compliance with the following standards:

   1. Stormwater runoff will be infiltrated, captured and reused, evapotranspired, and/or treated onsite through stormwater best management practices allowed in the LID Best Management Practices Manual.

   2. The onsite stormwater management techniques must be properly sized, at a minimum, to infiltrate, evapotranspire, and/or store for use without any storm water runoff leaving the site to the maximum extent feasible, for at least the volume of water produced by a storm event that results from:

      a. The volume of runoff produced from a 0.75 inch storm event; or

      b. The eighty-fifth (85^{th}) percentile twenty-four (24) hour runoff event determined as the maximized capture stormwater volume for the area using a fourty-eight (48) to seventy-two (72) hour draw down time, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or

      c. The volume of annual runoff based on unit basin storage water quality volume, to achieve eighty percent (80%) or more volume treatment by the method recommended in the California Stormwater Best Management Practices Handbook – Industrial/Commercial, (2003).

B. When the onsite LID requirements are technically infeasible, the infeasibility shall be demonstrated in the submitted LID plan and shall be reviewed in consultation with the Building Official. The technical infeasibility may result from conditions that may include, but are not limited to:

   1. Locations where seasonal high groundwater is within ten (10) feet of surface grade;

   2. Locations within one hundred (100) feet of a groundwater well used for drinking water;

   3. Brownfield Development sites or other locations where pollutant mobilization is a documented concern;

   4. Locations with potential geotechnical hazards; or

   5. Locations with impermeable soil type as indicated in applicable soils and geotechnical reports.

C. If complete onsite compliance of any type is technically infeasible, a Development or Redevelopment project shall be required to comply with, at a minimum, all applicable Standard Urban Stormwater Mitigation Plan (SUSMP) requirements of Chapter 18.61 in order to maximize onsite compliance. For the remaining runoff that cannot feasibly be managed onsite, one or a combination of the following shall be required:

   1. An Offsite Runoff Mitigation Fee pursuant to Subsection 18.74.050.B shall be paid to the City of Long Beach's Stormwater Pollution Abatement Fund for offsite mitigation, as described in the LID Best Management Practices Manual. The funding will be applied towards the construction of an offsite mitigation project(s) within the same sub-watershed that will achieve

at least the same level of water quality protection as if all of the runoff was retained onsite.

2. To provide an incentive for onsite management of storm water runoff, Development and Redevelopment projects will receive the following reduction in the Offsite Runoff Mitigation Fee based on the percentages of storm water runoff that is managed on site through infiltration, evapotranspiration, and/or capture and use:

Stormwater Runoff Managed Onsite	Fee Reduction
Between 90% and 99%	75%
Between 75% and 89%	50%
Between 50% and 74%	25%

3. A Multi-Phased Project must design a system acceptable to satisfy these standards and requirements for the entire Site during the first phase and will implement these standards and requirements for each phase of Development or Redevelopment projects of the Site during the first phase or prior to commencement of construction of a later phase, to the extent necessary to treat the stormwater from such later phase.

18.74.050 – LID plan review, permit, and Offsite Runoff Mitigation fees.

A. Permit applicants who seeks to engage in new Development or Redevelopment as defined in this chapter by obtaining a building permit shall pay the required plan examination and permit fees as set forth in Chapter 18.06.

B. Permit applicants who seeks to engage in new Development or Redevelopment as defined in this chapter by obtaining a building permit and does not demonstrate complete onsite compliance as described in the LID Best Management Practices Manual are required to pay an Offsite Runoff Mitigation Fee in the manner and amount as set forth in the schedule of fees and charges established by City Council resolution.

C. Any Development or Redevelopment projects that are exempted from this chapter shall have the option to voluntarily opt in and incorporate into the project the LID requirements of this chapter. In such case, the LID plan review, permit and Offsite Runoff Mitigation fees associated with the project shall be waived.

18.74.060 – Best Management Practices Manual.

A. The Building Official shall prepare, maintain, and update, as deemed necessary and appropriate, the LID Best Management Practices Manual to include LID standards and practices and standards for stormwater pollution mitigation. The LID Best Management Practices Manual shall also include technical feasibility and implementation parameters, alternative compliance for technical infeasibility, as well as other rules, requirements and procedures as the City deems necessary, for implementing the provisions of this chapter.

B. The Building Official shall develop, as deemed necessary and appropriate, in cooperation with other City departments and stakeholders, informational bulletins, training manuals and educational materials to assist in the implementation of the LID requirements.

18.74.070 – Hardship determination.

Whenever there are practical difficulties involved in carrying out the provisions of this chapter, the Director shall have the authority to grant modifications to the provisions of this chapter for individual cases, provided the Director shall first find that special individual reason makes the strict letter of this chapter impractical and the modification is in compliance with the intent and purpose of this chapter and that such modification does not lessen the goals of LID, sustainability or increase the overall cost of stormwater management.

RESOLUTION NO. 14-21

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF NORWALK APPROVING A GREEN STREETS POLICY

WHEREAS, the Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012. Municipalities electing to prepare a Watershed Management Program or an Enhanced Watershed Management Program under this Permit are required to demonstrate that Green Street policies are in place that specify the use of green street strategies for transportation corridors; and

WHEREAS, Green Streets are enhancements to street and road projects to improve the quality of storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways and tree lined streets; and

WHEREAS, that since February 26, 2012, the City has worked in conjunction with the Gateway Water Management Authority for the development of a Green Street Policy.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF NORWALK HEREBY DETERMINES, FINDS, AND RESOLVES AS FOLLOWS:

Section 1. Directs the Director of Community Development to implement Green Streets for city-owned transportation corridors and road projects that add 10,000 square feet or more of impervious area following the City of Norwalk's Green Streets Manual as shown in Exhibit A which is based on the USEPA's Wet Weather with Green Infrastructure guidance (December 2008 EPA-833-F-08-009).

Section 2. Routine maintenance including but not limited to: slurry seals, grind and overlay and reconstruction to maintain original line are grade are excluded from the Green Street Policy.

Section 3. The Director of Community Development is authorized to make non-substantive changes to the City of Norwalk's Green Streets manual consistent with the requirements of the MS4 Permit.

Section 4. This Resolution has been reviewed with respect to the applicability of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) ("CEQA"). Pursuant to the State CEQA Guidelines (14 Cal Code Regs 15000 et seq.) (the "Guidelines"), the City Council has determined that the Green Streets Manual will not have a significant effect on the environment and is listed under the City of Norwalk Local CEQA Guidelines as a Class 8 Categorical Exemption from the requirements of the California Environmental Quality Act. Staff is hereby directed to prepare and post a notice of exemption pursuant to Guidelines Section 15062.

Section 5. At its regular meeting held on April 15, 2014, the City Council determined that the public interest and necessity justify the adoption of the Green Street Policy.

Section 6. This Resolution shall become effective on the effective date of Ordinance No. 14-1641 of the City Council, entitled "An Ordinance of The City of Norwalk Amending Norwalk Municipal Code Title 18 by repealing and replacing Chapter 18.04 to establish Low Impact Development (LID) requirements for new development and redevelopment projects."

Section 7. The Mayor, or presiding officer, is hereby authorized to affix his signature to this Resolution signifying its adoption by the City Council of the City of Norwalk and the City Clerk, or her duly appointed assistant, is directed to attest thereto.

APPROVED AND ADOPTED on this 15th day of April 2014.

MARCEL RODARTE
MAYOR

ATTEST:

I, **Theresa Devoy**, City Clerk of the City of Norwalk, California **DO HEREBY CERTIFY** that the foregoing Resolution, being **Resolution No. 14-21** has been duly signed by the Mayor and attested by the City Clerk, all at a regular meeting of the Norwalk City Council, held April 15, 2014, and that the same was approved and adopted by the following vote to wit:

AYES: **Councilmember Kelley, Vice Mayor Shryock, and Mayor Rodarte**
NOES: **None**
ABSENT: **Councilmembers Mendez and Vernola**

Theresa Devoy

THERESA DEVOY
CITY CLERK

CITY OF NORWALK
GREEN STREETS MANUAL

APRIL 2014

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SECTION 1 – INTRODUCTION

1.1 WHAT ARE GREEN STREETS?

Roads present many opportunities for green infrastructure application. One principle of green infrastructure involves reducing and treating stormwater close to its source. Urban transportation right-of-ways integrated with green techniques are often called "green streets." Green streets provide source controls for stormwater runoff and pollutant loads. In addition, green infrastructure approaches complement street facility upgrades, street aesthetic improvements, and urban tree canopy efforts that also make use of the right-of-way and allow it to achieve multiple goals and benefits. Using the right-of-way for treatment of stormwater runoff links green with grey infrastructure by making use of the engineered conveyance of roads and providing connections to conveyance systems when needed.

Green streets are beneficial for new road construction and retrofits. They can provide substantial economic benefits when used in transportation applications. Coordinating green infrastructure installation with broader transportation improvements can reduce the cost of stormwater management by including it within larger infrastructure improvements. A large municipal concern regarding green infrastructure use is maintenance access; using roads and right-of-ways as locations for green infrastructure not only addresses a significant pollutant source, but also alleviates access and maintenance concerns by using public space. Also, right-of-way installations allow for easy public maintenance.

Green streets can incorporate a wide variety of design elements including street trees, permeable pavements, bioretention, and swales. Although the design and appearance of green streets will vary, the functional goals are the same; provide source control of stormwater, limit its transport and pollutant conveyance to the collection system, restore pre-development hydrology to the maximum extent practicable, and provide environmentally enhanced roads. Successful application of green techniques will encourage soil and vegetation contact and infiltration and retention of stormwater.

1.2 WHY ARE GREEN STREETS BEING REQUIRED?

This Green Streets Manual provides guidance to comply with the Municipal Separate Storm Sewer System (MS4) Permit (Order Number R4-2012-0175) which requires that jurisdictions in Los Angeles County reduce contaminants in runoff to improve water quality in waterways. These requirements stem from the National Pollutant Discharge Elimination System (NPDES) requirements of the Clean Water Act (CWA).

The MS4 Permit requires Green Streets strategies to be implemented for transportation corridors. Transportation corridors represent a large percentage of the impervious area within Los Angeles and therefore generate a substantial amount of runoff from storm events. The altered flow regime from traditional roadways, increased runoff volume, and high runoff peak flows, are damaging to the environment and a risk to property downstream.

Traditionally, street design has focused on removing water from the street as quickly as possible and transferring it to storm drains, channels, and water bodies. Stormwater runoff can contain bacteria and other pollutants, and is thereby regulated at the state and local level (refer to *Table 1* for a list of pollutants typical of roads). Green Streets will help to transform the design of streets from the conventional method of moving water off-site as quickly as possible to a method of storing and treating water on-site for a cleaner discharge into the waters of the U.S.

Street and road construction applies to major arterials, state routes, highways, or rail lines used for the movement of people or goods by means of bus services, trucks, and vehicles, and transportation corridors within larger projects. Projects which are required to follow this Green Streets Guidance Manual include the following:

1. Street and road construction of 10,000 square feet or more of impervious surface area.
2. Street and road redevelopment resulting in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.
3. Project is designated by the Director of Community Development as a Green Streets project in order to meet Waste Load Allocations of the Lower San Gabriel River Watershed.

Table 1: Examples of Stormwater Pollutants Typical of Roads (*Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets, 2008*).

Pollutant	Source	Effects
Trash	Littering	Physical damage to aquatic animals and fish, release of poisonous substances
Sediment/solids	Construction, unpaved areas	Increased turbidity, increased transport of soil bound pollutants, negative effects on aquatic organisms reproduction and function
Metals (Copper, Zinc, Lead, Arsenic)	Vehicle brake pads, vehicle tires, motor oil, vehicle emissions and engines, vehicle emissions, brake linings, automotive fluids	Toxic to aquatic organisms and can accumulate in sediments and fish tissues
Organics associated with petroleum (e.g., PAHs)	Vehicle emissions, automotive fluids, gas stations	Toxic to aquatic organisms
Nutrients	Vehicle emissions, atmospheric deposition	Promotes eutrophication and depleted dissolved oxygen concentrations

1.3 PLANNING AND DEVELOPMENT

Ideally, a site would be designed to capture and use or infiltrate the entire runoff volume of a storm, however site and design constraints make it difficult to achieve that goal. This Green Streets Manual is designed to provide guidance with Best Management Practice (BMP) selection based on site constraints typical to street design. Streetscape geometry, topography, and climate determine the types of controls that can be implemented. The initial step in selecting a stormwater tool is determining the available open space and constraints. Stormwater controls should be selected using the hierarchy represented in *Figure 1*, the site guidelines represented in *Table 2*, and the location opportunities listed in *Table 3*. Note that the BMP type may be selected with the project size, complexity, and cost taken into consideration.

1.3.1 Site Considerations

Specific elements which should be given special consideration in the site assessment process for applicable Green Streets include:

- **Ownership of land adjacent to right of ways.** The opportunity to provide stormwater treatment may depend on the ownership of land adjacent to the right-of-way. Acquisition of additional right-of-way and/or access easements may be more feasible if land bordering the project is owned by relatively few land owners.
- **Location of existing utilities.** The location of existing storm drainage utilities can influence the opportunities for Green Streets infrastructure. For example, stormwater planters can be designed to overflow along the curb-line to an existing storm drain inlet, thereby avoiding the infrastructure costs associated with an additional inlet. The location of other utilities may limit the allowable placement of BMPs to only those areas where a clear pathway to the storm drain exists.
- **Grade differential between road surface and storm drain system.** Some BMPs require more head from inlet to outlet than others; therefore, allowable head drop may be an important consideration in BMP selection. Storm drain elevations may be constrained by a variety of factors in a roadway project (utility crossings, outfall elevations, etc.) that cannot be overcome and may override stormwater management considerations.
- **Longitudinal slope.** The suite of BMPs which may be installed on steeper road sections is more limited. Specifically, permeable pavement and swales are more suitable for gentle grades. Other BMPs may be more readily terraced to be used on steeper slopes.
- **Soil suitability.** Infiltration BMPs require specific types of soil. The site assessment should determine the type of soils on the site and the infiltration rate of the soils if infiltration BMPs are proposed.
- **Potential access opportunities.** A significant concern with installation of BMPs in major right of ways is the ability to safely access the BMPs for maintenance considering traffic hazards. Vehicle travel lanes and specific areas potentially hazardous for maintenance crews should be identified during the site assessment. The Green Streets Water Quality Management Plan (WQMP) should provide subsequent steps to avoid placing BMPs in the identified hazardous areas.

1.3.2 Design Considerations

The drainage patterns of the project should be developed so that drainage can be routed to areas with BMP opportunities before entering storm drains. For example, if a median strip is present, a reverse crown should be considered, where allowed, so that stormwater can drain to a median swale. Likewise, standard peak-flow curb inlets should be located downstream of areas with potential for stormwater planters so that water can first flow into the planter, and then overflow to the downstream inlet if capacity of the planter is exceeded. It is more difficult to apply green infrastructure after water has entered the storm drain.

Green Streets projects are not required to treat off-site runoff; however, treatment of comingled off-site runoff may be used to off-set the inability to treat areas within the project for which significant constraints prevent the ability to provide treatment.

Applicable Green Streets projects should apply the following site design measures to the maximum extent practicable and as specified in the local permitting agency's codes:

- Minimize street width where feasible while maintaining traffic flow and public safety.
- Add tree canopy by planting or preserving trees/shrubs.

- Use porous pavement or pavers for low traffic roadways, on-street parking, shoulders or sidewalks.
- Integrate traffic calming measures in the form of bioretention curb extensions.

1.3.3 BMP Sizing for Applicable Green Streets Projects

An 85th percentile standard design storm should be used to determine the appropriate size, slope, and materials of each facility. After identifying the appropriate stormwater facilities for a site, an integrated approach using several BMPs is encouraged. To increase water quality and functional hydrologic benefits, several stormwater management BMPs can be used in succession. This is called a treatment train approach. The control measures should be designed using available topography to take advantage of gravity for conveyance to and through each facility. All Green Streets designs must be based off of a published design standard.

The following steps should be used to size BMPs for applicable Green Streets projects:

1. Delineate drainage areas tributary to BMP locations and compute imperviousness.
2. Look up the recommended sizing method for the BMP selected in each drainage area and calculate target sizing criteria.
3. Design BMPs per a published design standard.
4. Attempt to provide the calculated sizing criteria for the selected BMPs.
5. If sizing criteria cannot be achieved, document the constraints that override the application of BMPs and provide the largest portion of the sizing criteria that can be reasonably provided given constraints. If BMPs cannot be sized to provide the calculated volume for the tributary area, it is still essential to design the BMP inlet, energy dissipation, and overflow capacity for the full tributary area to ensure that flooding and scour is avoided. It is strongly recommended that BMPs which are designed to less than their target design volume be designed to bypass peak flows.

1.3.4 Alternative Compliance Options for Applicable Green Streets Projects

Alternative compliance programs should be considered for applicable Green Streets projects if on-site green infrastructure approaches cannot practicably treat the design volume. The primary alternative compliance option for applicable Green Streets projects is the completion of off-site mitigation projects. The proponent would implement a project to reduce stormwater pollution for other portions of roadway or similar land uses when being reconstructed to the project in the same hydrologic unit, ideally as close to the project as possible and discharging to the same outfall.

1.3.5 Infiltration Considerations

Appropriate soils, infiltration media, and infiltration rates should be used for infiltration BMPs. If infiltration is proposed, a complete geotechnical or soils report should be undertaken to determine infiltration rates, groundwater depth, soil toxicity and stability, and other factors that will affect the ability and the desirability of infiltration. At a minimum, the infiltration capacity of the underlying soils shall be deemed suitable for infiltration (0.3 inches per hour or greater), appropriate media should be used in the BMP itself, the groundwater shall be located at a depth of ten feet or greater.

Figure 1: BMP Selection Flow Chart.

Table 2: BMP Selection by Street Context (*Model for Living Streets Design Manual, 2011*).

		BIORETENTION			DETENTION		PAVING	INLET PROTECTIONS		
	STREET CONTEXT	Swales	Planters	Vegetated Buffer Strips	Rain Gardens	Infiltration Trenches & Dry Wells	Permeable Pavement	Storm Drain Inlet Screens	Storm Drain Filter Inserts	Pipe Filter Inserts
Commercial	Downtown Commercial		✓			✓	✓	✓	✓	✓
	Commercial Throughway		✓	✓		✓	✓	✓	✓	✓
	Neighborhood Commercial		✓	✓	✓	✓	✓	✓	✓	✓
Residential	Downtown Residential	✓	✓		✓	✓	✓	✓	✓	✓
	Residential Throughway	✓	✓		✓	✓	✓	✓	✓	✓
	Neighborhood Residential	✓	✓		✓	✓	✓	✓	✓	✓
Industrial And Mixed-Use	Industrial	✓	✓		✓	✓	✓	✓	✓	✓
	Mixed-Use		✓	✓	✓	✓	✓	✓	✓	✓
Special	Sidewalk Furniture Zone	✓	✓		✓	✓	✓	✓	✓	✓
	Park Edge	✓	✓		✓	✓	✓	✓	✓	✓
	Boulevard	✓	✓		✓	✓	✓	✓	✓	✓
	Ceremonial (Civic)						✓	✓	✓	✓
Small	Alley		✓			✓	✓	✓	✓	✓
	Shared Public Way		✓			✓	✓	✓	✓	✓
	Walk Street		✓	✓		✓	✓	✓	✓	✓

Table 3: BMP Location Opportunity Summary.

BMP	Location Opportunity Summary
Bioretention	• Adjacent to traveled way and in frontage or furniture sidewalk zones • Can be located in curb extensions, medians, traffic circles, roundabouts, and any other landscaped area • Suitable for constrained locations
Infiltration Trench/Dry Well	• Can be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians
Rain Gardens	• Can be integrated medians, islands, circles, street ends, chicanes, and curb extensions • Can be located at the terminus of swales in the landscape
Permeable Pavement	• Suitable for parking or emergency access lanes • Can be located in furniture zones of sidewalks especially adjacent to tree wells • Cannot be placed in areas with large traffic volume or heavy load lanes • Avoid steep streets • Cannot be placed within 20 feet of sub-sidewalk basements • Cannot be within 50 feet of domestic water wells
Flow-Through Planters	• Above-grade planters should be structurally separate from adjacent sidewalks • At-grade planter systems can be installed adjacent to curbs within the frontage and/or furniture zones
Vegetated Swales	• Can be located adjacent to roadways, sidewalks, or parking areas • Can be integrated into traffic calming devices such as chicanes and curb extensions • Can be placed in medians where the street drains to the median • Can be placed alongside streets and pathways • Should be designed to work in conjunction with the street slope
Vegetated Buffer Strips	• Can be located in multi-way boulevards, park edge streets, or sidewalk furniture zones • Can serve as pre-treatment
Treatment BMPs	• Can be located in a catch basin, manhole, or vault • Can be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow • Can be placed on existing curbside catch basins and flush grate openings • Can be installed on the existing wall of a catch basin and on the curb side wall of a catch basin • Minimum set-backs from foundations and slopes should be observed if the BMP is not lined
Street Trees	• Can be placed on sidewalks, in furniture zones, and on medians • Adequate spacing must be provided between trees and street lights, pedestrian lights, accessible parking spaces, bus shelters, awnings, canopies, balconies, and signs

SECTION 2 – INFILTRATION

Infiltration systems utilize rock, gravel, and other highly permeable materials for on-site infiltration. In these systems, stormwater runoff is directed to the system and allowed to infiltrate into the soils for on-site retention and groundwater recharge. During small storm events, infiltration systems can result in significant or even complete volume reduction of stormwater runoff.

Infiltration should be used to the maximum extent practicable. Biotreatment BMPs should be considered if infiltration is found to be infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

Infiltration BMPs may become damaged by stormwater carrying high levels of sediment, therefore pre-treatment features should be designed to treat street runoff prior to discharging to infiltration features. Media filters, filter inserts, vortex type units, bioretention devices, sumps, and sedimentation basins are several pre-treatment tools effective at removing sediment.

2.1 INFILTRATION TRENCHES AND DRY WELLS

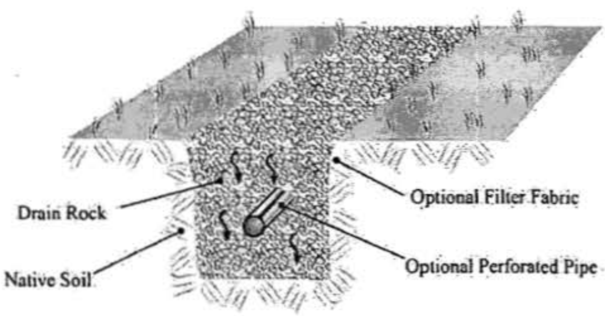

Figure 2: Infiltration Trench (*Model for Living Streets Design Manual, 2011*).

Description

Infiltration trenches are linear, rock-filled features that promote infiltration by providing a high ratio of sub-surface void space in permeable soils. They provide on-site stormwater retention and may contribute to groundwater recharge. Infiltration trenches may accept stormwater from sheet flow, concentrated flow from a swale or other surface feature, or piped flow from a catch basin. Because they are not flow-through BMPs, infiltration trenches do not have outlets but may have overflow outlets for large storm events.

Dry wells are typically distinguished from infiltration trenches by being deeper than they are wide. They are usually circular, resembling a well, and are backfilled with the same materials as infiltration trenches. Dry wells typically accept concentrated flow from surface features or from pipes and do not have outlets.

Infiltration trenches and dry wells are typically designed to infiltrate all flow they receive. In large storm events, partial infiltration of runoff can be achieved by providing an overflow outlet. In these systems, significant or even complete volume reduction is possible in smaller storm events. During large storm events, these systems may function as detention facilities and provide a limited amount of retention and infiltration.

Location and placement guidelines

Infiltration trenches and dry wells typically have small surface footprints so they are potentially some of the most flexible elements of landscape design. However, because they involve sub-surface excavation, these features may interfere with surrounding structures. Care needs to be taken to ensure that surrounding building foundations, pavement bases, and utilities are not damaged by infiltration features. Once structural soundness is ensured, infiltration features may be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians. When located in medians, they are most effective when the street is graded to drain to the median. Dry wells require less surface area than trenches and may be more feasible in densely developed areas.

Infiltration features should be sited on uncompacted soils with acceptable infiltration capacity. They are best used where soil and topography allow for moderate to good infiltration rates (0.3 inches per hour or better) and the depth to groundwater is at least 10 feet. Prior to design of any retention or infiltration system, proper soil investigation and percolation testing shall be conducted to determine appropriate infiltration design rates, depth to groundwater, and if soil will exhibit instability as a result of infiltration. Any site with potential for previous underground contamination shall be investigated. Infiltration trenches and dry wells can be designed as stand-alone systems when water quality is not a concern or may be combined in series with other stormwater tools.

Perforated pipes and piped inlets and outlets may be included in the design of infiltration trenches. Cleanouts should be installed at both ends of any piping and at regular intervals in long sections of piping, to allow access to the system. Access ports are recommended for both trenches and wells and can be combined with clean-outs. If included, the overflow inlet from the infiltration trench should be properly designed for anticipated flows.

2.2 RAIN GARDENS

Figure 3: Rain garden (*Model for Living Streets Design Manual, 2011)*.

Description

Rain gardens are vegetated depressions in the landscape. They have flat bottoms and gently sloping sides. Rain gardens can be similar in appearance to swales, but their footprints may be any shape. Rain gardens hold water on the surface, like a pond, and have overflow outlets. The detained water is infiltrated through the topsoil and subsurface drain rock unless the volume of water is so large that some must overflow. Rain gardens can reduce or eliminate off-site stormwater discharge while increasing on-site recharge.

Location and Placement Guidelines

Rain gardens may be placed where there is sufficient area in the landscape and where soils are suitable for infiltration. Rain gardens can be integrated with traffic calming measures installed along streets, such as medians, islands, circles, street ends, chicanes, and curb extensions. Rain gardens are often used at the terminus of swales in the landscape.

2.3 PERMEABLE PAVEMENT

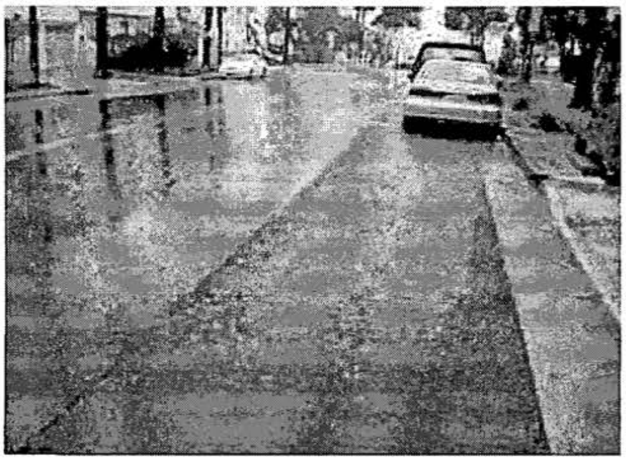

Figure 4: Permeable pavement during a storm event (*Model for Living Streets Design Manual, 2011*).

Description

Permeable pavement is a system with the primary purpose of slowing or eliminating direct runoff by absorbing rainfall and allowing it to infiltrate into the soil. Permeable pavement also filters and cleans pollutants such as petroleum deposits on streets, reduces water volumes for existing overtaxed pipe systems, and decreases the cost of offsite or onsite downstream infrastructure. This BMP is impaired by sediment-laden run-on which diminishes its porosity. Care should be taken to avoid flows from landscaped areas reaching permeable pavement. Permeable pavement is, in certain situations, an alternative to standard pavement. Conventional pavement is designed to move stormwater off-site quickly. Permeable pavement, alternatively, accepts the water where it falls, minimizing the need for management facilities downstream.

Location and Placement Guidelines

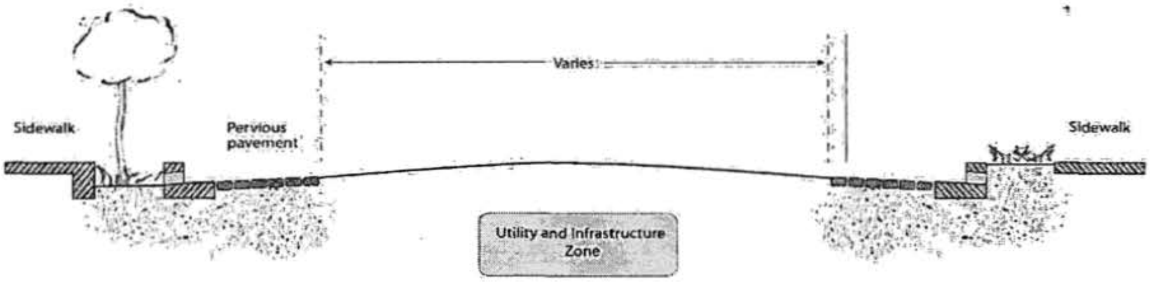

Figure 5: Possible pervious pavement design layout (*Model for Living Streets Design Manual, 2011*).

Conditions where permeable pavement should be encouraged include:

- Sites where there is limited space in the right-of-way for other BMPs;
- Parking or emergency access lanes; and
- Furniture zones of sidewalks especially adjacent to tree wells

Conditions where permeable pavement should be avoided include:

- Large traffic volume or heavy load lanes;
- Where runoff is already being harvested from an impervious surface for direct use, such as irrigation of bioretention landscape areas;
- Steep streets;
- Gas stations, car washes, auto repair, and other sites/sources of possible chemical contamination;
- Areas with shallow groundwater;
- Within 20 feet of sub-sidewalk basements; and
- Within 50 feet of domestic water wells.

Material and Design Guidelines

A soil or geotechnical report should be conducted to provide information about the permeability rate of the soil, load-bearing capacity of the soil, the depth to groundwater (10 feet or more required), and if soil will exhibit instability as a result of implementation. Infiltration rate and load capacity are key factors in the functionality of this BMP. Permeable pavement generally does not have the same load-bearing capacity as conventional pavement, so this BMP may have limited applications depending on the underlying soil strength and pavement use. Permeable pavement should not be used in general traffic lanes due to the possible variety of vehicles weights and heavy volumes of traffic.

When used as a road paving, permeable pavement that carries light traffic loads typically has a thick drain rock base material. Pavers should be concrete as opposed to brick or other light-duty materials. Other possible permeable paving materials include porous concrete and porous asphalt. These surfaces also have specific base materials that detain infiltrated water and provide structure for the road surface. Base material depths should be specified based on design load and the soils report.

Plazas, emergency roads, and other areas of limited vehicular access can also be paved with permeable pavement. Paving materials for these areas may include open cell paver blocks filled with stones or grass and plastic cell systems. Base material specifications may vary depending on the product used, design load, and underlying soils.

When used for pedestrian paths, sidewalks, and shared-use paths, appropriate materials include those listed above as well as rubber pavers and decomposed granite or something similar (washed or pore-clogging fine material). Pedestrian paths may also use broken concrete pavers as long as ADA requirements are met. Paths should drain into adjoining landscapes and should be higher than adjoining landscapes to prevent run-on. Pavement used for sidewalks and pedestrian paths should be ADA compliant, especially smooth, and not exceed a 2 percent slope or have gaps wider than 0.25 inches. In general, tripping hazards should be avoided.

Design considerations for permeable pavement include:

- The location, slope and load-bearing capacity of the street, and the infiltration rate of the soil;
- The amount of storage capacity of the base course;
- The traffic volume and load from heavy vehicles;
- The design storm volume calculations and the quality of water; and
- Drain rock, filter fabrics, and other subsurface materials.

Maintenance Guidelines

Maintenance of permeable pavement systems is essential to their continued functionality. Regular vacuuming and street sweeping should be performed to remove sediment from the pavement surface. The bedding and base material should be selected for long life and sufficient infiltration rates.

SECTION 3 – BIOTREATMENT

Biotreatment BMPs are landscaped, shallow depressions that capture and filter stormwater runoff. These types of BMPs are an increasingly common type of stormwater treatment device that are installed at curb level and filled with a bioretention type soil. They are designed as soil and plant-based filtration devices that remove pollutants through a variety of physical, biological, and chemical treatment processes. They typically consist of a ponding area, mulch layer, planting soils, and plants. Stormwater is directed to the system and pollutants are treated as the stormwater drains through the planting soil and either infiltrated or collected by an underdrain and directed to a collection system.

Biotreatment should only be used in cases where infiltration has been proven infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

3.1 BIORETENTION

Figure 6: Bioretention system (*Model for Living Streets Design Manual, 2011*).

Description

Bioretention is a stormwater management process that cleans stormwater by mimicking natural soil filtration processes as water flows through a bioretention BMP. It incorporates mulch, soil pores, microbes, and vegetation to reduce and remove sediment and pollutants from stormwater. Bioretention is designed to slow, spread, and, to some extent, infiltrate water. Each component of the bioretention BMP is designed to assist in retaining water, evapotranspiration, and adsorption of pollutants into the soil matrix. As runoff passes through the vegetation and soil, the combined effects of filtration, absorption, adsorption, and biological uptake of plants remove pollutants.

For areas with low permeability or other soil constraints, bioretention can be designed as a flow-through system with a barrier protecting stormwater from native soils. Bioretention areas can be designed with an underdrain system that directs the treated runoff to infiltration areas, cisterns, or the storm drain system, or may treat the water exclusively through surface flow. Examples of bioretention BMPs include swales, planters, and vegetated buffer strips.

Location and Placement Guidelines

Bioretention facilities can be included in the design of all street components; adjacent to the traveled way and in the frontage or furniture sidewalk zones. They can be designed into curb extensions, medians, traffic circles, roundabouts, and any other landscaped area. Depending on the feature, maintenance and access should always be considered in locating the device. Bioretention systems are also appropriate in constrained locations where other stormwater facilities requiring more extensive subsurface materials are not feasible.

If bioretention devices are designed to include infiltration, native soil should have a minimum permeability rate of 0.3 inches per hour and at least 10 feet to the groundwater table. Sites that have more than a 5 percent slope may require other stormwater management approaches or special engineering.

3.2 FLOW-THROUGH PLANTERS

Figure 7: Flow-through planter (*Model for Living Streets Design Manual, 2011*).

Description

Flow-through planters are typically above-grade or at-grade with solid walls and a flow-through bottom. They are contained within an impermeable liner and use an underdrain to direct treated runoff back to the collection system. Where space permits, buildings can direct roof drains first to building-adjacent planters. Both underdrains and surface overflow drains are typically installed with building-adjacent planters.

At-grade street-adjacent planter boxes are systems designed to take street runoff and/or sidewalk runoff and incorporate bioretention processes to treat stormwater. These systems may or may not include underdrains.

Location and Placement Guidelines

Above-grade planters should be structurally separate from adjacent sidewalks to allow for future maintenance and structural stability per local department of public works' standards. At-grade planter systems can be installed adjacent to curbs within the frontage and/or furniture zones.

All planters should be designed to pond water for less than 48 hours after each storm. Flow-through planters designed to detain roof runoff can be integrated into a building's foundation walls, and may be either raised or at grade.

For at-grade planters, small localized depressions may be included in the curb opening to encourage flow into the planter. Following the inlet, a sump (depression) to capture sediment and debris may be integrated into the design to reduce sediment loadings.

3.3 VEGETATED SWALES

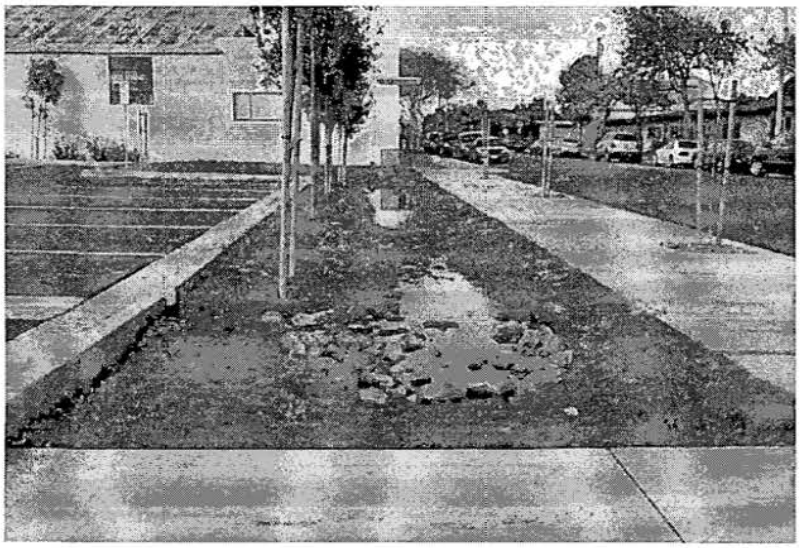

Figure 8: Vegetated swale (*Signal hill, CA*).

Description

Swales are linear, vegetated depressions that capture rainfall and runoff from adjacent surfaces. The swale bottom should have a gradual slope to convey water along its length. Swales can reduce off-site stormwater discharge and remove pollutants along the way. In a swale, water is slowed by traveling through vegetation on a relatively flat grade. This gives particulates time to settle out of the water while contaminants are removed by the vegetation.

Location and Placement Guidelines

Swales can easily be located adjacent to roadways, sidewalks, or parking areas. Roadway runoff can be directed into swales via flush curbs or small evenly-spaced curb cuts into a raised curb. Swale systems can be integrated into traffic calming devices such as curb extensions.

Swales can be placed in medians where the street drains to the median. Placed alongside streets and pathways, vegetated swales can be landscaped with native plants which filter sediment and pollutants and provide habitat for wildlife. Swales should be designed to work in conjunction with the street slope to maximize filtration and slowing of stormwater.

Swales are designed to allow water to slowly flow through the system. Depending on the landscape and design storm, an overflow or bypass for larger storm events may be needed. Curb openings should be designed to direct flow into the swale. Following the inlet, a sump may be built to capture sediment and debris.

3.4 VEGETATED BUFFER STRIPS

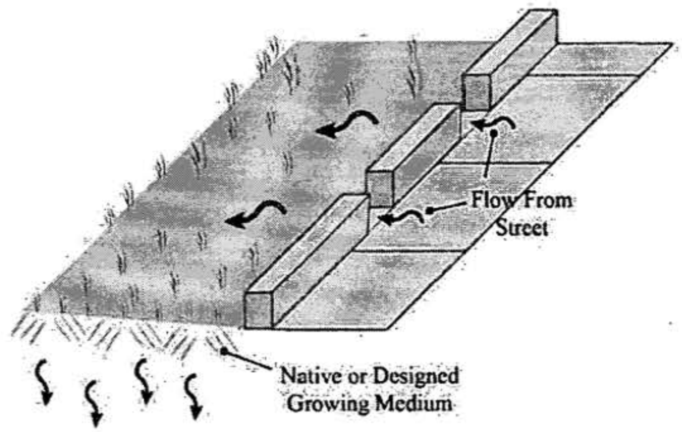

Figure 9: Vegetated buffer strip detail (*Model for Living Streets Design Manual, 2011*).

Description

Vegetated buffer strips are sloping planted areas designed to treat and absorb sheet flow from adjacent impervious surfaces. These strips are not intended to detain or retain water, only to treat it as a flow-through feature. They should not receive concentrated flow from swales or other surface features, or concentrated flow from pipes.

Location and Placement Guidelines

Vegetated buffer strips are well-suited to treating runoff from roads and highways, small parking lots, and pervious surfaces. They may be commonly used on multi-way boulevards, park edge streets, or sidewalk furniture zones with sufficient space. When selecting potential placement the need for supplemental irrigation should be considered. Vegetated buffers can also be situated so they serve as pre-treatment for another stormwater management feature, such as an infiltration BMP.

SECTION 4 – TREATMENT BMPS

4.1 SAND FILTERS & STORM DRAIN INLET PROTECTIONS

As described in Section 1 of this Green Streets Manual, it may be infeasible for specific projects to apply infiltration or biotreatment BMPs. In these cases, sand filters or filter inserts as treatment BMPs can be considered as an alternative. Sand filters and filter inserts can be designed to prevent particulates, debris, metals, and petroleum-based materials conveyed by stormwater from entering the storm drain system. All treatment BMP units should have an overflow system that allows the storm drain to remain functional if the filtration system becomes clogged during rainstorms. All storm drain inlet protections must be of a style and configuration approved by the agency with ownership of the inlet.

Typical maintenance of catch basins includes scheduled trash removal if a screen or other debris capturing device is used. Street sweeping should be performed by vacuum sweepers with occasional weed and large debris removal. Maintenance should include keeping a log of the amount of sediment collected and the data of removal.

The following are examples of acceptable treatment BMPs:

- **Sand Filters:** Sand filters are designed to filter stormwater through a constructed media bed and to an underdrain system. As stormwater flows through the media pollutants are filtered out of the water. The filtered water is conveyed through the underdrain to a collection system. Pretreatment is necessary to eliminate significant sediment load or other large particles which would clog the system. Minimum set-backs from foundations and slopes should be observed if the facility is not lined. Filters should be designed and maintained such that ponded water should not persist for longer than 48 hours following a storm event.

- **Cartridge Media Filters:** Cartridge media filters contain multiple modular filters which contain engineered media. The filters can be located in a catch basin, manhole, or vault. The manhole or vault may be divided into multiple chambers so that the first chamber may act as a pre-settling basin for removal of coarse sediment while the next chamber may act as the filter chamber. Cartridge media filters are recommended for drainage areas with limited available surface area or where surface BMPs would restrict uses. Depending on the number of cartridges, maintenance events can have long durations. Locations should be chosen so that maintenance events will not significantly disrupt businesses or traffic. Inlet inserts should be sized to capture all debris and should therefore be selected to match the specific size and shape of each catch basin and inlet. Filter media should be selected to target pollutants of concern. A combination of media may be used to remove a variety of pollutants. Systems with lower maintenance requirements are preferred.

- **Storm Drain Inlet Screens:** Inlet screens are designed to prevent large litter and trash from entering the storm drain system while allowing smaller particles to pass through. The screens function as the first preventive measure in removing pollutants from the storm water system. The city's street sweeping department should be consulted to ensure compliance with local specifications and to schedule regular maintenance. Annual inspection of the screen is recommended to ensure functionality. Note that most LA River drainage areas are already protected using connector pipe screens through collective systems.

- **Storm Drain Pipe Filter Insert:** The storm drain outlet pipe filter is designed to be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow. This filter removes debris, particulates, and other pollutants from stormwater as it leaves the storm drain system. This BMP is less desirable than a protection system that prevents debris from entering the storm drain system because the system may become clogged with debris. Outlet pipe filters can be placed on existing curbside catch basins and flush grate openings. Regular maintenance is required and inspection should be performed rigorously. Because this filter is located at the outlet of a storm drain system, clogging with debris is not as apparent as with filters at street level. This BMP may be used as a supplemental filter with an inlet screen or inlet insert unit.

Section 5 – Street Trees

5.1 STREET TREES

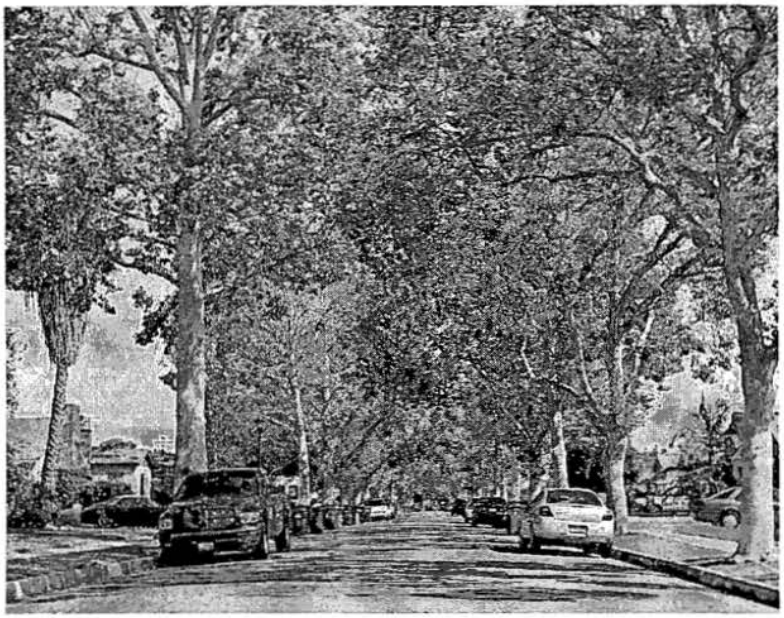

Figure 10: Street trees (*Norwalk, CA*).

Description

Healthy urban trees are powerful stormwater management tools. Leaves and branches catch and slow rain as it falls, helping it to soak into the ground. The plants themselves take up and store large quantities of water that would otherwise contribute to surface runoff. Part of this moisture is then returned to the air through evaporation to further cool the city. As an important element along sidewalks, street trees must be provided with conditions that allow them to thrive, including adequate uncompacted soil, water, and air.

The goal of adding street trees is to increase the canopy cover of the street, the percentage of its surface either covered by or shaded by vegetation. The selection, placement, and management of all elements in the street should enhance the longevity of a city's street trees and healthy, mature plantings should be retained and protected whenever possible.

Benefits to adding street trees include:

- Creation of shade to lower temperatures in a city, reduces energy use, and makes the street a more pleasant place in which to walk and spend time
- Slowing and capture of rainwater, helping it soak into the ground to restore local hydrologic functions and aquifers
- Improving air quality by cooling air, producing oxygen, and absorbing and storing carbon in woody plant tissues

SECTION 6 – DEFINITIONS

Best Management Practice (BMP)
Operating methods and/or structural devices used to reduce stormwater volume, peak flows, and/or pollutant concentrations of stormwater runoff through evapotranspiration, infiltration, detention, filtration, and/or biological and chemical treatment.

Bioretention
Soil and plant-based retention practice that captures and biologically degrades pollutants as water infiltrates through sub-surface layers containing microbes that treat pollutants. Treated runoff is then slowly infiltrated and recharges the groundwater.

Conveyance
The process of water moving from one place to another.

Design Storm
A storm whose magnitude, rate, and intensity do not exceed the design load for a storm drainage system or flood protection project.

Detention
Stormwater runoff that is collected at one rate and then released at a controlled rate. The volume difference is held in temporary storage.

Filtration
A treatment process that allows for removal of solid (particulate) matter from water by means of porous media such as sand, soil, vegetation, or a man-made filter. Filtration is used to remove contaminants.

Furniture Zone
The furniture zone is the area which lies between the curb and pedestrian zones and is intended to house utilities and pedestrian amenities.

Hardscape
Impermeable surfaces, such as concrete or stone, used in the landscape environment along sidewalks or in other areas used as public space.

Infiltration
The process by which water penetrates into soil from the ground surface.

Permeability/Impermeability
The quality of a soil or material that enables water to move through it, determining its suitability for infiltration.

Retention
The reduction in total runoff that results when stormwater is diverted and allowed to infiltrate into the ground through existing or engineered soil systems.

Runoff
Water from rainfall that flows over the land surface that is not absorbed into the ground.

Sedimentation
The deposition and/or settling of particles suspended in water as a result of the slowing of the water.

Stormwater
Water runoff from rain or snow resulting from a storm.

Transportation Corridor
A major arterial, state route, highway, or rail line used for the movement of people or goods by means of bus services, trucks, and vehicles.

SECTION 7 – REFERENCES

1. Los Angeles County. *Model for Living Streets Design Manual*. 2011.
2. U.S. Environmental Protection Agency (EPA). *Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets*. December 2008.
3. Orange County. *Technical Guidance Document*. May 2011.
4. Los Angeles Regional Water Quality Control Board. *Los Angeles County MS4 Permit (Order No. R4.2012-0175) Early Action Requirements for Permittees Pursuing an Enhanced Water Management Program or 18-Month Watershed Management Program – Low Impact Development Ordinances and Green streets Policies*. January 24, 2014.

ORDINANCE NO. 14-1651

AN ORDINANCE OF THE CITY OF NORWALK AMENDING NORWALK MUNICIPAL CODE TITLE 18 BY REPEALING AND REPLACING CHAPTER 18.04 TO ESTABLISH LOW IMPACT DEVELOPMENT (LID) REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS

WHEREAS, the Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the California Regional Water Quality Control Board, Los Angeles Region on November 8, 2012. Municipalities electing to prepare a Watershed Management Program or an Enhanced Watershed Management Program under this Permit are required to establish a LID Ordinance to lessen the impacts of development by using smart growth practices and to integrate LID practices and standards for storm water pollution mitigation for new development and redevelopment projects; and

WHEREAS, LID consists of building and landscape features designed to retain or filter storm water runoff; and

WHEREAS, that since February 26, 2012, the City has worked in conjunction with the Gateway Water Management Authority for the development of a LID Ordinance.

THE CITY COUNCIL OF THE CITY OF NORWALK DOES ORDAIN AS FOLLOWS:

Section 1. Chapter 18.04 of Title 18 of the Norwalk Municipal code is hereby repealed, provided, however, that such repeal shall not affect or excuse any violation thereof occurring prior to the effective date of this Ordinance. A new Chapter 18.04 is hereby added to read as shown in Exhibit "A," attached hereto and incorporated herein by this reference.

Section 2. This Ordinance has been reviewed with respect to the applicability of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) ("CEQA"). Pursuant to the State CEQA Guidelines (14 Cal Code Regs 15000 et seq.) (the "Guidelines"), the City Council has determined that the Low Impact Development requirements for new development and redevelopment projects will not have a significant effect on the environment and is listed under the City of Norwalk Local CEQA Guidelines as a Class 8 Categorical Exemption from the requirements of the California Environmental Quality Act. Staff is hereby directed to prepare and post a notice of exemption pursuant to Guidelines Section 15062.

Section 3. This Ordinance shall take affect thirty (30) days after its adoption. The City Clerk is directed to certify to the enactment of this Ordinance and to cause this ordinance to be published and/or posted as required by law.

PASSED, APPROVED, AND ADOPTED this 20th day of May 2014.

MARCEL RODARTE
MAYOR

ATTEST:

I, **Theresa Devoy**, City Clerk of the City of Norwalk, **DO HEREBY CERTIFY** that the foregoing Ordinance was introduced at a regular meeting of the City Council held April 15, 2014 and adopted as **Ordinance No. 14-1651** of the City of Norwalk at a regular meeting of the City Council held on May 20, 2014 and said Ordinance has been duly signed by the Mayor and attested by the City Clerk and that the same was approved and adopted by the following vote to wit:

AYES:	**Councilmembers Kelley, Mendez, and Vernola; Vice Mayor Shryock and Mayor Rodarte**
NOES:	**None**
ABSENT:	**None**

Theresa Devoy

THERESA DEVOY
CITY CLERK

EXHIBIT "A"

"18.04.010 Title.

This chapter shall be known as the City of Norwalk Stormwater Management and Discharge Control ordinance.

18.04.020 Findings.

A. The federal Clean Water Act (33 U.S.C. Section 1251, *et seq*.,) provides for the regulation and reduction of pollutants discharged into the waters of the United States by extending National Pollutant Discharge Elimination System ("NPDES") requirements to stormwater and urban runoff discharge into municipal storm drain systems.

B. Stormwater and urban runoff flows from individual properties onto streets, then through storm drains passing through the City and finally into the waters of the United States.

C. The City is a co-permittee under the "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") discharges within the Coastal Watersheds of Los Angeles County, except those discharges originating from the City of Long Beach MS4, which also serves as a NPDES Permit under the federal Clean Water Act (NPDES No. CAS614001), as well as waste discharge requirements under California law (the Municipal NPDES Permit") and, as a co-permittee under the Municipal NPDES Permit, the City is required to adopt ordinances and implement procedures with respect to the entry of non-stormwater discharges into the municipal stormwater system.

D. Part III, Section A of the Municipal NPDES Permit requires the City to effectively prohibit non-stormwater discharges from within its boundaries, into that portion of the MS4 which it owns or operates and into watercourses, except where such discharges are: (1) in compliance with a separate individual or general NPDES permit, or (2) identified and in compliance with Part III.A (non-stormwater discharges) of the Municipal NPDES Permit, or (3) originate from federal, state or other facilities which the City is preempted from regulating, and further provides that compliance with the terms of the Municipal NPDES Permit through the development and implementation of the programs described in the Municipal NPDES Permit will constitute compliance with the discharge prohibition in the Municipal NPDES Permit.

E. Part VI, Section A.2 of the Municipal NPDES Permit requires the City to establish and maintain the legal authority necessary to control discharges to and from those portions of the MS4 over which it has jurisdiction, so as to comply with the Municipal NPDES Permit and to specifically prohibit certain discharges identified in the Municipal NPDES Permit.

F. The Municipal NPDES Permit contemplates the development of a Watershed Management Program in which the City will participate, which will in turn require the development and the implementation of programs for, among other things, the elimination of illicit connections and illicit discharges, development planning, development construction, and public information and education requirements, and which may require the later adoption of additional legal authority to implement such programs as they are developed by the permittees and approved by the Regional Board.

G. In order to control, in a cost-effective manner, the quantity and quality of stormwater and urban runoff to the maximum extent practicable, the adoption of the ordinance codified in this chapter is essential.

18.04.030 Purpose and intent.

A. The purpose of this chapter is to ensure the future health, safety and general welfare of the citizens of the City and the water quality of the receiving waters of the County of Los Angeles and surrounding coastal areas by:

1. Reducing pollutants in stormwater discharges to the maximum extent practicable;

2. Regulating illicit connections and illicit discharges and reducing the level of contamination of stormwater and urban runoff in the municipal stormwater system; and

3. Regulating non-stormwater discharges to the municipal stormwater system.

B. The intent of this chapter is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the Municipal NPDES Permit.

C. This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal stormwater system over which it has jurisdiction as required by the Municipal NPDES Permit, and fully and timely comply with the terms of the Municipal NPDES Permit while the Watershed Management Program is being developed by the permittees under the Municipal NPDES Permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequently adopted Watershed Management Program, or other programs developed under the Municipal NPDES Permit.

D. This chapter also sets forth requirements for the construction and operation of certain commercial development, new development and redevelopment and other projects (as further defined herein) which are intended to ensure compliance with the stormwater mitigation measures prescribed in the current MS4 Permit This chapter authorizes the Director to define and adopt applicable best management practices and other stormwater pollution control measures, as provided herein, to carry out all inspections including entering entities discharging to the MS4, conduct surveillance, conduct monitoring, cite infractions and to impose fines pursuant to this chapter. Except as otherwise provided herein, the Director shall administer, implement and enforce the provisions of this section.

E. The City Council shall approve and enter into interagency agreements as deemed necessary by the City Council to control the contribution of pollutants of the shared MS4.

18.04.040 Definitions.

Except as specifically provided herein, any term used in this chapter shall be defined as that term is defined in the current Municipal NPDES Permit, or if it is not specifically defined in the Municipal NPDES Permit, then as such term is defined in the Federal Clean Water Act, as amended, or the regulations promulgated thereunder. If the definition of any term contained in this section conflicts with the definition of the same term in the current Municipal NPDES Permit, then the definition contained in the Municipal NPDES Permit shall govern. The following words and phrases shall have the following meanings when used in this chapter:

"Area susceptible to runoff" means any surface directly exposed to precipitation or in the path of runoff caused by precipitation which path leads off the parcel on which the surface is located.

"Automotive service facilities" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539 provided that these facilities have no outside activities or materials that may be exposed to stormwater

"Best Management Practices (BMPs)" means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water. Examples of BMPs may include public education and outreach, proper planning of development projects, proper cleaning of catch basin inlets, and proper sludge- or waste-handling and disposal, among others.

"Biofiltration" means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term "biofiltration" as used in this chapter is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board's Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales.

"Bioretention" means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this Ordinance, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the Municipal NPDES Permit as biofiltration.

"Bioswale" means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

"City" means the City of Norwalk, California.

"Clean Water Act (CWA)" means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

"Commercial development" means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

"Commercial Malls" means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers

"Construction" means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that result in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See "Routine Maintenance" definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water

Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan

"Control" means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

"Development" means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single family, multi-unit or planned unit development); industrial, commercial, retail and other nonresidential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Directly adjacent" means situated within two hundred (200) feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Director" means the City's Director of Community Development or his or her designee.

"Discharge" means when used without qualification the discharge of a pollutant.

"Discharge of a pollutant" means any addition of any pollutant or combination of pollutants to waters of the United States from any point source or, any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by a state, municipality, or other person which do not lead to treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

"Discharging" directly means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

"Discretionary project" is defined in the same manner as Section 15357 of the Guidelines for Implementation of the California Environmental Quality Act contained in Title 14 of the California Code of Regulations, as amended, and means a project which requires the exercise of judgment or deliberation when the City decides to approve or disapprove a particular activity, as distinguished from situations where the City merely has to determine whether there has been conformity with applicable statutes, ordinances or regulations.

"Disturbed area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Environmentally sensitive area (ESA)" means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements are areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning (1976) and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Games Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the Basin Plan as supporting the Rare, Threatened, or Endangered Species (RARE) beneficial use; and an area identified by the City as environmentally sensitive.

"Flow-through treatment BMPs" means a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

"Full Capture System" means any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the sub-drainage area.

"Good housekeeping practices" means common practices related to the storage, use or cleanup of materials, performed in a manner that minimizes the discharge of pollutants. Examples include, but are not limited to, purchasing only the quantity of materials to be used at a given time, use of alternative and less environmentally harmful products, cleaning up spills and leaks, and storing materials in a manner that will contain any leaks or spills.

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from construction activities under certain conditions.

"General Industrial Activities Storm Water Permit (GIASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions.

"Green Roof" means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

"Hillside" means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is twenty-five percent (25%) or greater and where grading contemplates cut or fill slopes.

"Illicit connection" means any human-made conveyance that is connected to the storm drain system without a permit, excluding gutters, roof-drains and other similar connections. Examples include channels, pipelines, conduits, inlets or outlets that are connected directly to the storm drain system.

"Illicit discharge" means any discharge to the storm drain system that is prohibited under local, state or federal statutes, ordinances, codes or regulations. This includes all non-stormwater discharges except discharges pursuant to a separate NPDES permit and discharges that are exempted or conditionally exempted in accordance with Part III the Municipal NPDES permit.

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

"Industrial Park" means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

"Infiltration BMP" means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

"Infiltration" means the downward entry of water into the surface of the soil.

"Low Impact Development (LID)" consists of building and landscape features designed to retain or filter stormwater runoff.

"Material" means any substance including, but not limited to: garbage and debris; lawn clippings, leaves, and other vegetation; biological and fecal waste; sediment and sludge; oil and grease; gasoline; paints, solvents, cleaners, and any fluid or solid containing chemicals.

"Municipal NPDES Permit" means the Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach (Order No. R4-

2012-0175), NPDES Permit No. CAS00401), issued by the California Regional Water Quality Control Board—Los Angeles Region, and any successor permit to that permit.

"Municipal Separate Storm Sewer System (MS4)" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

2. Designed or used for collecting or conveying stormwater;

3. Which is not a combined sewer; and

4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Section 122.2.

"New development" means land-disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

"Non-stormwater discharge" means any discharge to a municipal stormwater system that is not composed entirely of stormwater.

"NPDES permit" means any waste discharge requirements issued by the Regional Board or the State Water Resources Control Board in the form of an NPDES permit pursuant to Water Code Section 13370 (other than the Municipal NPDES Permit).

"Outfall" means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR Section 122.26(b)(9))

"Parking lot" means land area or a facility for the parking or storage of motor vehicles used for businesses, commerce, industry or personal use with a lot size of five thousand (5,000) square feet or more of surface area, or with twenty-five (25) or more parking spaces.

"Planning priority projects" means those projects specified in Section 18.04.105.C of this chapter that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective projects.

"Pollutant" means those pollutants defined in Section 502(6) of the federal Clean Water Act (33 U.S.C. Section 1362(6)), or incorporated into California Water Code Section 13373. Examples of pollutants include, but are not limited to the following:

1. Commercial and industrial waste (such as fuels, solvents, detergents, plastic pellets, hazardous substances, fertilizers, pesticides, slag, ash and sludge);

2. Metals such as cadmium, lead, zinc, copper, silver, nickel, chromium, and nonmetals such as phosphorus and arsenic;

3. Petroleum hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants and grease);

4. Excessive eroded soils, sediment and particulate materials in amounts which may adversely affect the beneficial use of the receiving waters, flora or fauna of the state;

5. Animal wastes (such as discharge from confinement facilities, kennels, pens, recreational facilities, stables and show facilities); and

6. Substances having characteristics such as pH less than six or greater than nine, or unusual coloration or turbidity, or excessive levels of fecal coliform, or fecal streptococcus, or enterococcus.

The term "pollutant" shall not include uncontaminated stormwater, potable water or reclaimed water generated by a lawfully permitted water treatment facility.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (California Public Resources Code Section 21065).

"Rainfall Harvest and Use" means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department (Order No. R4-2012-0175).

"Receiving Water" means "water of the United States" into which waste and/or pollutants are or may be discharged.

"Redevelopment" means land-disturbing activity that result in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Regional Board" means the California Regional Water Quality Control Board—Los Angeles Region.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. (SIC Code 5812).

"Retail gasoline outlet" means any facility engaged in selling gasoline and lubricating oils.

"Routine Maintenance" includes, but is not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility;

2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities;

3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts;

4. Update existing lines and facilities, which include replacing existing lines with new materials or pipes, to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity; and

5. Repair leaks.

Routine maintenance does not include construction of new lines or facilities resulting from compliance with applicable codes, standards and regulations.

"Runoff" means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

"Site" means the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Source control BMP" means any schedule of activities, prohibition of practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution.

"Standard urban stormwater mitigation plan" or "SUSMP" means a report submitted by an applicant for approval by the Director prior to issuance of a building, grading, planning or similar permit outlining the necessary LID requirements and BMPs which must be incorporated into design plans for development or redevelopment projects.

"Storm Drain System" means any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City.

"Stormwater runoff" means that part of precipitation (rainfall) which travels via flow across a surface to the MS4 or receiving waters from impervious, semi-pervious or pervious surfaces. When all other factors are equal, runoff increases as the perviousness of a surface decreases.

"Structural BMP" means any structural facility designed and constructed to mitigate the adverse impacts of stormwater and urban runoff pollution (e.g. canopy, structural enclosure). Structural BMPs may include both treatment control BMPs and source control BMPs.

"Treatment" means the application of engineered systems that use physical, chemical or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media adsorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

"Treatment control BMP" means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological or chemical process.

"Urban runoff" means surface water flow produced by non-stormwater resulting from residential, commercial and industrial activities involving the use of potable and nonpotable water.

18.04.050 Construction and application.

This chapter shall be construed to assure consistency with the requirements of the federal Clean Water Act and acts amendatory or supplementary to the Federal Clean Water Act, applicable implementing regulations, and the Municipal NPDES Permit, and any amendment, revision or reissuance of the Municipal NPDES Permit.

18.04.060 No taking.

The provisions of this chapter shall not operate to deprive any property owner of substantially all of the market value of such owner's property or otherwise constitute an unconstitutional taking without compensation.

18.04.070 Prohibited activities.

A. Illicit Discharges and Connections. It is prohibited to commence, establish, use, maintain or continue any illicit connections to the MS4 or any illicit discharges to the MS4. This prohibition against illicit connections applies to the use, maintenance or continuation of any illicit connection, whether that connection was established prior to or after the effective date of this chapter.

B. Littering. No person shall throw, deposit, place, leave, maintain, keep or permit to be thrown, deposited, placed, left or maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles or accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place, or upon any or private plot of land in the City, so that the same might be or become a pollutant. No person shall throw or deposit litter in any fountain, pond, lake, stream, or other body of water within the City. This section shall not apply to refuse, rubbish or garbage deposited in containers, bags or other appropriate receptacles which are placed in designated locations for regular solid waste pick-up and disposal.

C. Disposal of Landscape Debris. No person shall dispose of leaves, dirt, or other landscape debris into the municipal separate stormwater system.

D. Non-stormwater Discharges. The following non-stormwater discharges into the MS4 are prohibited unless in compliance with a separate NPDES permit or pursuant to a discharge exemption by the Regional Board, the Regional Board's Executive Officer, or the State Water Resources Control Board:

1. The discharge of untreated wash waters to the MS4 when gas stations, auto repair garages, or other type of automotive service facilities are cleaned;

2. The discharge of untreated wastewater to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;

3. To the maximum extent practicable, discharges to the MS4 from areas where repair of machinery and equipment, including motor vehicles, which are visibly leaking oil, fluid or antifreeze, is undertaken;

4. Discharges of untreated runoff to the MS4 from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials;

5. Discharges of commercial/municipal swimming pool filter backwash to the MS4;

6. Discharges of untreated runoff from the washing of toxic materials from paved or unpaved areas to the MS4; provided, however, that nonindustrial and noncommercial activities which incidentally generate urban runoff, such as the hosing of sidewalks, shall be excluded from this prohibition;

7. To the maximum extent practicable, discharges to the MS4 from washing impervious surfaces in industrial/commercial areas which results in a discharge of untreated runoff to the MS4, unless specifically required by state law, or the City's Municipal code, or Los Angeles County's Health and Safety Codes, or permitted under a separate NPDES permit;

8. Discharges from the washing out of concrete trucks into the MS4;

9. Discharges to the MS4 of any pesticide, fungicide or herbicide, banned by the USEPA or the California Department of Pesticide Regulation; or

10. The disposal of hazardous wastes into trash containers used for municipal trash disposal where such disposal causes or threatens to cause a direct or indirect discharge to the MS4.

E. Car Washing. No motor vehicle, boat, trailer, or other type of mobile transportation may be washed, other than at a commercial carwash, unless such vehicle is being washed by:

1. A resident at their residence using a hand-held bucket or a water hose equipped with an automatic shutoff nozzle as long as water does not flow onto streets; or

2. A business that has an approved car wash facility for its fleet vehicles, provided that water does not flow onto streets.

18.04.080 Exempted discharges, conditionally exempted discharges or designated discharges.

A. Discharges from those activities specifically identified in, or pursuant to, Part III.A.1-3 of the Municipal NPDES Permit as being exempted discharges, conditionally exempted discharges or designated discharges shall not be considered a violation of this chapter; provided that, consistent with Part III.A.1-3 of the Municipal NPDES Permit:

1. Any applicable BMPs developed pursuant to the Municipal NPDES Permit are implemented to minimize any adverse impacts from such identified sources;

2. The discharger meets all notification, reporting and recordkeeping requirements; and

3. The discharge has conducted all applicable monitoring requirements.

B. Discharges in Violation of the Municipal NPDES Permit. Any discharge that would result in or contribute to a violation of the Municipal NPDES Permit, either separately or in combination with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the person(s) causing or responsible for the discharge, and such person(s) shall defend, indemnify and hold harmless the City from all losses, liabilities, claims or causes of actions in any administrative or judicial action relating to such discharge.

18.04.090 Good housekeeping provisions.

Owners and occupants of property within the City shall comply with the following requirements:

A. Septic Waste. No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste to precipitation in an area where a discharge to City streets or MS4 may or does occur.

B. Use of Water. Runoff of water used for irrigation purposes shall be minimized to the maximum extent practicable. Runoff of water from the permitted washing down of paved areas shall be minimized to the maximum extent practicable.

C. Storage of Materials, Machinery and Equipment. Machinery or equipment that is to be repaired or maintained in areas susceptible to or exposed to stormwater, shall be placed in a manner so that leaks, spills and other maintenance-related pollutants are not discharged to the MS4.

D. Removal and Disposal of Debris from Industrial/Commercial Motor Vehicle Parking Lots. Industrial/commercial motor vehicle parking lots with more than twenty-five (25) parking spaces that are located in areas potentially exposed to stormwater shall be swept regularly or other equally effective measures shall be utilized to remove debris from such parking lots.

E. Food Wastes. Food wastes generated by nonresidential food service and food distribution sources shall be properly disposed of and in a manner so such wastes are not discharged to the MS4.

F. Best Management Practices. Best management practices shall be used in areas exposed to stormwater for the removal and lawful disposal of all fuels, chemicals, fuel and chemical wastes, animal wastes, garbage, batteries, or other materials which have potential adverse impacts on water quality.

G. Maintenance of Structural BMPs. Structural BMPs shall be properly operated and maintained, consistent with the approved SUSMP. Records and documentation of such maintenance shall be provided to the Director upon request.

18.04.100 Requirements for industrial/commercial and construction activities.

A. Industrial/Commercial and Construction Related Dischargers Generally. Each discharger associated with industrial/commercial activity or construction activity, or other discharger described in any general NPDES permit addressing such discharges, as may be issued by the U.S. Environmental Protection Agency, the State Water Resources Control Board, or the Regional Board shall comply with all requirements of such NPDES permit and the City's development construction program. Each discharger identified in an individual NPDES permit shall comply with and undertake all activities required by such permit. Proof of compliance with any such NPDES permit and the City's development construction program may be required in a form acceptable to the Director prior to the issuance of any grading, building or occupancy permits, or any other type of permit or license issued by the City.

B. Source Control BMPs for Industrial/Commercial Facilities. Industrial/commercial facilities shall implement the effective source control BMPs listed in Table 10 of Part VI.D.6.f. of the Municipal NPDES Permit, unless a particular pollutant generating activity does not occur on a facility's site.

18.04.105 Standard urban stormwater mitigation plan (SUSMP) and low impact development (LID) requirements for new development and redevelopment projects.

A. Objective. Pursuant to Part VI.D.7.b of the Municipal NPDES Permit, the provisions of this section establish requirements for construction activities and facility operations of development and redevelopment projects to comply with the current Municipal NPDES Permit to lessen the water quality impacts of development by using smart growth practices and integrate LID practices and standards for stormwater pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use. Except as otherwise provided herein, the City shall administer, implement and enforce the provisions of this section.

B. Scope. This section contains requirements for stormwater pollution control measures in development and redevelopment projects and authorizes the City to further define and adopt stormwater pollution control measures, and to develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies. As specified in this section, certain Planning Priority Projects shall meet the requirements of this section through the preparation and submittal of a standard urban stormwater mitigation plan (SUSMP), which shall include the applicable LID requirements set forth in this section as an element of the SUSMP.

C. Applicability – Planning Priority Projects. The following development and redevelopment projects shall be designated as Planning Priority Projects, which are subject to City conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution prior to completion of the projects, and shall meet the requirements of this section:

1. New Development Projects.

a. All development projects equal to one (1) acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.

b. Industrial parks 10,000 square feet or more of surface area.

c. Commercial malls 10,000 square feet or more of surface area.

d. Retail gasoline outlets with 5,000 square feet or more of surface area.

e. Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of surface area.

f. Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

g. Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

h. Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.

i. Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:

i. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

ii. Create 2,500 square feet or more of impervious surface area.

j. Single-family hillside homes.

2. Redevelopment Projects

a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

e. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

f. Specific Requirements. The site for every Planning Priority Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use. In addition, the following specific requirements apply:

i. New Single-Family Hillside Homes. A new single-family hillside home development project shall include mitigation measures to:

a) Conserve natural areas;

b) Protect slopes and channels;

c) Provide storm drain system stenciling and signage;

d) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

e) Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

ii. Street and Road Construction of 10,000 square feet or more. Street and road construction of 10,000 square feet or more of impervious surface shall follow the City's Green Street Manual developed by the Director and approved by City Council resolution. The City's Green Street Manual shall be based on the USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009).

iii. Remainder of Planning Priority Projects Require a SUSMP. Except for the projects listed in paragraphs (1) and (2) of subsection D of this section, all other Planning Priority Projects shall prepare and submit to the Director for review and approval a SUSMP which shall also contain LID requirements consistent with Parts VI.D.7.c and VI.D.7.d(iii) of the Municipal NPDES Permit. In addition, Planning Priority Projects subject to this paragraph (3) shall do the following:

a) Incorporate the SUSMP into Project Plans. An applicant for a Planning Priority Project identified in paragraph (3) of subsection D of this section shall incorporate into the applicant's project plans a Storm Water Mitigation Plan (SWMP), which includes those BMPs necessary to control storm water pollution from construction activities and facility operations, as set forth in the SUSMP applicable to the applicant's project. Structural or Treatment Control BMPs (including, as applicable, post-construction treatment control BMPs) set forth in project plans shall meet the design standards set forth in the SUSMP and the current Municipal NPDES Permit.

b) Verify Maintenance of BMPs. If a project applicant has included or is required to include structural or treatment control BMPs in project plans, the applicant shall provide verification of maintenance provisions. The verification shall include the applicant's signed statement, as part of its project application, accepting responsibility for all structural and treatment control BMP maintenance until such time, if any, the property is transferred.

D. Issuance of Discretionary Permits. No discretionary permit may be issued for any Planning Priority Project identified in this section until the Director confirms the project plans comply with the applicable requirements of this section.

E. Issuance of Certificates of Occupancy. As a condition for issuing a certificate of occupancy for a Planning Priority Project identified in this section, the Director shall require facility operators and/or owners to build all the stormwater pollution control BMPs and structural or treatment control BMPs that are shown on the approved project plans and to submit a signed certification statement stating that the site and all structural or treatment control BMPs will be maintained in compliance with the SUSMP and other applicable regulatory requirements.

F. Transfer of Properties Subject to Requirement for Maintenance of Structural and Treatment Control BMPs.

1. The transfer or lease of a property subject to a requirement for maintenance of structural and treatment control BMPs shall include conditions requiring the transferee and its successors and assigns to either (a) assume responsibility for maintenance of any existing structural or treatment control BMP or (b) to replace an existing structural or treatment control BMP with new control measures or BMPs meeting the then current standards of the City and the SUSMP. Such requirement shall be included in any sale or lease agreement or deed for such property. The condition of transfer shall include a provision that the successor property owner or lessee conduct maintenance inspections of all structural or treatment control BMPs at least once a year and retain proof of inspection.

2. For residential properties where the structural or treatment control BMPs are located within a common area which will be maintained by a homeowners

association, language regarding the responsibility for maintenance shall be included in the projects conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what stormwater management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

3. If structural or treatment control BMPs are located within an area proposed for dedication to a public agency, said BMPs shall be the responsibility of the developer until the dedication is accepted by the public agency.

G. CEQA. Provisions of this section shall be complementary to, and shall not replace, any applicable requirements for stormwater mitigation required under the California Environmental Quality Act.

18.04.110 Enforcement.

A. Violations Deemed a Public Nuisance.

1. The following violations shall be deemed a public nuisance:

a. Any condition caused or permitted to exist in violation of any of the provisions of this chapter; or

b. Any failure to comply with any applicable requirement of either the SUSMP or an approved stormwater mitigation plan with respect to a property; or

c. Any false certification or verification, or any failure to comply with a certification or verification provided by a project applicant or the applicant's successor in interest; or

d. Any failure to properly operate and maintain any structural or treatment control BMP on a property in accordance with an approved stormwater mitigation plan or the SUSMP, is determined to be a threat to the public health, safety and welfare, is declared and deemed a public nuisance, and may be abated or restored by any Director, and a civil or criminal action to abate, enjoin or otherwise compel the cessation of such nuisance may be brought by the City Attorney.

2. The cost of such abatement and restoration shall be borne by the owner of the property and the cost shall be billed to the owner of the property, as provided by law or ordinance for the recovery of nuisance abatement costs,

3. If any violation of this chapter constitutes a seasonal and recurrent nuisance, the Director shall so declare. The failure of any person to take appropriate annual precautions to prevent stormwater pollution after written notice of a determination under this section shall constitute a public nuisance and a violation of this chapter.

B. Concealment. Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of such provision.

C. Civil Actions. In addition to any other remedies provided in this chapter, any violation of this chapter may be enforced by civil action brought by the City. In any such action, the City may seek any or all of the following remedies:

1. A temporary and/or permanent injunction;

2. Assessment of the violator for the costs of any investigation, inspection or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action under this section;

3. Costs incurred in removing, correcting or terminating the adverse effects resulting from violation;

4. Compensatory damages for loss or destruction to water quality, wildlife, fish and aquatic life.

D. Administrative Enforcement Powers. In addition to the other enforcement powers and remedies established by this chapter, the Director has the authority to utilize the following administrative remedies:

1. Cease and Desist Orders. When a discharge has taken place or is likely to take place in violation of this chapter, the Director may issue an order to cease and desist such discharge, or practice or operation likely to cause such discharge and direct that those persons not complying shall: (a) comply with the requirement; (b) comply with a time schedule for compliance; and (c) take appropriate remedial or preventive action to prevent the violation from recurring.

2. Notice to Clean. Whenever the Director finds any oil, earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or any other material of any kind, in or upon the sidewalk abutting or adjoining any parcel of land, or upon any parcel of land or grounds, which may result in pollutants entering the MS4 or a non-stormwater discharge to the MS4, he or she may give notice to the owner or occupant of the adjacent property to remove such oil earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or other material, in any manner that he or she may reasonably provide. The recipient of such notice shall undertake the activities as described in the notice.

E. Penalties. Violation of this chapter shall be punishable as provided in Chapter 1.16 of this code. Each day that a violation continues shall constitute a separate offense.

F. Permit Revocation. To the extent the City makes a provision of this chapter or any identified BMP a condition of approval to the issuance of a permit or license, any person in violation of such condition is subject to the permit revocation procedures set forth in this code.

G. Burden of Proof. In an enforcement action, the burden of proof shall be on the person who is the subject of such action to establish that the reduction or elimination of the discharge to the maximum extent practicable has been accomplished through compliance with the best management practices available, including applicable monitoring, notifications and reporting requirements.

H. Remedies. Remedies under this chapter are in addition to and do not supersede or limit any and all other available remedies, civil or criminal. The remedies provided for in this chapter shall be cumulative and not exclusive.

18.04.120 Fees

A. Fees for Plan Reviews, Inspections, Violations Corrections and tasks associated with this Section shall be established by Resolution of the City Council.

RESOLUTION NO. 6758

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PICO RIVERA, CALIFORNIA, APPROVING A GREEN STREETS POLICY

WHEREAS, on November 8, 2012, the California Regional Water Quality Control Board, Los Angeles Region (hereinafter "Regional Board") adopted Order No. R4-2012-0175, NPDES Permit No. CAS 004001, the Municipal Separate Storm Sewer Permit for Los Angeles County (hereinafter "MS4 Permit"); and

WHEREAS, among other things, the MS4 Permit requires the City of Pico Rivera (hereinafter "City") and other subject MS4 permittees to establish a "Green Streets" policy to reduce stormwater runoff discharges from municipal and private streets to receiving waters; and

WHEREAS, by this resolution, the City intends to implement a Green Streets program in accordance with USEPA and other applicable guidelines through: (1) the Planning and Land Development/Standard Urban Stormwater Mitigation Plan (SUSMP) program that will require Low Impact Development (LID) controls for private developments that call for the construction of new streets 10,000 square feet or more; and (2) its public agency program for public street projects that exceed this threshold; and

WHEREAS, Green Street LID techniques shall be incorporated into the City's Planning and Land Use Development/SUSMP program and triggered by: 1) residential, commercial, or industrial developments that include streets 10,000 square feet or more in area; or 2) street and road redevelopment resulting in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already redeveloped site; and

WHEREAS, Green Street LID techniques shall also apply to the construction of any new public street or roadway, as a capital improvement project, triggered by the 10,000 square foot threshold, and

WHEREAS, the City's selection of LID techniques shall generally include but not be limited to bio-swales, bio-retention curb extensions and sidewalk planters, and permeable unit pavers—the selection of which shall depend on project location, soil conditions, average daily traffic, and cost;

WHEREAS, green controls for streets and roadways shall be designed to infiltrate, or treat if infiltration is infeasible, reduce the volume of runoff resulting from a 85th percentile 24 hour storm event, to the maximum extent practicable.

NOW, THEREFORE, THE CITY COUNCIL OF PICO RIVERA DOES HEREBY RESOLVE THE FOLLOWING:

SECTION 1. Direct the Director of Public Works to implement Green Street for publicly owned street and road projects that add 10,000 square feet or more of impervious area following the USEPA's Wet Weather With Green Infrastructure guidance (December 2008 EPA- F-08-009) and City of Pico Rivera Green Street Manual to the maximum extent practicable.

SECTION 2. Directs the Director of Public Works to implement Green Streets for transportation corridors as described in the City of Pico Rivera's Green Streets Manual.

SECTION 3. Routine maintenance including, but not limited to, slurry seals, grind and overlay, chip seal, and reconstruction to maintain original line grade are exempt from the Green Streets Policy.

SECTION 4. The Director of Public Works is authorized to modify the City of Pico Rivera's Green Streets Manual from time to time to maintain consistency with the most current MS4 permit.

SECTION 5. The City Clerk shall certify to the passage and adoption of this resolution and hereafter the same shall be in full force and effect.

APPROVED AND ADOPTED this 22nd day of April, 2014.

Brent A. Tercero, Mayor

ATTEST:

Anna M. Jerome, City Clerk

Arnold M. Alvarez-Glasman, City Attorney

AYES: Archuleta, Armenta, Camacho
NOES: None
ABSENT: Salcido
ABSTAIN: Tercero

ORDINANCE NO. 1086

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PICO RIVERA, CALIFORNIA, AMENDING PICO RIVERA MUNICIPAL CODE CHAPTER 16.04, STORM WATER AND URBAN RUNOFF POLLUTION PREVENTION

WHEREAS, the City is authorized by Article XI, Section 5 and Section 7 of the State Constitution to exercise the police power of the State by adopting regulations to promote public health, public safety and general prosperity; and

WHEREAS, the City is a permittee under the California Regional Water Quality Control Board, Los Angeles Region Order No. R4-2012-0175, issued on November 08, 2012 which establishes Waste Discharge Requirements for Municipal Separate Storm Sewer Systems (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those discharges originating from the City of Pico Rivera; and

WHEREAS, the MS4 Permit requires the adoption of an Low Impact Development (LID) ordinances; and

WHEREAS, City Staff, a technical consultant and the City attorney have reviewed the requirements and prepared the following recommended revisions to the Pico Rivera Municipal Code to bring it into conformance with the MS4 Permit

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF PICO RIVERA, CALIFORNIA, DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. Chapter 16.04 Storm Water and Urban Runoff Pollution Prevention of Title 16 (Environment) of the Pico Rivera Municipal Code is hereby repealed and replaced in entirety with the following text:

Chapter 16.04 STORM WATER AND URBAN RUNOFF POLLUTION PREVENTION

16.04.010 Purpose and intent.

The purpose of this chapter is to protect and improve water quality of receiving waters by:

1. Reducing illicit discharges to the municipal storm water system to the maximum extent practicable;
2. Eliminating illicit connections to the municipal storm water system;
3. Eliminating spillage, dumping, and disposal of pollutant materials into the municipal storm water system; and
4. Reducing pollutant loads in storm water and urban runoff, from land uses and activities identified in the municipal NPDES permit.
5. Reducing the contribution of pollutants to the MS4 through interagency coordination.

The provisions of this chapter are adopted pursuant to the Federal Water Pollution Control Act, also known as the "Clean Water Act," codified and amended at 33 U.S.C. 1251 et seq. The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and acts amendatory thereof or supplementary thereto; applicable implementing regulations; the Municipal NPDES permit, and any amendment, revision, or re-issuance thereof. (Ord. 989 § 1 (part), 2002)

16.04.020 Definitions.

For the purpose of the provisions of this chapter concerning water quality hereinafter set forth, the following words and phrases shall be construed to have the meanings set forth, unless it is apparent from the context that a different meaning is intended:

"Automotive Service Facility" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539 provided that these facilities have no outside activities or materials that may be exposed to storm water.

"Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

"Best management practices" or "BMPs" are practices, physical devices, or systems designed to prevent or reduce pollutant loading from storm water or non-storm water discharges to receiving waters, or designed to reduce the volume of storm water or non-storm water discharged to the receiving water.

"Clean Water Act" means the Federal Water Pollution Control Act as amended, 33 U.S.C. 1251, et seq.

"Commercial facility" means any development on private land that is not industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes, restaurants, automotive service facilities, automotive dealerships, and retail gasoline station outlets or any other definition provided in the municipal NPDES permit or Storm Water Quality Management Plan.

"Discharge" means any release, spill, leak, pump, flow, escape, dumping, or disposal of any liquid, semi-solid, or solid substance.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Executive officer" means executive officer of the California Regional Water Quality Control Board, Los Angeles.

"Illicit connection" means any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

"Illicit discharge" means any discharge into the MS4, or from the MS4 into a receiving water, that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illicit discharge includes any non-storm water discharge, except authorized non-storm water discharges; conditionally exempt non-storm water discharges; and non-storm water discharges resulting from natural flows specifically identified in Part III.A.1.d.

"Industrial activity" means any of the ten classifications of industrial facilities specified in 40 Code of Federal Regulations § 122.26(b)(14), defined by Standard Industrial Classification (SIC) and which is required to obtain a NPDES permit, not including construction activities.

"Low Impact Development (LID)" consists of building and landscape features designed to retain or filter stormwater runoff.

"Maximum extent practicable" or "MEP" means the extent to which the City can reduce the discharge of pollutants in stormwater runoff. MEP requires selecting and implementing effective BMPs, and rejecting applicable BMPs only where: (i) other effective BMPs will serve the same purpose; (ii) the BMPs would not be technically feasible; or (iii) the cost would be prohibitive. Factors considered include, but are not limited to:

(i) Effectiveness: Whether the BMP addresses a pollutant of concern
(ii) Regulatory Compliance: Whether the BMP complies with storm water regulations, as well as other environmental regulations
(iii) Public acceptance: Whether the BMP has public support
(iv) Cost: Whether the cost of implementing the BMP has a reasonable relationship to the pollution control benefits achieved
(v) Technical Feasibility: Whether the BMP is technically feasible, considering soils, geography, and water resources

"Municipal NPDES permit" means California Regional Water Quality Control Board, Los Angeles Region, Order No. R4-2012-0175, NPDES Permit No. CAS004001 Waste Discharge Requirements For Municipal Separate Storm Sewer System (MS4) Discharge Within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating From the City of Long Beach MS4, and any amendment thereto or re-issuance thereof.

"Municipal separate storm sewer system" (referred to herein as "MS4"), means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

(ii) Designed or used for collecting or conveying stormwater;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined in 40 CFR Section 122.2.(40 CFR Section 122.26(b)(8)).

"Non-storm water discharge" means any fluid discharge to the storm drain system and/or receiving waters that is not composed entirely of storm water but may not necessarily be an illicit discharge.

"NPDES" or "National Pollutant Discharge Elimination System" means the national permitting program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Clean Water Act (CWA) §307, 402, 318, and 405. The term includes an "approved program."

Mandated by Congress under the Clean Water Act, the NPDES Stormwater Program is a comprehensive two-phased national program for addressing the non-agricultural sources of stormwater discharges which adversely affect the quality of our nation's waters. The program uses the National Pollutant Discharge Elimination System (NPDES) permitting mechanism to require the implementation of controls designed to prevent harmful pollutants from being washed by stormwater runoff into local water bodies.

"Outfall" means a point source as defined in the Code of Federal Regulations (CFR) at 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States, and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates, and are used to convey waters of the United States (40 CFR Section 122.26(b)(9)) (Order No. R4-2012-0175).

"Owner" as applied to a building or real property, means any part owner, joint owner, tenant in common, tenant in partnership, joint tenant or tenant by the entirety of the whole or of a part of such building or real property.

"Person" means, within the context of this chapter, any natural person, firm, association, organization, partnership, business trust, corporation, or company.

"Pollutant" or "Pollutants" means those "pollutants" defined in CWA §502(6) (33.U.S.C.§1362(6)), and incorporated by reference into California Water Code §13373, and may include, but is not limited to, garbage, debris, lawn clippings, leaves, fecal waste, biological waste, sediment, sludge, manure, fertilizers, pesticides, oil, grease, gasoline, paints, solvents, cleaners, and any fluid or solid containing toxic or non-toxic chemicals, metals, including batteries.

"Public works director" means the Director of Public Works of the City of Pico Rivera.

"Receiving waters" means rivers, lakes, oceans, or other bodies of water that receive runoff.

"Redevelopment" means land-disturbing activity that results in the creation, addition, or replacement of five thousand (5000) square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint, addition or replacement of a structure, replacement of impervious surface area that is not part of a routine maintenance activity, and land disturbing activities related to structural or impervious surfaces. Redevelopment does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Regional Board" means the appointed members of the California Regional Water Quality Control Board, Los Angeles Region.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

"Retail Gasoline Outlet" means any facility engaged in selling gasoline and lubricating oils .

"Runoff" means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

"State Board" means the State Water Resources Control Board of the California Environmental Protection Agency (hereinafter "SWRCB").

"Storm water runoff" means any surface water flow produced by rain or snow melt.

"Standard Urban storm water mitigation program" means the Los Angeles Countywide Storm Water Quality Management Program which includes descriptions of programs, collectively developed by the permitees in accordance with provisions of the NPDES permit, to comply with applicable federal and state law, as the same is amended from time to time. (Ord. 989 § 1 (part), 2002)

16.04.030 Illicit discharges, dumping, and non-storm water discharges.

A. No person shall cause or allow an illicit discharge to enter the municipal storm water system.

B. No person shall place, dump, dispose, litter, accumulate, maintain, discharge, or cause to enter into the MS4, any pollutant or any foreign object such as batteries, tires, waste receptacles, yard debris, refuse, rubbish, food waste, chemicals, animal waste or oil cans, which are also considered illicit discharges.

C. Any person causing an illicit discharge to the MS4 may be required to pay for the cost of clean-up and remediation.

D. Any owner of any private property from which a non-storm water discharge is observed may be required to pay for the cost of collecting and analyzing the discharge to determine if it is an illicit discharge.

E. Discharges identified in Part III.A of the 2012 NPDES MS4 permit are considered exempt or conditionally exempt illicit discharges.

16.04.040 Illicit connections.

A. No person shall maintain or intentionally use a connection that operates to convey an illicit discharge to the municipal storm water system.

B. Upon discovery of an illicit connection, the person owning or operating such connection shall either remove it or render it incapable of conveying an illicit discharge.

C. If any person fails to eliminate an illicit connection after being called upon by the city to do so, the city administrator or the Director of Public Works or his/her designee(s), shall impose appropriate measures to remove or disable the illicit connection and may recover the costs from the owner of such illicit connection. (Ord. 989 § 1 (part), 2002)

16.04.050 Reduction of pollutants in runoff.

No person shall cause, or threaten to cause, the discharge of pollutants to the MS4 by exposing such pollutants to storm water runoff. (Ord. 989 § 1 (part), 2002)

16.04.060 Control of pollutants from commercial facilities.

Subject commercial facilities shall implement BMPs prescribed by the Regional Board or its executive officer, through programs or actions made pursuant to the municipal NPDES permit, as called for more particularly in the city's storm water quality management program, or any revisions made thereto. (Ord. 989 § 1 (part), 2002)

16.04.070 Control of pollutants from industrial activities.

A. It shall be a violation of this chapter for any industry in the city that is subject to waste discharge requirements specified in the SWRCB Water Quality —Control Board's Industrial General Permit (IGP), or any revision or re-issuance thereof, to operate without a general industrial activities stormwater NPDES permit.

B. Industries that require a NPDES IGP permit shall retain on-site the following documents: (i) a copy of the notice of intent for general permit to discharge storm water associated with industrial activity; (ii) a waste discharge identification number issued by the SWRCB; and/or (iii) a storm water pollution prevention plan and monitoring program plan.; (4) any storm_water quality data; and (5) evidence of facility self-inspection.

C. Any industry in the city requiring a NPDES IGP permit shall, upon reasonable request from a duly authorized officer of the Cty, provide any of the documents described in subsection B of this section. (Ord. 989 § 1 (part), 2002)

D. Industrial facilities not subject to the NPDES Industrial General permit that are subject to pollution control requirements under the municipal NPDES permit, shall implement BMPs prescribed by the ;Regional bBoard or its executive officer, through programs or actions made pursuant to the Municipal NPDES permit.

16.04.080 Control of pollutants from other industrial facilities.

Industrial facilities not subject to the general industrial activities storm water NPDES permit but subject to pollution control requirements under the municipal NPDES permit, shall implement BMPs prescribed by the regional board or its executive officer, through programs or actions made pursuant to the municipal NPDES permit. (Ord. 989 § 1 (part), 2002)

16.04.090 Control of pollutants from state permitted construction activities.

A. No person shall commence or continue any construction activity in the city that causes the disturbance of one acre or more of soil by clearing, grading, and excavating without demonstrating to the city that such person has obtained a NPDES Construction General Permit from the SWRCB. The NPDES Construction General Permit does not apply to the following construction activity:

(1) Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility;
(2) Disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and leveling, and soil preparation;
(3) Construction activity covered by an individual NPDES Permit for storm water discharges;
(4) Landfill construction activity that is subject to the Industrial General Permit; or
(5) Construction activity that discharges to Combined Sewer Systems.

In the case of a public emergency that requires immediate construction activities, a discharger shall submit a brief description of the emergency construction activity within five days of the onset of construction, and then shall submit all PRDs within thirty days.

B. Any person engaged in a construction activity requiring a general construction activity storm water NPDES permit shall retain at the construction site the following documents: (i) a copy of the notice of intent to comply with terms of the general permit to discharge water associated with construction activity; (ii) a waste discharge identification number issued by the SWRCB; (iii) a storm water pollution prevention plan and monitoring program plan for the construction activity requiring the construction permit; and (iv) records of all inspections, compliance and non-compliance reports, evidence of self-inspection and good housekeeping practices.

C. Any person engaged in a construction activity in the city requiring an NPDES general construction storm water activity permit shall, upon reasonable request from a duly authorized officer of the city, provide any of the documents specified in subsection B of this section and shall retain said documents for at least three years after completion of construction. (Ord. 989 § 1 (part), 2002)

D. Construction activity not subject to the NPDES Industrial General permit that are subject to pollution control requirements under the Municipal NPDES Permit, shall implement BMP's prescribed by the Regional Board or its executive officer, through programs or actions made pursuant to the Municipal NPDES Permit.

16.04.100 Control of pollutants from other construction activities.

Any person engaged in a construction activity that is not subject to the general construction storm water activity NPDES permit, but is subject to the municipal NPDES permit, shall comply with all requirements specified in the storm water management quality program, including any revisions made thereto. (Ord. 989 § 1 (part), 2002)

16.04.110 Control of pollutants from new developments/redevelopment projects.

A. Standard Urban Storm Water Mitigation Program (SUSMP) - Subject new development and redevelopment projects are required to comply with SUSMP conditions assigned by the City that shall consist of: (1) low impact development ("LID") structural and non-structural best management practices ("BMPs"); (2) source control BMPs; and (3) structural and non-structural BMPs for specific types of uses. LID controls effectively reduce the amount of impervious area of a completed project site and promote the use of infiltration and other controls that reduce runoff. Source control BMPs prevent runoff contact with pollutant materials that would otherwise be discharged to the MS4. Specific structural controls are also required to address pollutant discharges from certain uses including but not limited to developments, retail gasoline outlets, automotive service facilities, restaurants, and industrial and commercial facilities where pollutant materials are disposed, stored, or handled.

B. Standard Urban Storm Water Mitigation Plan Review and Approval - An applicant for a subject new development or a redevelopment project shall incorporate into the applicant's project plans into a SUSMP plan subject to City review and approval.

C. California Environmental Quality Act ("CEQA") - Any project subject to CEQA review but is not specified in a redevelopment or development project category may be required to comply with any of the SUSMP requirements at the City's discretion.

D. Storm Water Management/Watershed Management Program - The City's stormwater management program ("SWMP") plan or watershed management program ("WMP") plan, whichever is in effect at the time of review, shall contain specific conditions and procedures for meeting Planning Land Development and SUSMP requirements. The program plans shall contain guidance documents to facilitate compliance including but not limited to an updated SUSMP guidance manual, a Low Impact Development (LID) Guidance Manual, and Green Street Manual referencing the USEPA's guidance regarding Managing Wet Weather with Green Infrastructure Manual.

E. Certificate of Occupancy - As a condition for issuing a Certificate of Occupancy for new development or redevelopment project, the authorized enforcement officer shall require facility operators and/or owners to build all the storm water pollution control Best Management Practices and structural or treatment control BMPs that are shown on the approved project plans and to submit a signed certification statement stating that the site and all structural or treatment control BMPs will be maintained in compliance with the SUSMP and other applicable regulatory requirements.

F. Transfer of Properties- The transfer or lease of a property subject to a requirement for maintenance of structural and treatment control BMPs shall include conditions requiring the transferee and its successors and assigns to either: (i) assume responsibility for maintenance of any existing structural or treatment control BMP, or (ii) to replace existing structural or treatment control BMPs with new control measures or BMPs meeting the then current standards of the City and the SUSMP. Such requirement shall be included in any sale or lease agreement or deed for such property. The condition of transfer shall include a provision that the successor property owner or lessee conduct maintenance inspections of all structural or treatment control BMPs at least once a year and retain proof of inspection.

1. For residential properties where the structural or treatment control BMPs are located within a common area which will be maintained by a homeowner's association, language regarding the responsibility for maintenance shall be included in the project's conditions, covenants and restrictions (CC&Rs). Printed educational material will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

2. If structural or treatment control BMPs are located within an area proposed for dedication to a public agency, they will be the responsibility of the developer until the dedication is accepted.

16.04.120 Enforcement—Authority.

A. The Director of Public Works, the City Engineer, and duly authorized representatives thereof, are hereby authorized and directed to enforce all provisions of this chapter.

B. Nothing in this chapter precludes a local authority from using regular full-time employees to enforce this chapter. This authority shall be in addition to the authority granted to police and code enforcement officers.

C. Fees to be charged for plan checking, inspection, enforcement and any other activities carried out by the city shall be specified by resolution of the city council. (Ord. 989 § 1 (part), 2002)

16.04.130 Enforcement—Right of entry and inspection.

A. The Director of Public Works, City Engineer, or duly authorized designee thereof, may, on twenty-four hours' oral or written notice, unless exigent circumstances justify a shorter time period, enter upon and inspect any private premises for the purposes of verifying compliance with the terms of this chapter and perform any duty imposed upon the officer by this chapter, provided that:

1. If such building or premises is occupied, he or she shall first present proper credentials and request entry.

2. If such building or premises is unoccupied, he or she shall first make a reasonable effort to locate the owner or occupant of the building or premises and request entry. In the event

that a request for entry is refused, the officer is hereby empowered to seek assistance from any court of competent jurisdiction in obtaining such entry.

B. Such inspection may include, but is not limited to:

1. Identifying products produced, processes conducted, chemicals and materials used, stored or maintained on the subject premises;

2. Identifying points of discharge of all waste water, non-stormwater, processed water system and pollutants;

3. Investigating the natural slope of the premises, including drainage patterns and man-made conveyance systems;

4. Establishing location of all points of discharge from the premises, whether by surface runoff or through a storm drain system;

5. Locating any illicit connection or illicit discharge;

6. Inspecting a vehicle, truck, trailer, tank or other mobile equipment;

7. Inspecting all records of the owner or occupant of public or private property relating to chemicals or processes presently or previously stored or occurring on the property, including material and/or chemical inventories, facilities maps or schematics and diagrams, material safety data sheets, hazardous waste manifests, business plans, pollution prevention plans, pollution prevention plans, state general permits, storm water pollution prevention plans, state general permits, storm water pollution prevention plans, and any and all records relating to illicit connections, illicit discharges, or any other source of contribution or potential contribution of pollutants to the municipal storm drain system;

8. Inspecting, sampling and testing any area runoff, soils area (including groundwater testing), process discharge, materials with any waste storage area (including any container contents), and/or treatment system discharges for the purpose of determining the potential for contribution of pollutants to the municipal storm drain system;

9. Inspecting the integrity of all storm drain and sanitary sewer systems any connection to other pipelines on the property, including the use of dye and smoke tests, video surveys, photographs or videotapes, and the taking of measurements, drawings, or any other records reasonably necessary to document conditions as they exist on the premises;

10. Installing and maintaining of monitoring devices for the purpose of measuring any discharge or potential source of discharge to the municipal storm drain system; or

11. Evaluating compliance with this chapter or the Clean Water Act. (Ord. 989 § 1 (part), 2002)

16.04.140 Enforcement—Violations and penalties.

A. The Director of Public Works, City Engineer, or duly authorized representatives may serve notice of violation upon a person owning or occupying a premises, describing the violations and requiring prompt correction thereof, when:

1. Pollutants or potential pollutants are being maintained, discharged or deposited in such a manner as to create, or if allowed to continue will create, any one or more of the following conditions: (a) a public nuisance, (b) a menace to the public safety, (c) pollution of underground or surface waters, (d) damage to any public sewer, municipal storm sewer system, or public or private property.

2. The person has failed to respond or comply with a previous notice of violation within the time period specified in the notice.

B. Failure to comply with a duly served notice of violation shall constitute a willful violation of this chapter.

C. The City Manager, Director of Public Works, or duly authorized representatives may serve a cease and desist order upon a person owning or occupying a premises, requiring the person to immediately:

1. Discontinue any illicit discharge, including process water, wastewater or pollutant discharge to the MS4;
2. Block or divert any flow of water from the property, where the flow is occurring in violation of any provision of this chapter; and
3. Discontinue any other violation of this chapter.

The cease and desist order may contain terms and conditions or other provisions to ensure compliance with this chapter.

D. Any person violating any provision of this chapter is guilty of a misdemeanor, and upon conviction is punishable by fine not exceeding one thousand dollars or by imprisonment in the county jail for a period not exceeding six months, or by both such fine and imprisonment. As a part of any sentence or other penalty imposed, or the award of any damage, the court may also order that restitution be paid to the city or any injured person, or, in the case of a violator who is a minor, by the minor's parent or lawfully designated guardian or custodian. Restitution may include the amount of any reward.

E. The City Attorney is also authorized to file in a court of competent jurisdiction a civil action seeking an injunction against any violation or threatened or continuing violation of this chapter. Any temporary, preliminary or permanent injunction issued pursuant hereto may include an order for reimbursement to the city for all costs incurred in enforcing this chapter, including costs of inspection, investigation, monitoring, treatment, abatement, removal or remediation undertaken by or at the expense of the city, and may include all legal expenses and fees and any or all costs incurred relating to the restoration or remediation of the environment.

F. Each separate discharge in violation of this chapter and each day a violation described in this chapter exists, without correction, shall constitute a new and separate violation punishable as a separate criminal offense and/or civil violation.

G. Any person who violates any provision of this chapter, any provision of any permit issued pursuant to this chapter, or who discharges waste or wastewater which causes pollution, or who violates any cease and desist order, prohibition, or effluent limitation, also may be in violation of the Federal Clean Water Act and/or Porter-Cologne Act and may be subject to the sanctions of those acts, including civil and criminal penalties. In addition, the City Attorney is authorized to file a citizen's suit pursuant to the Clean Water Act, seeking penalties, damages and orders compelling compliance and appropriate relief.

H. The penalties and remedies established by this chapter shall be cumulative.

I. Any person violating the provisions of this chapter shall reimburse the city for any and all costs incurred by the city in responding to, investigating, assessing, monitoring, treating, cleaning, removing, or remediating any illicit discharge or pollutant from the municipal storm drain system; rectifying any illicit connection; or remediating any violation of this chapter. Such costs to be paid to the City include all administrative expenses and all legal expenses, including costs and attorneys' fees, in obtaining compliance, and in litigation including all costs and attorneys' fees on any appeal. The costs to be recovered pursuant to this section shall be recoverable from any and all persons violating this chapter.

J. The City shall have full power and authority to take any necessary precautions including, but not limited to, decontamination, storm drain closure, packaging, diking, and transportation of materials, in order to protect life, protect property, or prevent an imminent hazard to the public's health, safety or welfare. In the event any violation of this chapter constitutes an imminent danger to public health, safety, or the environment, the Director of Public Works, City Engineer or any authorized agent thereof, may enter upon the premises from which the violation emanates, abate the violation and danger created to the public safety or the environment, and restore any premises affected by the alleged violation, without notice to or consent from the owner or occupant of the premises. An imminent danger shall include, but is not limited to, exigent circumstances created by the discharge of pollutants, where such discharge presents a significant and immediate threat to the public health or safety, or the environment.

K. Notwithstanding any other provisions herein, violations of this chapter may further be deemed to be a public nuisance, which may be abated by administrative or civil or criminal action in accordance with the terms and provisions of this code and state law. All costs and fees incurred by the city as a result of any violation of this chapter which constitute a nuisance, including all administrative fees and expenses and legal fees and expenses, shall become a lien against the subject premises from which the nuisance emanated and a personal obligation against the owner, in accordance with Government Code Sections 38773.1 and 38773.5. The owner of record of the premises subject to any lien shall receive notice of the lien prior to recording, as required by Government Code Section 38773.1. The City Attorney is authorized to collect nuisance abatement costs and enforce a nuisance lien in an action brought for money judgment, or by delivery to the county assessor of a special assessment against the premises in accordance with the conditions and requirements of Government Code Section 38773.5.

L. Any remedies provided to the City in this chapter are not exclusive, and the City may utilize any and all other remedies as otherwise provided by law.

M. Compliance by any person or entity with the provisions of this chapter shall not relieve any such person or entity from complying with other applicable local, state or federal statutory or regulatory requirements. (Ord. 989 § 1 (part), 2002)

SECTION 2. Any provision of the City of Pico Rivera Municipal Code or appendices thereto inconsistent with the provisions of the Ordinance, to the extent of such inconsistencies and no further, are repealed or modified to that extent necessary to affect the provisions of this Ordinance.

SECTION 3. If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council of the City of Pico Rivera hereby declares that it would have adopted this Ordinance and each section, subsection, sentence, clause, phrase or portion thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases, or portions be declared invalid or unconstitutional.

SECTION 4. The Mayor shall sign and the City Clerk shall attest to the passage of this Ordinance. The City Clerk shall cause the same to be published once in the Ordinance official newspaper within 15 days after its adoption. This Ordinance shall become effective 30 days from its adoption.

APPROVED AND ADOPTED this 13th day of May, 2014.

Brent A. Tercero, Mayor

ATTEST:

Anna M. Jerome, City Clerk

Arnold M. Alvarez-Glasman, City Attorney

AYES: Archuleta, Armenta, Camacho, Salcido, Tercero
NOES: None
ABSENT: None
ABSTAIN: None

STATE OF CALIFORNIA
COUNTY OF LOS ANGELES
CITY OF PICO RIVERA

I, Anna M. Jerome, City Clerk of the City of Pico Rivera, California, hereby certify that Ordinance No. 1086 was introduced at a regular meeting of the City Council of the City of Pico Rivera held on the 22nd of April 2014, and thereafter was adopted by the City Council at a regular meeting held on the 13th of May, 2014, and that the same was adopted by the following roll call vote:

AYES: Archuleta, Armenta, Camacho, Salcido, Tercero
NOES: None
ABSENT: None
ABSTAIN: None

CITY CLERK

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RESOLUTION NO. 9441

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SANTA FE SPRINGS APPROVING A GREEN STREETS POLICY

WHEREAS, the Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the Los Angeles Region of the California Regional Water Quality Control Board on November 8, 2012; and

WHEREAS, cities electing to prepare a Watershed Management Program or an Enhanced Watershed Management Program pursuant to said Permit are required to demonstrate that "green street" policies which specify the use of green street strategies for transportation corridors are in place; and

WHEREAS, green streets are enhancements to street and road projects intended to improve the quality of storm water and urban runoff through the implementation of infiltration, bio-treatment, xeriscaping parkways and tree-lined streets; and

WHEREAS, since February 26, 2012, the City has worked in conjunction with the Gateway Water Management Authority to develop a Green Streets Policy,

NOW, THERFORE, THE CITY COUNCIL OF THE CITY OF SANTA FE SPRINGS HEREBY FINDS, DETERMINES AND RESOLVES AS FOLLOWS:

SECTION 1. The City Council hereby adopts as its Green Streets Policy the Green Streets Manual attached hereto as Exhibit "A", which exhibit is incorporated by reference herein.

SECTION 2. The City Manager or his designees are directed to implement the requirements of the Green Streets Manual for City-owned transportation corridors and road projects that add 10,000 square feet or more of impervious area, based on the USEPA's Wet Weather with Green Infrastructure guidance (December 2008 EPA-833-F-08-009).

SECTION 3. Routine maintenance, including but not limited to slurry seals, grand and overlay and reconstruction to maintain original line at grade are excluded from the requirements to comply with the Green Streets Manual.

SECTION 4. The City Manager or his designees are authorized to make non-substantive changes to the City's Green Streets Manual consistent with the requirements of the MS4 Permit.

SECTION 5. The City has determined that the adoption of the Green Streets Manual will not have a significant effect on the environment. Such action is therefore categorically exempt from CEQA requirements, pursuant to Section 15061 of the CEQA Guidelines. Staff is hereby directed to prepare and post a notice of exemption pursuant to Section 15062 of the CEQA Guidelines.

SECTION 6. This Resolution shall become effective on the effective date of the City's Ordinance No. 1055, which Ordinance establishes Low Impact Development requirements.

SECTION 7. If any section, subsection, subdivision, paragraph, sentence, clause or phrase in this Resolution, or any part hereof, is held invalid or unconstitutional, such decision shall not affect the validity of the remaining sections or portions of this Resolution. The City Council hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase in this Resolution irrespective of the fact that any one or more sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases may be declared invalid or unconstitutional.

SECTION 8. The Deputy City Clerk shall certify to the adoption of this Resolution.

PASSED AND ADOPTED THIS 8TH day of May, 2014.

Juanita Trujillo, MAYOR

ATTEST:

Anita Jimenez

Anita Jimenez, DEPUTY CITY CLERK

ORDINANCE NO. 1055

AN ORDINANCE OF THE CITY OF SANTA FE SPRINGS AMENDING TITLE 5 OF THE CITY CODE BY REPEALING AND REPLACING CHAPTER 52 TO ESTABLISH LOW IMPACT DEVELOPMENT REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS

WHEREAS, the Municipal Separate Storm Sewer System (MS4) Permit (Order No. R-2012-0175) was adopted by the Los Angeles Region of the California Regional Water Quality Control Board on November 8, 2012; and

WHEREAS, cities electing to prepare a Watershed Management Program or an Enhanced Watershed Management Program pursuant to said Permit are required to adopt a Low Impact Development ("LID") Ordinance to lessen the impacts on surface water from development by using smart growth practices, and are required to integrate LID practices and standards for storm water pollution mitigation for new development and redevelopment projects; and

WHEREAS, LID consists of building and landscape features designed to retain or filter storm water runoff; and

WHEREAS, since February 26, 2012, the City has worked in conjunction with the Gateway Water Management Authority on the development of a LID Ordinance,

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SANTA FE SPRINGS DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. Chapter 52 of the City Code is hereby repealed, provided, however, that such repeal shall not affect or excuse any violation of Chapter 52 occurring prior to the effective date of this Ordinance. A new Chapter 52 is hereby added to read as set forth in Exhibit "A", attached hereto, which exhibit is incorporated by reference herein.

SECTION 2. The City has determined that the adoption of this Ordinance will not have a significant effect on the environment. Such action is therefore categorically exempt from CEQA requirements, pursuant to Section 15061 of the CEQA Guidelines. Staff is hereby directed to prepare and post a notice of exemption pursuant to Section 15062 of the CEQA Guidelines.

SECTION 3. If any section, subsection, subdivision, paragraph, sentence, clause or phrase in this Ordinance, or any part hereof, is held invalid or unconstitutional, such decision shall not affect the validity of the remaining sections or portions of this Ordinance, or any part thereof. The City Council hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase in this Ordinance irrespective of the fact that any one or more sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases may be declared invalid or unconstitutional.

SECTION 4. The Deputy City Clerk shall certify to the adoption of this Ordinance, and shall cause the same to be posted in at least three (3) public places in the City, such posting to be completed no later than fifteen (15) days after passage hereof.

PASSED, APPROVED, and ADOPTED THIS 22nd day of May 2014.
AYES:
NOES:
ABSENT:

Juanita Trujillo, MAYOR

ATTEST:

Anita Jimenez

Anita Jimenez, DEPUTY CITY CLERK

EXHIBIT "A"

52.01 Title.

This chapter shall be known as the City's Stormwater Management and Discharge Control ordinance.

52.02 Findings.

A. The federal Clean Water Act (33 U.S.C. Section 1251, *et seq*.,) provides for the regulation and reduction of pollutants discharged into the waters of the United States by extending National Pollutant Discharge Elimination System ("NPDES") requirements to stormwater and urban runoff discharge into municipal storm drain systems;

B. Stormwater and urban runoff flows from individual properties onto streets, then through storm drains passing through the City and finally into the waters of the United States;

C. The City of Santa Fe Springs is a co-permittee under the "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") discharges within the Coastal Watersheds of Los Angeles County, except those discharges originating from the City of Long Beach MS4, which also serves as a NPDES Permit under the federal Clean Water Act (NPDES No. CAS614001), as well as waste discharge requirements under California law (the Municipal NPDES Permit") and, as a co-permittee under the Municipal NPDES Permit, the City is required to adopt ordinances and implement procedures with respect to the entry of non-stormwater discharges into the municipal stormwater system;

D. Part III, Section A of the Municipal NPDES Permit requires the City to effectively prohibit non-stormwater discharges from within its boundaries, into that portion of the MS4 which it owns or operates and into watercourses, except where such discharges are: (1) in compliance with a separate individual or general NPDES permit, or (2) identified and in compliance with Part III.A (non-stormwater discharges) of the Municipal NPDES Permit, or (3) originate from federal, state or other facilities which the City is preempted from regulating, and further provides that compliance with the terms of the Municipal NPDES Permit through the development and implementation of the programs described in the Municipal NPDES Permit will constitute compliance with the discharge prohibition in the Municipal NPDES Permit;

E. Part VI, Section A.2 of the Municipal NPDES Permit requires the City to establish and maintain the legal authority necessary to control discharges to and from those portions of the MS4 over which it has jurisdiction, so as to comply with the Municipal NPDES Permit and to specifically prohibit certain discharges identified in the Municipal NPDES Permit;

F. The Municipal NPDES Permit contemplates the development of a Watershed Management Program in which the City will participate, which will in turn require the development and the implementation of programs for, among other things, the elimination of illicit connections and illicit discharges, development planning, development construction, and public information and education requirements, and which may require the later adoption of additional legal authority to implement such programs as they are developed by the permittees and approved by the Regional Board;

G. In order to control, in a cost-effective manner, the quantity and quality of stormwater and urban runoff to the maximum extent practicable, the adoption of the ordinance codified in this chapter is essential.

52.03 Purpose and intent.

A. The purpose of this chapter is to ensure the future health, safety and general welfare of the citizens of the City and the water quality of the receiving waters of the County of Los Angeles and surrounding coastal areas by:

1. Reducing pollutants in stormwater discharges to the maximum extent practicable;

2. Regulating illicit connections and illicit discharges and reducing the level of contamination of stormwater and urban runoff in the municipal stormwater system; and system.

3 . Regulating non-stormwater discharges to the municipal stormwater

B. The intent of this chapter is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the Municipal NPDES Permit.

C. This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal stormwater system over which it has jurisdiction as required by the Municipal NPDES Permit, and fully and timely comply with the terms of the Municipal NPDES Permit while the Watershed Management Program is being developed by the permittees under the Municipal NPDES Permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequently adopted Watershed Management Program, or other programs developed under the Municipal NPDES Permit.

D. This chapter also sets forth requirements for the construction and operation of certain commercial development, new development and redevelopment and other projects (as further defined herein) which are intended to ensure compliance with the stormwater mitigation measures prescribed in the current MS4 Permit This chapter authorizes the Director to define and adopt applicable best management practices and other stormwater pollution control measures, as provided herein, to carry out all inspections including entering entities discharging to the MS4, conduct surveillance, conduct monitoring, cite infractions and to impose fines pursuant to this chapter. Except as otherwise provided herein, the Director shall administer, implement and enforce the provisions of this section.

E. The City Council shall approve and enter into interagency agreements as deemed necessary by the City Council to control the contribution of pollutants of the shared MS4.

52.04 Definitions.

Except as specifically provided herein, any term used in this chapter shall be defined as that term is defined in the current Municipal NPDES Permit, or if it is not specifically defined in the Municipal NPDES Permit, then as such term is defined in the Federal Clean Water Act, as amended, or the regulations promulgated thereunder. If the definition of any term contained in this section conflicts with the definition of the same term in the current Municipal NPDES Permit, then the definition contained in the Municipal NPDES Permit shall govern. The following words and phrases shall have the following meanings when used in this chapter:

“Area susceptible to runoff” means any surface directly exposed to precipitation or in the path of runoff caused by precipitation which path leads off the parcel on which the surface is located.

“Automotive service facilities” means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5511, 5541, 7532-7534, and 7536-7539 provided that these facilities have no outside activities or materials that may be exposed to stormwater

“Best Management Practices (BMPs)” means practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water. Examples of BMPs may include public education and outreach, proper planning of development projects, proper cleaning of catch basin inlets, and proper sludge- or waste-handling and disposal, among others.

“Biofiltration” means a LID BMP that reduces stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration. Incidental infiltration is an important factor in achieving the required pollutant load reduction. Therefore, the term “biofiltration” as used in this chapter is defined to include only systems designed to facilitate incidental infiltration or achieve the equivalent pollutant reduction as biofiltration BMPs with an underdrain (subject to approval by the Regional Board’s Executive Officer). Biofiltration BMPs include bioretention systems with an underdrain and bioswales.

“Bioretention” means a LID BMP that reduces stormwater runoff by intercepting rainfall on vegetative canopy, and through evapotranspiration and infiltration. The bioretention system typically includes a minimum 2-foot top layer of a specified soil and compost mixture underlain by a gravel-filled temporary storage pit dug into the in-situ soil. As defined in this Ordinance, a bioretention BMP may be designed with an overflow drain, but may not include an underdrain. When a bioretention BMP is designed or constructed with an underdrain it is regulated by the Municipal NPDES Permit as biofiltration.

“Bioswale” means a LID BMP consisting of a shallow channel lined with grass or other dense, low-growing vegetation. Bioswales are designed to collect stormwater runoff and to achieve a uniform sheet flow through the dense vegetation for a period of several minutes.

“City” means the City of Santa Fe Springs, California.

“Clean Water Act (CWA)” means the Federal Water Pollution Control Act enacted in 1972, by Public Law 92-500, and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless the discharge is in accordance with an NPDES permit.

“Commercial development” means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

“Commercial Malls” means any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers

“Construction” means any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that result in land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance activities required to maintain the integrity of structures by performing minor repair and restoration work, maintain the original line and grade, hydraulic capacity, or original purposes of the facility. See “Routine Maintenance” definition for further explanation. Where clearing, grading or excavating of underlying soil takes place during a repaving operation, State General Construction Permit coverage by the State of California General Permit for Storm Water Discharges Associated with Industrial Activities or for Stormwater Discharges Associated with Construction Activities is required if more than one acre is disturbed or the activities are part of a larger plan

“Control” means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

“Development” means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single family, multi- unit or planned unit development); industrial, commercial, retail and other nonresidential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

“Directly adjacent” means situated within two hundred (200) feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

“Director” means the City’s City Manager or his or her designee.

“Discharge” means when used without qualification the discharge of a pollutant. “Discharge of a pollutant” means any addition of any pollutant or combination of pollutants to waters of the United States from any point source or, any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by a state, municipality, or other person which do not lead to treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

“Discharging” directly means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

“Discretionary project” is defined in the same manner as Section 15357 of the Guidelines for Implementation of the California Environmental Quality Act contained in Title 14 of the California Code of Regulations, as amended, and means a project which requires the exercise of judgment or deliberation when the City decides to approve or disapprove a particular activity, as distinguished from situations where the City merely has to determine whether there has been conformity with applicable statutes, ordinances or regulations.

“Disturbed area” means an area that is altered as a result of clearing, grading, and/or excavation.

“Environmentally sensitive area (ESA)” means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements are areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning (1976) and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Games Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the Basin Plan as supporting the Rare, Threatened, or Endangered Species (RARE) beneficial use; and an area identified by the City as environmentally sensitive.

"Flow-through treatment BMPs" means a modular, vault type "high flow biotreatment" devices contained within an impervious vault with an underdrain or designed with an impervious liner and an underdrain.

"Full Capture System" means any single device or series of devices, certified by the Executive Officer, that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one- year, one-hour storm in the sub-drainage area.

"Good housekeeping practices" means common practices related to the storage, use or cleanup of materials, performed in a manner that minimizes the discharge of pollutants. Examples include, but are not limited to, purchasing only the quantity of materials to be used at a given time, use of alternative and less environmentally harmful products, cleaning up spills and leaks, and storing materials in a manner that will contain any leaks or spills.

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from construction activities under certain conditions.

"General Industrial Activities Storm Water Permit (GIASP**)"** means the general NPDES permit adopted by the State Board which authorizes the discharge of stormwater from certain industrial activities under certain conditions.

"Green Roof" means a LID BMP using planter boxes and vegetation to intercept rainfall on the roof surface. Rainfall is intercepted by vegetation leaves and through evapotranspiration. Green roofs may be designed as either a bioretention BMP or as a biofiltration BMP. To receive credit as a bioretention BMP, the green roof system planting medium shall be of sufficient depth to provide capacity within the pore space volume to contain the design storm depth and may not be designed or constructed with an underdrain.

"Hillside" means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is twenty-five percent (25%) or greater and where grading contemplates cut or fill slopes.

"Illicit connection" means any human-made conveyance that is connected to the storm drain system without a permit, excluding gutters, roof-drains and other similar connections. Examples include channels, pipelines, conduits, inlets or outlets that are connected directly to the storm drain system.

"Illicit discharge" means any discharge to the storm drain system that is prohibited under local, state or federal statutes, ordinances, codes or regulations. This includes all non-stormwater discharges except discharges pursuant to a separate NPDES permit and discharges that are exempted or conditionally exempted in accordance with Part III the Municipal NPDES permit.

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

"Industrial Park" means land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

"Infiltration BMP" means a LID BMP that reduces stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Examples of infiltration BMPs include infiltration basins, dry wells, and pervious pavement.

"Infiltration" means the downward entry of water into the surface of the soil.

"Low Impact Development (LID)" consists of building and landscape features designed to retain or filter stormwater runoff.

"Material" means any substance including, but not limited to: garbage and debris; lawn clippings, leaves, and other vegetation; biological and fecal waste; sediment and sludge; oil and grease; gasoline; paints, solvents, cleaners, and any fluid or solid containing chemicals.

"Municipal NPDES Permit" means the Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach (Order No. R4-2012-0175), NPDES Permit No. CAS00401), issued by the California Regional Water Quality Control Board—Los Angeles Region, and any successor permit to that permit.

"Municipal Separate Storm Sewer System (MS4)" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

1. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

2. Designed or used for collecting or conveying stormwater;

3. Which is not a combined sewer; and

4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Section 122.2.

"New development" means land-disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

"Non-stormwater discharge" means any discharge to a municipal stormwater system that is not composed entirely of stormwater.

"NPDES permit" means any waste discharge requirements issued by the Regional Board or the State Water Resources Control Board in the form of an NPDES permit pursuant to Water Code Section 13370 (other than the Municipal NPDES Permit).

"Outfall" means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances with connect segments of the same stream or other waters of the United Sates and are used to convey waters of the United States. (40 CFR Section 122.26(b)(9))

"Parking lot" means land area or a facility for the parking or storage of motor vehicles used for businesses, commerce, industry or personal use with a lot size of five thousand (5,000) square feet or more of surface area, or with twenty-five (25) or more parking spaces.

"Planning priority projects" means those projects specified in Section 52-11 of this chapter that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective projects.

"Pollutant" means those pollutants defined in Section 502(6) of the federal Clean Water Act (33 U.S.C. Section 1362(6)), or incorporated into California Water Code Section 13373. Examples of pollutants include, but are not limited to the following:

1. Commercial and industrial waste (such as fuels, solvents, detergents, plastic pellets, hazardous substances, fertilizers, pesticides, slag, ash and sludge);

2. Metals such as cadmium, lead, zinc, copper, silver, nickel, chromium, and nonmetals such as phosphorus and arsenic;

3. Petroleum hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants and grease);

4. Excessive eroded soils, sediment and particulate materials in amounts which may adversely affect the beneficial use of the receiving waters, flora or fauna of the state;

5. Animal wastes (such as discharge from confinement facilities, kennels, pens, recreational facilities, stables and show facilities);

6. Substances having characteristics such as pH less than six or greater than nine, or unusual coloration or turbidity, or excessive levels of fecal coliform, or fecal streptococcus, or enterococcus;

The term “pollutant” shall not include uncontaminated stormwater, potable water or reclaimed water generated by a lawfully permitted water treatment facility.

“Project” means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (California Public Resources Code Section 21065).

“Rainfall Harvest and Use” means a LID BMP system designed to capture runoff, typically from a roof but can also include runoff capture from elsewhere within the site, and to provide for temporary storage until the harvested water can be used for irrigation or non-potable uses. The harvested water may also be used for potable water uses if the system includes disinfection treatment and is approved for such use by the local building department (Order No. R4-2012-0175).

“Receiving Water**”** means “water of the United States” into which waste and/or pollutants are or may be discharged.

“Redevelopment” means land-disturbing activity that result in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of routine maintenance activity; and land disturbing activity related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

“Regional Board” means the California Regional Water Quality Control Board—Los Angeles Region.

“Restaurant” means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. (SIC Code 5812).

“Retail gasoline outlet” means any facility engaged in selling gasoline and lubricating oils.

“Routine Maintenance” includes, but is not limited to projects conducted to:

1. Maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

2. Perform as needed restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.

3. Includes road shoulder work, regrading dirt or gravel roadways and shoulders and performing ditch cleanouts.

4. Update existing lines and facilities, which include replacing existing lines with new materials or pipes, to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.

5. Repair leaks.

Routine maintenance does not include construction of new lines or facilities resulting from compliance with applicable codes, standards and regulations.

“Runoff” means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

“Site” means the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

“Source control BMP” means any schedule of activities, prohibition of practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution.

“Standard urban stormwater mitigation plan” or “SUSMP” means a report submitted by an applicant for approval by the Director prior to issuance of a building, grading, planning or similar permit outlining the necessary LID requirements and BMPs which must be incorporated into design plans for development or redevelopment projects.

“Storm Drain System” means any facility or any parts of the facility, including streets, gutters, conduits, natural or artificial drains, channels and watercourse that are used for the purpose of collecting, storing, transporting or disposing of stormwater and are located within the City.

“Stormwater runoff” means that part of precipitation (rainfall) which travels via flow across a surface to the MS4 or receiving waters from impervious, semi-pervious or pervious surfaces. When all other factors are equal, runoff increases as the perviousness of a surface decreases.

"Structural BMP" means any structural facility designed and constructed to mitigate the adverse impacts of stormwater and urban runoff pollution (e.g. canopy, structural enclosure). Structural BMPs may include both treatment control BMPs and source control BMPs.

"Treatment" means the application of engineered systems that use physical, chemical or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media adsorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

"Treatment control BMP" means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological or chemical process.

"Urban runoff" means surface water flow produced by non-stormwater resulting from residential, commercial and industrial activities involving the use of potable and nonpotable water.

52.05 Construction and application.

This chapter shall be construed to assure consistency with the requirements of the federal Clean Water Act and acts amendatory or supplementary to the Federal Clean Water Act, applicable implementing regulations, and the Municipal NPDES Permit, and any amendment, revision or reissuance of the Municipal NPDES Permit.

52.06 No taking.

The provisions of this chapter shall not operate to deprive any property owner of substantially all of the market value of such owner's property or otherwise constitute an unconstitutional taking without compensation.

52.07 Prohibited activities.

A. Illicit Discharges and Connections. It is prohibited to commence, establish, use, maintain or continue any illicit connections to the MS4 or any illicit discharges to the MS4. This prohibition against illicit connections applies to the use, maintenance or continuation of any illicit connection, whether that connection was established prior to or after the effective date of this chapter.

B. Littering. No person shall throw, deposit, place, leave, maintain, keep or permit to be thrown, deposited, placed, left or maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles or accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place, or upon any or private plot of land in the City, so that the same might be or become a pollutant. No person shall throw or deposit litter in any fountain, pond, lake, stream, or other body of water within the City. This section shall not apply to refuse, rubbish or garbage deposited in containers, bags or other appropriate receptacles which are placed in designated locations for regular solid waste pick-up and disposal.

C. Disposal of Landscape Debris. No person shall dispose of leaves, dirt, or other landscape debris into the municipal separate stormwater system.

D. Non-stormwater Discharges. The following non-stormwater discharges into the MS4 are prohibited unless in compliance with a separate NPDES permit or pursuant to a discharge exemption by the Regional Board, the Regional Board's Executive Officer, or the State Water Resources Control Board:

1. The discharge of untreated wash waters to the MS4 when gas stations, auto repair garages, or other type of automotive service facilities are cleaned;
2. The discharge of untreated wastewater to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;
3. To the maximum extent practicable, discharges to the MS4 from areas where repair of machinery and equipment, including motor vehicles, which are visibly leaking oil, fluid or antifreeze, is undertaken;
4. Discharges of untreated runoff to the MS4 from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials;
5. Discharges of commercial/municipal swimming pool filter backwash to the MS4;
6. Discharges of untreated runoff from the washing of toxic materials from paved or unpaved areas to the MS4; provided, however, that nonindustrial and noncommercial activities which incidentally generate urban runoff, such as the hosing of sidewalks, shall be excluded from this prohibition;
7. To the maximum extent practicable, discharges to the MS4 from washing impervious surfaces in industrial/commercial areas which results in a discharge of untreated runoff to the MS4, unless specifically required by state law, or the City's Municipal code, or Los Angeles County's Health and Safety Codes, or permitted under a separate NPDES permit;
8. Discharges from the washing out of concrete trucks into the MS4;
9. Discharges to the MS4 of any pesticide, fungicide or herbicide, banned by the USEPA or the California Department of Pesticide Regulation; or
10. The disposal of hazardous wastes into trash containers used for municipal trash disposal where such disposal causes or threatens to cause a direct or indirect discharge to the MS4.

E. Car Washing. No motor vehicle, boat, trailer, or other type of mobile transportation may be washed, other than at a commercial carwash, unless such vehicle is being washed by:

1. A resident at their residence using a hand-held bucket or a water hose equipped with an automatic shutoff nozzle as long as water does not flow onto

streets; or

2. A business that has an approved car wash facility for its fleet vehicles, provided that water does not flow onto streets.

52.08 Exempted discharges, conditionally exempted discharges or designated discharges.

A. Discharges from those activities specifically identified in, or pursuant to, Part III.A.1-3 of the Municipal NPDES Permit as being exempted discharges, conditionally exempted discharges or designated discharges shall not be considered a violation of this chapter; provided that, consistent with Part III.A.1-3 of the Municipal NPDES Permit:

1. Any applicable BMPs developed pursuant to the Municipal NPDES Permit are implemented to minimize any adverse impacts from such identified sources;

2. The discharger meets all notification, reporting and recordkeeping requirements; and

3. The discharge has conducted all applicable monitoring requirements.

B. Discharges in Violation of the Municipal NPDES Permit. Any discharge that would result in or contribute to a violation of the Municipal NPDES Permit, either separately or in combination with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the person(s) causing or responsible for the discharge, and such person(s) shall defend, indemnify and hold harmless the City from all losses, liabilities, claims or causes of actions in any administrative or judicial action relating to such discharge.

52.09 Good housekeeping provisions.

Owners and occupants of property within the City shall comply with the following requirements:

A. Septic Waste. No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste to precipitation in an area where a discharge to City streets or MS4 may or does occur.

B. Use of Water. Runoff of water used for irrigation purposes shall be minimized to the maximum extent practicable. Runoff of water from the permitted washing down of paved areas shall be minimized to the maximum extent practicable.

C. Storage of Materials, Machinery and Equipment. Machinery or equipment that is to be repaired or maintained in areas susceptible to or exposed to stormwater, shall be placed in a manner so that leaks, spills and other maintenance-related pollutants are not discharged to the MS4.

D. Removal and Disposal of Debris from Industrial/Commercial Motor Vehicle Parking Lots. Industrial/commercial motor vehicle parking lots with more than twenty-five (25) parking spaces that are located in areas potentially exposed to stormwater shall be swept regularly or other equally effective measures shall be utilized to remove debris from such parking lots.

E. Food Wastes. Food wastes generated by nonresidential food service and food distribution sources shall be properly disposed of and in a manner so such wastes are not discharged to the MS4.

F. Best Management Practices. Best management practices shall be used in areas exposed to stormwater for the removal and lawful disposal of all fuels, chemicals, fuel and chemical wastes, animal wastes, garbage, batteries, or other materials which have potential adverse impacts on water quality.

G. Maintenance of Structural BMPs. Structural BMPs shall be properly operated and maintained, consistent with the approved SUSMP. Records and documentation of such maintenance shall be provided to the Director upon request.

52.10 Requirements for industrial/commercial and construction activities.

A. Industrial/Commercial and Construction Related Dischargers Generally. Each discharger associated with industrial/commercial activity or construction activity, or other discharger described in any general NPDES permit addressing such discharges, as may be issued by the U.S. Environmental Protection Agency, the State Water Resources Control Board, or the Regional Board shall comply with all requirements of such NPDES permit and the City's development construction program. Each discharger identified in an individual NPDES permit shall comply with and undertake all activities required by such permit. Proof of compliance with any such NPDES permit and the City's development construction program may be required in a form acceptable to the Director prior to the issuance of any grading, building or occupancy permits, or any other type of permit or license issued by the City.

B. Source Control BMPs for Industrial/Commercial Facilities. Industrial/commercial facilities shall implement the effective source control BMPs listed in Table 10 of Part VI.D.6.f. of the Municipal NPDES Permit, unless a particular pollutant generating activity does not occur on a facility's site.

52.11 Standard urban stormwater mitigation plan (SUSMP) and low impact development (LID) requirements for new development and redevelopment projects.

a. Objective. Pursuant to Part VI.D.7.b of the Municipal NPDES Permit, the provisions of this section establish requirements for construction activities and facility operations of development and redevelopment projects to comply with the current Municipal NPDES Permit to lessen the water quality impacts of development by using smart growth practices and integrate LID practices and standards for stormwater pollution mitigation through means of infiltration, evapotranspiration, biofiltration, and rainfall harvest and use. Except as otherwise provided herein, the City shall administer, implement and enforce the provisions of this section.

b. Scope. This section contains requirements for stormwater pollution control measures in development and redevelopment projects and authorizes the City to further define and adopt stormwater pollution control measures, and to develop LID principles and requirements, including but not limited to the objectives and specifications for integration of LID strategies. As specified in this section, certain Planning Priority Projects shall meet the requirements of this section through the preparation and submittal of a standard urban stormwater mitigation plan (SUSMP), which shall include the applicable LID requirements set forth in this section as an element of the SUSMP.

c. Applicability – Planning Priority Projects. The following development and redevelopment projects shall be designated as Planning Priority Projects, which are subject to City conditioning and approval for the design and implementation of post- construction controls to mitigate storm water pollution prior to completion of the projects, and shall meet the requirements of this section:

(1) New Development Projects.

a. All development projects equal to one (1) acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.

b. Industrial parks 10,000 square feet or more of surface area.

c. Commercial malls 10,000 square feet or more of surface area

d. Retail gasoline outlets with 5,000 square feet or more of surface area.

e. Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 square feet or more of surface area.

f. Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.

g. Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

h. Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.

i. Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:

1. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and

2. Create 2,500 square feet or more of impervious surface area.

j. Single-family hillside homes.

(2) Redevelopment Projects

a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.

b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

e. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

f. Specific Requirements. The site for every Planning Priority Project shall be designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention and/or rainfall harvest and use. In addition, the following specific requirements apply:

1. New Single-Family Hillside Homes. A new single-

family hillside home development project shall include mitigation measures to:

a. Conserve natural areas;

b. Protect slopes and channels;

c. Provide storm drain system stenciling and signage;

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

e. Direct surface flow to vegetated areas before discharge, unless the diversion would result in slope instability.

2. Street and Road Construction of 10,000 square feet or more. Street and road construction of 10,000 square feet or more of impervious surface shall follow the City's Green Streets Manual developed by the Director and approved by City Council resolution. The City's Green Street Manual shall be based on the USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets (December 2008 EPA-833-F-08-009).

3. Remainder of Planning Priority Projects Require a SUSMP. Except for the projects listed in paragraphs (1) and (2) of subsection D of this section, all other Planning Priority Projects shall prepare and submit to the Director for review and approval a SUSMP which shall also contain LID requirements consistent with Parts VI.D.7.c and VI.D.7.d(iii) of the Municipal NPDES Permit. In addition, Planning Priority Projects subject to this paragraph (3) shall do the following:

a. Incorporate the SUSMP into Project Plans. An applicant for a Planning Priority Project identified in paragraph (3) of subsection D of this section shall incorporate into the applicant's project plans a Storm Water Mitigation Plan (SWMP), which includes those BMPs necessary to control storm water pollution from construction activities and facility operations, as set forth in the SUSMP applicable to the applicant's project. Structural or Treatment Control BMPs (including, as applicable, post- construction treatment control BMPs) set forth in project plans shall meet the design standards set forth in the SUSMP and the current Municipal NPDES Permit.

b. Verify Maintenance of BMPs. If a project applicant has included or is required to include structural or treatment control BMPs in project plans, the applicant shall provide verification of maintenance provisions. The verification shall include the applicant's signed statement, as part of its project application, accepting responsibility for all structural and treatment control BMP maintenance until such time, if any, the property is transferred.

E. Issuance of Discretionary Permits. No discretionary permit may be issued for any Planning Priority Project identified in this section until the Director confirms the project plans comply with the applicable requirements of this section.

F. Issuance of Certificates of Occupancy. As a condition for issuing a certificate of occupancy for a Planning Priority Project identified in this section, the Director shall require facility operators and/or owners to build all the stormwater pollution control BMPs and structural or treatment control BMPs that are shown on the approved project plans and to submit a signed certification statement stating that the site and all structural or treatment control BMPs will be maintained in compliance with the SUSMP and other applicable regulatory requirements.

G. Transfer of Properties Subject to Requirement for Maintenance of Structural and Treatment Control BMPs.

1. The transfer or lease of a property subject to a requirement for maintenance of structural and treatment control BMPs shall include conditions requiring the transferee and its successors and assigns to either (a) assume responsibility for maintenance of any existing structural or treatment control BMP or (b) to replace an existing structural or treatment control BMP with new control measures or BMPs meeting the then current standards of the City and the SUSMP. Such requirement shall be included in any sale or lease agreement or deed for such property. The condition of transfer shall include a provision that the successor property owner or lessee conduct maintenance inspections of all structural or treatment control BMPs at least once a year and retain proof of inspection.

2. For residential properties where the structural or treatment control BMPs are located within a common area which will be maintained by a homeowners association, language regarding the responsibility for maintenance shall be included in the projects conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what stormwater management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

3. If structural or treatment control BMPs are located within an area proposed for dedication to a public agency, said BMPs shall be the responsibility of the developer until the dedication is accepted by the public agency.

H. CEQA. Provisions of this section shall be complementary to, and shall not replace, any applicable requirements for stormwater mitigation required under the California Environmental Quality Act.

52.12 Enforcement.

A. Violations Deemed a Public Nuisance.

1. The following violations shall be deemed a public nuisance:

a. Any condition caused or permitted to exist in violation of any of the provisions of this chapter; or

b. Any failure to comply with any applicable requirement of either the SUSMP or an approved stormwater mitigation plan with respect to a property; or

c. Any false certification or verification, or any failure to comply with a certification or verification provided by a project applicant or the applicant's successor in interest; or

d. Any failure to properly operate and maintain any structural or treatment control BMP on a property in accordance with an approved stormwater mitigation plan or the SUSMP, is determined to be a threat to the public health, safety and welfare, is declared and deemed a public nuisance, and may be abated or restored by any Director, and a civil or criminal action to abate, enjoin or otherwise compel the cessation of such nuisance may be brought by the City Attorney.

2. The cost of such abatement and restoration shall be borne by the owner of the property and the cost shall be billed to the owner of the property, as provided by law or ordinance for the recovery of nuisance abatement costs,

3. If any violation of this chapter constitutes a seasonal and recurrent nuisance, the Director shall so declare. The failure of any person to take appropriate annual precautions to prevent stormwater pollution after written notice of a determination under this section shall constitute a public nuisance and a violation of this chapter.

B. Concealment. Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of such provision.

C. Civil Actions. In addition to any other remedies provided in this chapter, any violation of this chapter may be enforced by civil action brought by the City. In any such action, the City may seek any or all of the following remedies:

1. A temporary and/or permanent injunction;
2. Assessment of the violator for the costs of any investigation, inspection or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action under this section;

4. Costs incurred in removing, correcting or terminating the adverse effects resulting from violation;

5. Compensatory damages for loss or destruction to water quality, wildlife,

fish and aquatic life.

D. Administrative Enforcement Powers. In addition to the other enforcement powers and remedies established by this chapter, the Director has the authority to utilize the following administrative remedies:

1. Cease and Desist Orders. When a discharge has taken place or is likely to take place in violation of this chapter, the Director may issue an order to cease and desist such discharge, or practice or operation likely to cause such discharge and direct that those persons not complying shall: (a) comply with the requirement; (b) comply with a time schedule for compliance; and (c) take appropriate remedial or preventive action to prevent the violation from recurring.

2. Notice to Clean. Whenever the Director finds any oil, earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or any other material of any kind, in or upon the sidewalk abutting or adjoining any parcel of land, or upon any parcel of land or grounds, which may result in pollutants entering the MS4 or a non-stormwater discharge to the MS4, he or she may give notice to the owner or occupant of the adjacent property to remove such oil earth, debris, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or other material, in any manner that he or she may reasonably provide. The recipient of such notice shall undertake the activities as described in the notice.

E. Penalties. Violation of this chapter shall be punishable as provided in Chapter 1.16 of this code. Each day that a violation continues shall constitute a separate offense.

F. Permit Revocation. To the extent the City makes a provision of this chapter or any identified BMP a condition of approval to the issuance of a permit or license, any person in violation of such condition is subject to the permit revocation procedures set forth in this code.

G. Burden of Proof. In an enforcement action, the burden of proof shall be on the person who is the subject of such action to establish that the reduction or elimination of the discharge to the maximum extent practicable has been accomplished through compliance with the best management practices available, including applicable monitoring, notifications and reporting requirements.

H Remedies. Remedies under this chapter are in addition to and do not supersede or limit any and all other available remedies, civil or criminal. The remedies provided for in this chapter shall be cumulative and not exclusive.

52.13 Fees

A. Fees for Plan Reviews, Inspections, Violations Corrections and tasks associated with this Section shall be established by Resolution of the City Council.

City of Whittier

Green Streets Guidance Manual

Date: 10/22/13

David A. Pelser, PE, BCEE
Director of Public Works

Original Edition: October 22, 2013

Whittier Blvd. and the Greenway Trail at Five Points

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SECTION 1 – INTRODUCTION

1.1 WHAT ARE GREEN STREETS?

City streets present many opportunities for green infrastructure application. One principle of green infrastructure involves reducing and treating stormwater close to its source. Urban transportation right-of-ways integrated with green techniques are often called "green streets." Green streets provide source controls for stormwater runoff and pollutant loads. In addition, green infrastructure approaches complement street facility upgrades, street aesthetic improvements, and urban tree canopy efforts that also make use of the right-of-way and allow it to achieve multiple goals and benefits. Using the right-of-way for treatment of stormwater runoff links green with grey infrastructure by making use of the engineered conveyance of roads and providing connections to conveyance systems when needed.

Green streets can incorporate a wide variety of design elements including street trees, permeable pavements, bioretention, and swales. Although the design and appearance of green streets will vary, the functional goals are the same; provide source control of stormwater, limit its transport and pollutant conveyance to the collection system, restore pre-development hydrology to the maximum extent practicable, and provide environmentally enhanced roads. Successful application of green techniques will encourage soil and vegetation contact and infiltration and retention of stormwater.

1.2 WHY ARE GREEN STREETS BEING REQUIRED?

It is the policy of the City of Whittier (City Council Resolution No. 8593) to comply with the requirements of the Municipal Separate Storm Sewer System (MS4) Permit (LARWQCB Order Number R4-2012-0175). This Green Streets Guidance Manual provides guidance to help achieve the goals of the MS4 Permit which requires that jurisdictions in Los Angeles County reduce contaminants in runoff to improve water quality in waterways. These requirements stem from the National Pollutant Discharge Elimination System (NPDES) requirements of the Clean Water Act (CWA). This Green Streets Guidance Manual shall be used as a guide in Green Street projects as required. Should a conflict arise between this manual and the requirements of the MS4 Permit and a grading permit, excavation permit, or building permit, those permits hold precedence over this manual.

The MS4 Permit requires Green Streets strategies to be implemented for transportation corridors. Transportation corridors represent a significant percentage of the impervious area within Los Angeles and therefore generate a substantial amount of runoff from storm events. The altered flow regime from traditional roadways, increased runoff volume, and high runoff peak flows, are damaging to the environment and a risk to property downstream.

Traditionally, street design has focused on removing water from the street as quickly as possible and transferring it to storm drains, channels, and water bodies. Stormwater runoff can contain bacteria and other pollutants, and is thereby regulated at the state and local level (refer to *Table 1* for a list of pollutants typical of city streets). Green Streets will help to transform the design of streets from the conventional method of moving water off-site as quickly as possible to a method of storing and treating water on-site for a cleaner discharge into the waters of the U.S.

Street and road construction applies to major arterials, state routes, highways, or rail lines used for the movement of people or goods by means of bus services, trucks, and vehicles, and transportation corridors within larger projects. Projects which are required under the MS4 permit (Order Number R4-2012-0175) to follow this Green Streets Guidance Manual include the following:

1. Public Street and road construction of 10,000 square feet or more of impervious surface area within a transportation corridor. (Private street and road construction activities are subject to separate development planning provisions of the MS4 permit).
2. Street and road redevelopment resulting in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.
3. For projects not listed above, as determined by the Director of Public Works.

Table 1: Examples of Stormwater Pollutants Typical of Roads (*Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets, 2008*).

Pollutant	Source	Effects in Surface Water
Trash	Littering	Physical damage to aquatic animals and fish, release of poisonous substances
Sediment/solids	Construction, unpaved areas	Increased turbidity, increased transport of soil bound pollutants, negative effects on aquatic organisms reproduction and function
Metals (Copper, Zinc, Lead, Arsenic)	Vehicle brake pads, vehicle tires, motor oil, vehicle emissions and engines, vehicle emissions, brake linings, automotive fluids	Toxic to aquatic organisms and can accumulate in sediments and fish tissues
Organics associated with petroleum (e.g., PAHs)	Vehicle emissions, automotive fluids, gas stations	Toxic to aquatic organisms
Nutrients	Vehicle emissions, atmospheric deposition	Promotes eutrophication and depleted dissolved oxygen concentrations

1.3 PLANNING AND DEVELOPMENT

Ideally, a site would be designed to capture and use or infiltrate the entire runoff volume of a storm, however site and design constraints make it difficult to achieve that goal. This Green Streets Guidance Manual is designed to provide guidance with selection of Best Management Practices (BMP) based on site constraints typical to street design. Streetscape geometry, topography, climate, and other factors determine the types of controls that can be implemented. The initial step in selecting a stormwater tool is determining the available open space and constraints. Stormwater controls should be selected using the hierarchy represented in *Figure 1*, the site guidelines represented in *Table 2*, and the location opportunities listed in *Table 3*.

1.3.1 Site Considerations

Specific elements which should be given special consideration in the site assessment process for applicable Green Streets include:

- **Ownership of land adjacent to right of ways.** The opportunity to provide stormwater treatment may depend on the ownership of land adjacent to the right-of-way. Acquisition of additional right-of-way and/or access easements may be more feasible if land bordering the project is owned by relatively few land owners. If the adjacent land is not publicly owned, treatment implementation options may be significantly limited.

- **Location of existing utilities.** The location of existing storm drainage utilities can influence the opportunities for Green Streets infrastructure. For example, stormwater planters can be designed to overflow along the curb-line to an existing storm drain inlet, thereby avoiding the infrastructure costs associated with an additional inlet. The location of other utilities may limit the allowable placement of BMPs to only those areas where a clear pathway to the storm drain exists.
- **Grade differential between road surface and storm drain system.** Some BMPs require more head from inlet to outlet than others; therefore, allowable head drop may be an important consideration in BMP selection. Storm drain elevations may be constrained by a variety of factors in a roadway project (utility crossings, outfall elevations, etc.) that cannot be overcome and may override stormwater management considerations.
- **Longitudinal slope.** The suite of BMPs which may be installed on steeper road sections is more limited. Specifically, permeable pavement and swales are more suitable for gentle slopes. Other BMPs may be more readily terraced to be used on steeper slopes.
- **Soil suitability.** Infiltration BMPs require specific types of soil. The site assessment should determine the type of soils on the site and the infiltration rate (hydraulic conductivity) of the soils if infiltration BMPs are proposed.
- **Potential access opportunities.** A significant concern with installation of BMPs in major right of ways is the ability to safely access the BMPs for maintenance considering traffic hazards. Vehicle travel lanes and specific areas potentially hazardous for maintenance crews should be identified during the site assessment.

1.3.2 Design Considerations

The drainage patterns of the project should be developed so that drainage can be routed to areas with BMP opportunities before entering storm drains. For example, if a median strip or parkway is present, a reverse crown should be considered, where allowed, so that stormwater can drain to a median swale. Likewise, standard peak-flow curb inlets should be located downstream of areas with potential for stormwater planters so that water can first flow into the planter, and then overflow to the downstream inlet if capacity of the planter is exceeded. It is more difficult to apply green infrastructure after water has entered the storm drain.

Green Streets projects are not required to treat off-site runoff; however treatment of comingled off-site runoff may be used to off-set the inability to treat areas within the project for which significant constraints prevent the ability to provide treatment.

1.3.3 BMP Sizing for Applicable Green Streets Projects

An 85th percentile standard design storm should be used to determine the appropriate size, slope, and materials of each facility. After identifying the appropriate stormwater facilities for a site, an integrated approach using several BMPs is encouraged. To increase water quality and functional hydrologic benefits, several stormwater management BMPs can be used in succession. This is called a treatment train approach. The control measures should be designed using available topography to take advantage of gravity for conveyance to and through each facility. All Green Streets designs should be based on a published design standard.

The following steps should be used to size BMPs for applicable Green Streets projects:

1. Delineate drainage areas tributary to BMP locations and soil hydraulic conductivity.
2. Look up the recommended sizing method for the BMP selected in each drainage area and calculate target sizing criteria.
3. Design BMPs per a published design standard.
4. Attempt to provide the calculated sizing criteria for the selected BMPs.
5. If sizing criteria cannot be achieved, document the constraints that override the application of BMPs and provide the largest portion of the sizing criteria that can be reasonably provided given constraints. If BMPs cannot be sized to provide the calculated volume for the tributary area, it is still important to design the BMP inlet, energy dissipation, and overflow capacity for the full tributary area to ensure that flooding and scour is avoided. It is strongly recommended that BMPs which are designed to less than their target design volume be designed to bypass peak flows.

1.3.4 Alternative Compliance Options for Applicable Green Streets Projects

Alternative compliance programs may be considered for applicable Green Streets projects if on-site green infrastructure approaches cannot practicably treat the design volume with approval from the City Engineer. The primary alternative compliance option for applicable Green Streets projects is the completion of off-site mitigation projects. The proponent would implement a project to reduce stormwater pollution for other portions of roadway or similar land uses when being reconstructed to the project in the same hydrologic unit, ideally as close to the project as possible and discharging to the same outfall.

1.3.5 Infiltration Considerations

Appropriate soils, infiltration media, and infiltration rates should be used for infiltration BMPs. If infiltration is proposed, a complete geotechnical or soils report should be undertaken to determine infiltration rates, groundwater depth, soil toxicity and stability, and other factors that will affect the ability and the desirability of infiltration. At a minimum, the infiltration capacity of the underlying soils shall be deemed suitable for infiltration (0.3 inches per hour or greater), appropriate media should be used in the BMP itself, the groundwater should be at least ten feet below the ground surface.

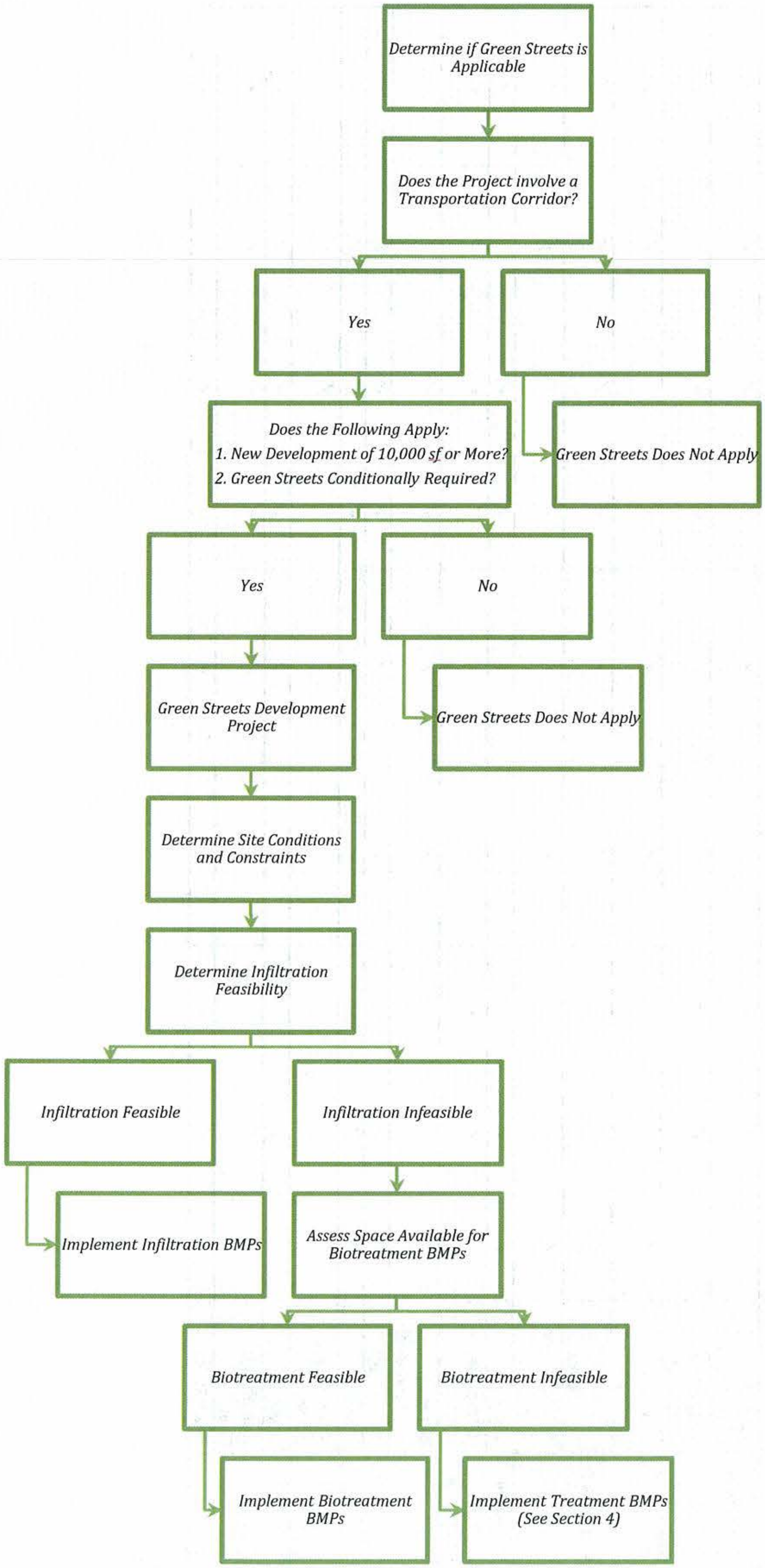

Figure 1: BMP Selection Flow Chart.

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Table 2: BMP Selection by Street Context (*Model for Living Streets Design Manual, 2011*).

	STREET CONTEXT	BIORETENTION			DETENTION		PAVING	INLET PROTECTIONS		
		Swales	Planters	Vegetated Buffer Strips	Rain Gardens	Infiltration Trenches & Dry Wells	Permeable Pavement	Storm Drain Inlet Screens	Storm Drain Filter Inserts	Pipe Filter Inserts
Commercial	Downtown Commercial		✓			✓	✓	✓	✓	✓
	Commercial Throughway		✓	✓		✓	✓	✓	✓	✓
	Neighborhood Commercial		✓	✓	✓	✓	✓	✓	✓	✓
Residential	Downtown Residential	✓	✓		✓	✓	✓	✓	✓	✓
	Residential Throughway	✓	✓		✓	✓	✓	✓	✓	✓
	Neighborhood Residential	✓	✓		✓	✓	✓	✓	✓	✓
Industrial And Mixed-Use	Industrial	✓	✓		✓	✓	✓	✓	✓	✓
	Mixed-Use		✓	✓	✓	✓	✓	✓	✓	✓
Special	Sidewalk Furniture Zone	✓	✓		✓	✓	✓	✓	✓	✓
	Park Edge	✓	✓		✓	✓	✓	✓	✓	✓
	Boulevard	✓	✓		✓	✓	✓	✓	✓	✓
	Ceremonial (Civic)						✓	✓	✓	✓
Small	Alley		✓			✓	✓	✓	✓	✓
	Shared Public Way		✓			✓	✓	✓	✓	✓
	Walk Street		✓	✓		✓	✓	✓	✓	✓

Table 3: BMP Location Opportunity Summary.

BMP	Location Opportunity Summary
Bioretention	• Adjacent to traveled way and in frontage or furniture sidewalk zones • Can be located in curb extensions, medians, traffic circles, roundabouts, and any other landscaped area • Suitable for constrained locations
Infiltration Trench/Dry Well	• Can be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians
Rain Gardens	• Can be integrated medians, islands, circles, street ends, chicanes, and curb extensions • Can be located at the terminus of swales in the landscape
Permeable Pavement	• Suitable for parking or emergency access lanes • Can be located in furniture zones of sidewalks especially adjacent to tree wells • Cannot be placed in areas with large traffic volume or heavy load lanes • Avoid steep streets • Cannot be placed within 20 feet of sub-sidewalk basements • Cannot be within 50 feet of domestic water wells
Flow-Through Planters	• Above-grade planters should be structurally separate from adjacent sidewalks • At-grade planter systems can be installed adjacent to curbs within the frontage and/or furniture zones
Vegetated Swales	• Can be located adjacent to roadways, sidewalks, or parking areas • Can be integrated into traffic calming devices such as chicanes and curb extensions • Can be placed in medians where the street drains to the median • Can be placed alongside streets and pathways • Should be designed to work in conjunction with the street slope
Vegetated Buffer Strips	• Can be located in multi-way boulevards, park edge streets, or sidewalk furniture zones • Can serve as pre-treatment
Treatment BMPs	• Can be located in a catch basin, manhole, or vault • Can be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow • Can be placed on existing curbside catch basins and flush grate openings • Can be installed on the existing wall of a catch basin and on the curb side wall of a catch basin • Minimum set-backs from foundations and slopes should be observed if the BMP is not lined
Street Trees	• Can be placed on sidewalks, in furniture zones, and on medians • Adequate spacing must be provided between trees and street lights, pedestrian lights, accessible parking spaces, bus shelters, awnings, canopies, balconies, and signs

SECTION 2 – INFILTRATION

Infiltration systems utilize rock, gravel, and other highly permeable materials for on-site infiltration. In these systems, stormwater runoff is directed to the system and allowed to infiltrate into the soils for on-site retention and groundwater recharge. During small storm events, infiltration systems can result in significant or even complete volume reduction of stormwater runoff.

Infiltration should be used to the maximum extent practicable. Biotreatment BMPs should be considered if infiltration is found to be infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

Infiltration BMPs may become damaged by stormwater carrying high levels of sediment, therefore pre-treatment features should be designed to treat street runoff prior to discharging to infiltration features. Media filters, filter inserts, vortex type units, bioretention devices, sumps, and sedimentation basins are several pre-treatment tools effective at removing sediment.

2.1 INFILTRATION TRENCHES AND DRY WELLS

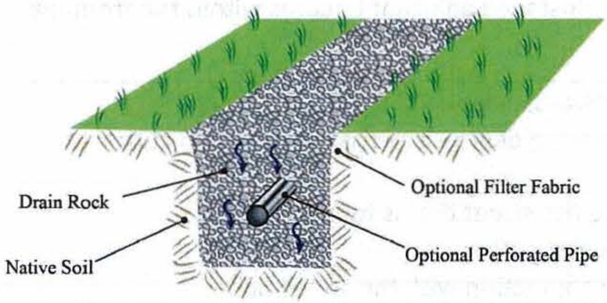

Figure 2: Infiltration Trench (*Model for Living Streets Design Manual, 2011*).

Description

Infiltration trenches are linear, rock-filled features that promote infiltration by providing a high ratio of sub-surface void space in permeable soils. They provide on-site stormwater retention and may contribute to groundwater recharge. Infiltration trenches may accept stormwater from sheet flow, concentrated flow from a swale or other surface feature, or piped flow from a catch basin. Because they are not flow-through BMPs, infiltration trenches do not have outlets but may have overflow outlets for large storm events.

Dry wells are typically distinguished from infiltration trenches by being deeper than they are wide. They are usually circular, resembling a well, and are backfilled with the same materials as infiltration trenches. Dry wells typically accept concentrated flow from surface features or from pipes and do not have outlets.

Infiltration trenches and dry wells are typically designed to infiltrate all flow they receive. In large storm events, partial infiltration of runoff can be achieved by providing an overflow outlet. In these systems, significant or even complete volume reduction is possible in smaller storm events. During large storm events, these systems may function as detention facilities and provide a limited amount of retention and infiltration.

Location and placement guidelines

Infiltration trenches and dry wells typically have small surface footprints so they are potentially some of the most flexible elements of landscape design. However, because they involve sub-surface excavation, these features may interfere with surrounding structures. Care needs to be taken to ensure that surrounding building foundations, pavement bases, and utilities are not damaged by infiltration features. Once structural soundness is ensured, infiltration features may be located under sidewalks and in sidewalk planting strips, curb extensions, roundabouts, and medians. When located in medians, they are most effective when the street is graded to drain to the median. Dry wells require less surface area than trenches and may be more feasible in densely developed areas.

Infiltration features should be sited on uncompacted soils with acceptable infiltration capacity. They are best used where soil and topography allow for moderate to good infiltration rates (0.3 inches per hour or better) and the depth to groundwater is at least 10 feet. Prior to design of any retention or infiltration system, proper soil investigation and percolation testing shall be conducted to determine appropriate infiltration design rates, depth to groundwater, and if soil will exhibit instability as a result of infiltration. Any site with potential for previous underground contamination shall be investigated. Infiltration trenches and dry wells can be designed as stand-alone systems when water quality is not a concern or may be combined in series with other stormwater tools.

Perforated pipes and piped inlets and outlets may be included in the design of infiltration trenches. Cleanouts should be installed at both ends of any piping and at regular intervals in long sections of piping, to allow access to the system. Access ports are recommended for both trenches and wells and can be combined with clean-outs. If included, the overflow inlet from the infiltration trench should be properly designed for anticipated flows.

2.2 RAIN GARDENS

Figure 3: Rain garden (*Model for Living Streets Design Manual, 2011*).

Description

Rain gardens are vegetated depressions in the landscape. They have flat bottoms and gently sloping sides. Rain gardens can be similar in appearance to swales, but their footprints may be any shape. Rain gardens hold water on the surface, like a pond, and have overflow outlets. The detained water is infiltrated through the topsoil and subsurface drain rock unless the volume of water is so large that some must overflow. Rain gardens can reduce or eliminate off-site stormwater discharge while increasing on-site recharge.

Location and Placement Guidelines

Rain gardens may be placed where there is sufficient area in the landscape and where soils are suitable for infiltration. Rain gardens can be integrated with traffic calming measures installed along streets, such as medians, islands, circles, street ends, chicanes, and curb extensions. Rain gardens are often used at the terminus of swales in the landscape.

2.3 PERMEABLE PAVEMENT

Figure 4: Permeable pavement during a storm event (*Model for Living Streets Design Manual, 2011*).

Description

Permeable pavement is a system with the primary purpose of slowing or eliminating direct runoff by absorbing rainfall and allowing it to infiltrate into the soil. Permeable pavement also filters and cleans pollutants such as petroleum deposits on streets, reduces water volumes for existing overtaxed pipe systems, and decreases the cost of offsite or onsite downstream infrastructure. This BMP is impaired by sediment-laden run-on which diminishes its porosity. Care should be taken to avoid flows from landscaped areas reaching permeable pavement. Permeable pavement is, in certain situations, an alternative to standard pavement. Conventional pavement is designed to move stormwater off-site quickly. Permeable pavement, alternatively, accepts the water where it falls, minimizing the need for management facilities downstream.

Location and Placement Guidelines

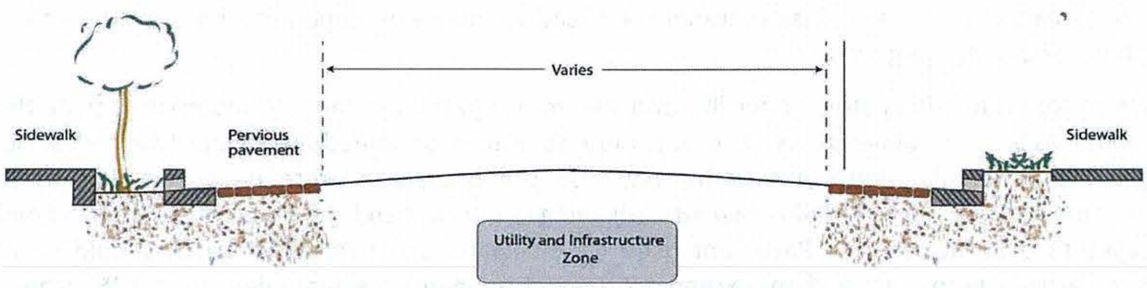

Figure 5: Possible pervious pavement design layout (*Model for Living Streets Design Manual, 2011*).

Conditions where permeable pavement should be encouraged include:

- Sites where there is limited space in the right-of-way for other BMPs;
- Parking or emergency access lanes; and
- Furniture zones of sidewalks especially adjacent to tree wells

Conditions where permeable pavement should be avoided include:

- Large traffic volume or heavy load lanes;
- Where runoff is already being harvested from an impervious surface for direct use, such as irrigation of bioretention landscape areas;
- Steep streets;
- Gas stations, car washes, auto repair, and other sites/sources of possible chemical contamination;
- Areas with shallow groundwater;
- Within 20 feet of sub-sidewalk basements; and
- Within 50 feet of domestic water wells.

Material and Design Guidelines

A soil or geotechnical report should be conducted to provide information about the permeability rate of the soil, load-bearing capacity of the soil, the depth to groundwater (10 feet or more required), and if soil will exhibit instability as a result of implementation. Infiltration rate and load capacity are key factors in the functionality of this BMP. Permeable pavement generally does not have the same load-bearing capacity as conventional pavement, so this BMP may have limited applications depending on the underlying soil strength and pavement use. Permeable pavement should not be used in general traffic lanes due to the possible variety of vehicles weights and heavy volumes of traffic.

When used as a road paving, permeable pavement that carries light traffic loads typically has a thick drain rock base material. Pavers should be concrete as opposed to brick or other light-duty materials. Other possible permeable paving materials include porous concrete and porous asphalt. These surfaces also have specific base materials that detain infiltrated water and provide structure for the road surface. Base material depths should be specified based on design load and the soils report.

Plazas, emergency roads, and other areas of limited vehicular access can also be paved with permeable pavement. Paving materials for these areas may include open cell paver blocks filled with stones or grass and plastic cell systems. Base material specifications may vary depending on the product used, design load, and underlying soils.

When used for pedestrian paths, sidewalks, and shared-use paths, appropriate materials include those listed above as well as rubber pavers and decomposed granite or something similar (washed or pore-clogging fine material). Pedestrian paths may also use broken concrete pavers as long as ADA requirements are met. Paths should drain into adjoining landscapes and should be higher than adjoining landscapes to prevent run-on. Pavement used for sidewalks and pedestrian paths should be ADA compliant, especially smooth, and not exceed a 2 percent slope or have gaps wider than 0.25 inches. In general, tripping hazards should be avoided.

Design considerations for permeable pavement include:

- The location, slope and load-bearing capacity of the street, and the infiltration rate of the soil;
- The amount of storage capacity of the base course;
- The traffic volume and load from heavy vehicles;
- The design storm volume calculations and the quality of water; and
- Drain rock, filter fabrics, and other subsurface materials.

Maintenance Guidelines

Maintenance of permeable pavement systems is essential to their continued functionality. Regular vacuuming and street sweeping should be performed to remove sediment from the pavement surface. The bedding and base material should be selected for long life and sufficient infiltration rates.

SECTION 3 – BIOTREATMENT

Biotreatment BMPs are landscaped, shallow depressions that capture and filter stormwater runoff. These types of BMPs are an increasingly common type of stormwater treatment device that are installed at curb level and filled with a bioretention type soil. They are designed as soil and plant-based filtration devices that remove pollutants through a variety of physical, biological, and chemical treatment processes. They typically consist of a ponding area, mulch layer, planting soils, and plants. Stormwater is directed to the system and pollutants are treated as the stormwater drains through the planting soil and either infiltrated or collected by an underdrain and directed to a collection system.

Biotreatment should only be used in cases where infiltration has been proven infeasible due to low infiltration rates, soil instability, high groundwater, or soil contamination.

3.1 BIORETENTION

Figure 6: Bioretention system (*Model for Living Streets Design Manual, 2011*).

Description

Bioretention is a stormwater management process that cleans stormwater by mimicking natural soil filtration processes as water flows through a bioretention BMP. It incorporates mulch, soil pores, microbes, and vegetation to reduce and remove sediment and pollutants from stormwater. Bioretention is designed to slow, spread, and, to some extent, infiltrate water. Each component of the bioretention BMP is designed to assist in retaining water, evapotranspiration, and adsorption of pollutants into the soil matrix. As runoff passes through the vegetation and soil, the combined effects of filtration, absorption, adsorption, and biological uptake of plants remove pollutants.

For areas with low permeability or other soil constraints, bioretention can be designed as a flow-through system with a barrier protecting stormwater from native soils. Bioretention areas can be designed with an underdrain system that directs the treated runoff to infiltration areas, cisterns, or the storm drain system, or may treat the water exclusively through surface flow. Examples of bioretention BMPs include swales, planters, and vegetated buffer strips.

Location and Placement Guidelines

Bioretention facilities can be included in the design of all street components; adjacent to the traveled way and in the frontage or furniture sidewalk zones. They can be designed into curb extensions, medians, traffic circles, roundabouts, and any other landscaped area. Depending on the feature, maintenance and access should always be considered in locating the device. Bioretention systems are also appropriate in constrained locations where other stormwater facilities requiring more extensive subsurface materials are not feasible.

If bioretention devices are designed to include infiltration, native soil should have a minimum permeability rate of 0.3 inches per hour and at least 10 feet to the groundwater table. Sites that have more than a 5 percent slope may require other stormwater management approaches or special engineering.

3.2 FLOW-THROUGH PLANTERS

Figure 7: Flow-through planter (*Model for Living Streets Design Manual, 2011*).

Description

Flow-through planters are typically above-grade or at-grade with solid walls and a flow-through bottom. They are contained within an impermeable liner and use an underdrain to direct treated runoff back to the collection system. Where space permits, buildings can direct roof drains first to building-adjacent planters. Both underdrains and surface overflow drains are typically installed with building-adjacent planters.

At-grade street-adjacent planter boxes are systems designed to take street runoff and/or sidewalk runoff and incorporate bioretention processes to treat stormwater. These systems may or may not include underdrains.

Location and Placement Guidelines

Above-grade planters should be structurally separate from adjacent sidewalks to allow for future maintenance and structural stability per local department of public works' standards. At-grade planter systems can be installed adjacent to curbs within the frontage and/or furniture zones.

All planters should be designed to pond water for less than 48 hours after each storm. Flow-through planters designed to detain roof runoff can be integrated into a building's foundation walls, and may be either raised or at grade.

For at-grade planters, small localized depressions may be included in the curb opening to encourage flow into the planter. Following the inlet, a sump (depression) to capture sediment and debris may be integrated into the design to reduce sediment loadings.

3.3 VEGETATED SWALES

Figure 8: Vegetated swale (*Signal hill, CA*).

Description

Swales are linear, vegetated depressions that capture rainfall and runoff from adjacent surfaces. The swale bottom should have a gradual slope to convey water along its length. Swales can reduce off-site stormwater discharge and remove pollutants along the way. In a swale, water is slowed by traveling through vegetation on a relatively flat grade. This gives particulates time to settle out of the water while contaminants are removed by the vegetation.

Location and Placement Guidelines

Swales can be located adjacent to roadways, sidewalks, or parking areas. Roadway runoff can be directed into swales via flush curbs or small evenly-spaced curb cuts into a raised curb. Swale systems can be integrated into traffic calming devices such as curb extensions.

Swales can be placed in medians where the street drains to the median. Placed alongside streets and pathways, vegetated swales can be landscaped with native plants which filter sediment and pollutants and provide habitat for wildlife. Swales should be designed to work in conjunction with the street slope to maximize filtration and slowing of stormwater.

Swales are designed to allow water to slowly flow through the system. Depending on the landscape and design storm, an overflow or bypass for larger storm events may be needed. Curb openings should be designed to direct flow into the swale. Following the inlet, a sump may be built to capture sediment and debris.

3.4 VEGETATED BUFFER STRIPS

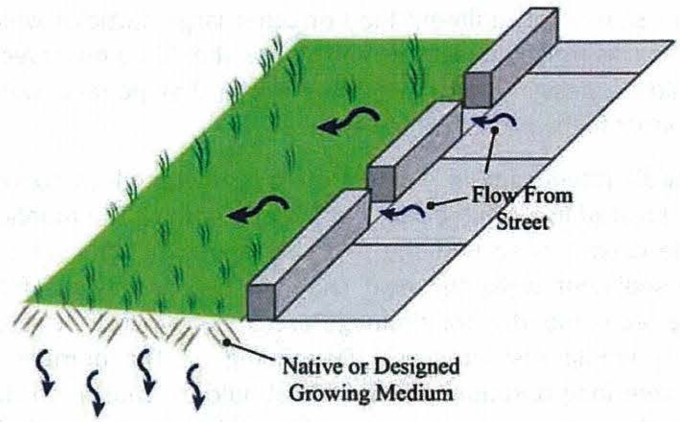

Figure 9: Vegetated buffer strip detail (*Model for Living Streets Design Manual, 2011*).

Description

Vegetated buffer strips are sloping planted areas designed to treat and absorb sheet flow from adjacent impervious surfaces. These strips are not intended to detain or retain water, only to treat it as a flow-through feature. They should not receive concentrated flow from swales or other surface features, or concentrated flow from pipes.

Location and Placement Guidelines

Vegetated buffer strips are well-suited to treating runoff from roads and highways, small parking lots, and pervious surfaces. They may be commonly used on multi-way boulevards, park edge streets, or sidewalk furniture zones with sufficient space. When selecting potential placement the need for supplemental irrigation should be considered. Vegetated buffers can also be situated so they serve as pre-treatment for another stormwater management feature, such as an infiltration BMP.

SECTION 4 – TREATMENT BMPS

4.1 SAND FILTERS & STORM DRAIN INLET PROTECTIONS

As described in Section 1 of this Green Streets Manual, it may be infeasible for specific projects to apply infiltration or biotreatment BMPs. In these cases, sand filters or filter inserts as treatment BMPs can be considered as an alternative. Sand filters and filter inserts can be designed to prevent particulates, debris, metals, and petroleum-based materials conveyed by stormwater from entering the storm drain system. All treatment BMP units should have an overflow system that allows the storm drain to remain functional if the filtration system becomes clogged during rainstorms. All storm drain inlet protections must be of a style and configuration approved by the agency with ownership of the inlet.

Typical maintenance of catch basins includes scheduled trash removal if a screen or other debris capturing device is used. Street sweeping should be performed by vacuum sweepers with occasional weed and large debris removal. Maintenance should include keeping a log of the amount of sediment collected and the data of removal.

The following are examples of possible treatment BMPs:

- **Sand Filters:** Sand filters are designed to filter stormwater through a constructed media bed and to an underdrain system. As stormwater flows through the media pollutants are filtered out of the water. The filtered water is conveyed through the underdrain to a collection system. Pretreatment is necessary to eliminate significant sediment load or other large particles which would clog the system. Minimum set-backs from foundations and slopes should be observed if the facility is not lined. Filters should be designed and maintained such that ponded water should not persist for longer than 48 hours following a storm event.
- **Cartridge Media Filters:** Cartridge media filters contain multiple modular filters which contain engineered media. The filters can be located in a catch basin, manhole, or vault. The manhole or vault may be divided into multiple chambers so that the first chamber may act as a pre-settling basin for removal of coarse sediment while the next chamber may act as the filter chamber. Cartridge media filters are recommended for drainage areas with limited available surface area or where surface BMPs would restrict uses. Depending on the number of cartridges, maintenance events can have long durations. Locations should be chosen so that maintenance events will not significantly disrupt businesses or traffic. Inlet inserts should be sized to capture all debris and should therefore be selected to match the specific size and shape of each catch basin and inlet. Filter media should be selected to target pollutants of concern. A combination of media may be used to remove a variety of pollutants. Systems with lower maintenance requirements are preferred.
- **Storm Drain Inlet Screens:** Inlet screens are designed to prevent large litter and trash from entering the storm drain system while allowing smaller particles to pass through. The screens function as the first preventive measure in removing pollutants from the storm water system. The city's street sweeping department should be consulted to ensure compliance with local specifications and to schedule regular maintenance. Annual inspection of the screen is recommended to ensure functionality. Note that most LA River drainage areas are already protected using connector pipe screens through collective systems.
- **Storm Drain Pipe Filter Insert:** The storm drain outlet pipe filter is designed to be installed on an existing outlet pipe or at the bottom of an existing catch basin with an overflow. This filter removes debris, particulates, and other pollutants from stormwater as it leaves the storm drain system. This BMP is less desirable than a protection system that prevents debris from entering the storm drain system because the system may become clogged with debris. Outlet pipe filters can be placed on existing curbside catch basins and flush grate openings. Regular maintenance is required and inspection should be performed rigorously. Because this filter is located at the

outlet of a storm drain system, clogging with debris is not as apparent as with filters at street level. This BMP may be used as a supplemental filter with an inlet screen or inlet insert unit.

SECTION 5 – STREET TREES

5.1 STREET TREES

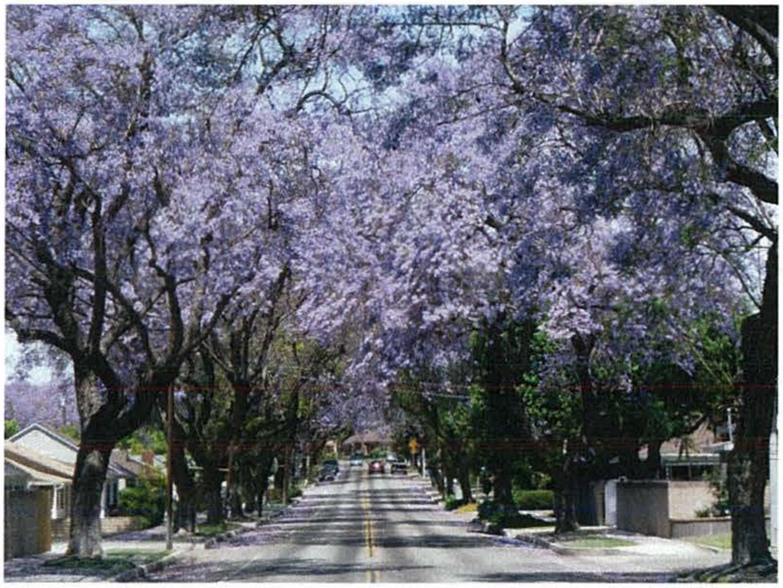

Figure 10: Street trees (*Whittier, CA*).

Description

Healthy urban trees are powerful stormwater management tools. Leaves and branches catch and slow rain as it falls, helping it to soak into the ground. The plants themselves take up and store large quantities of water that would otherwise contribute to surface runoff. Part of this moisture is then returned to the air through evaporation to further cool the city. As an important element along sidewalks, street trees must be provided with conditions that allow them to thrive, including adequate uncompacted soil, water, and air.

The goal of adding street trees is to increase the canopy cover of the street, the percentage of its surface either covered by or shaded by vegetation. The selection, placement, and management of all elements in the street should enhance the longevity of a city's street trees and healthy, mature plantings should be retained and protected whenever possible.

Benefits to adding street trees include:

- Creation of shade to lower temperatures in a city, reduces energy use, and makes the street a more pleasant place in which to walk and spend time
- Slowing and capture of rainwater, helping it soak into the ground to restore local hydrologic functions and aquifers
- Improving air quality by cooling air, producing oxygen, and absorbing and storing carbon in woody plant tissues

Guidelines

For guidelines on street tree design refer to the Whittier Parkway Tree Manual or contact the Whittier Department of Parks, Recreation, and Community Services.

SECTION 6 – DEFINITIONS

Best Management Practice (BMP)
Operating methods and/or structural devices used to reduce stormwater volume, peak flows, and/or pollutant concentrations of stormwater runoff through evapotranspiration, infiltration, detention, filtration, and/or biological and chemical treatment.

Bioretention
Soil and plant-based retention practice that captures and biologically degrades pollutants as water infiltrates through sub-surface layers containing microbes that treat pollutants. Treated runoff is then slowly infiltrated and recharges the groundwater.

Conveyance
The process of water moving from one place to another.

Design Storm
A storm whose magnitude, rate, and intensity do not exceed the design load for a storm drainage system or flood protection project.

Detention
Stormwater runoff that is collected at one rate and then released at a controlled rate. The volume difference is held in temporary storage.

Filtration
A treatment process that allows for removal of solid (particulate) matter from water by means of porous media such as sand, soil, vegetation, or a man-made filter. Filtration is used to remove contaminants.

Furniture Zone
The furniture zone is the area which lies between the curb and pedestrian zones and is intended to house utilities and pedestrian amenities.

Hardscape
Impermeable surfaces, such as concrete or stone, used in the landscape environment along sidewalks or in other areas used as public space.

Infiltration
The process by which water penetrates into soil from the ground surface.

Permeability/Impermeability
The relative quality of a soil or material that enables water to move through it, determining its suitability for infiltration. The quality is measured as the coefficient of hydraulic conductivity as determined by standard testing methods.

Retention
The reduction in total runoff that results when stormwater is diverted and allowed to infiltrate into the ground through existing or engineered soil systems.

Runoff
Water from rainfall that flows over the land surface that is not absorbed into the ground.

Sedimentation
The deposition and/or settling of particles suspended in water as a result of the slowing of the water.

Stormwater
Water runoff from rain or snow resulting from a storm.

Transportation Corridor
A major arterial, state route, highway, or rail line used for the movement of people or goods by means of bus services, trucks, and vehicles. City of Whittier streets qualifying as transportation corridors may include (but are not limited to):

- Whittier Boulevard
- Beverly Boulevard
- Colima Road
- Washington Boulevard
- Norwalk Boulevard

The City Engineer shall determine whether a city street or a bike way qualifies as a transportation corridor for the purposes of applying the provisions of this Green Streets Manual.

SECTION 7 – REFERENCES

1. Los Angeles County Municipal Separate Storm Sewer (MS4) Permit (LARWQCB Order No. 12-2012-0175).
2. Los Angeles County. *Model for Living Streets Design Manual*. 2011.
3. U.S. Environmental Protection Agency (EPA). *Managing Wet Weather With Green Infrastructure Municipal Handbook: Green Streets*. December 2008.
4. Orange County. *Technical Guidance Document*. May 2011.
5. Whittier Municipal Code Chapter 8.36, "Stormwater Runoff and Pollution Control".
6. Whittier Parkway Tree Manual
7. Whitter Municipal Code Chapter 12.40 "Trees and Shrubs".

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ORDINANCE NO. 3013

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF WHITTIER, CALIFORNIA, AMENDING THE WHITTIER MUNICIPAL CODE CHAPTER 8.36, "STORMWATER AND RUNOFF POLLUTION CONTROL"

WHEREAS, The Municipal Separate Storm Sewer System (MS4) Permit (LARWQCB Order No. R-2012-0175) was adopted by the Los Angeles Regional Water Quality Control Board (LARWQCB) on November 8, 2012;

WHEREAS, the MS4 Permit requires the adoption of a Green Streets Policy and a Low Impact Development ("LID") Ordinance;

WHEREAS, on June 11, 2013, the City Council approved a Draft Whittier Green Streets Policy Manual and approved a Draft LID Ordinance; and

WHEREAS, City staff, a technical consultant, and the City Attorney have reviewed the Draft LID Ordinance and then prepared the following recommended revisions to the Whittier Municipal Code to bring it into conformance with the MS4 Permit.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF WHITTIER, CALIFORNIA, DOES ORDAIN AS FOLLOWS:

SECTION 1. 8.36.010 - STORMWATER AND RUNOFF POLLUTION CONTROL, of Title 8 (Storm Water), of the Whittier Municipal Code is hereby repealed and replaced in its entirety with the following text:

8.36.010 Title.

The ordinance codified in this chapter shall be known as the "Stormwater and Runoff Pollution Control Ordinance of the City of Whittier" and may be referred to as such.

8.36.020 Statutory authority.

The provisions of this chapter are adopted pursuant to the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251 et seq.

8.36.030 Purpose and intent.

The purpose of this chapter is to protect and improve water quality of receiving waters by:

A. Reducing illicit discharges to the municipal stormwater system to the maximum extent practicable;
B. Eliminating illicit connections to the municipal stormwater system;
C. Eliminating spillage, dumping, and disposal of pollutant materials into the municipal stormwater system;
D. Reducing pollutant loads in stormwater and urban runoff, from land uses and activities identified in the municipal NPDES permit.
E. Reducing the contribution of pollutants from the MS4 through interagency coordination

The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and acts amendatory thereof or supplementary thereto; applicable implementing regulations; the municipal NPDES permit and any amendment, revision or reissuance thereof.

8.36.040 Definitions.

For the purpose of the provisions of this chapter concerning water quality hereinafter set forth, the following words and phrases shall be construed to have the meanings set forth, unless it is apparent from the context that a different meaning is intended:

"Best management practices" or "BMPs" are practices or physical devices or systems designed to prevent or reduce pollutant loading from storm water or non-storm water discharges to receiving waters, or designed to reduce the volume of storm water or non-storm water discharged to the receiving water.

"Clean Water Act" means the Federal Water Pollution Control Act as amended, 33 U.S.C. 1251, et seq.

"Discharge" means any release, spill, leak, pumping, flow, escape, dumping, or disposal of any gas, liquid, semisolid or solid substance.

"Enforcing attorney" shall mean the city attorney or district attorney acting as counsel to the city and authorized to take enforcement action as described herein.

"Executive officer" means executive officer of the California Regional Water Quality Control Board, Los Angeles.

"Good housekeeping practice" means a best management practice related to the transfer, storage, use, or cleanup of materials performed in a regular manner that minimizes the discharge of pollutants to the storm drain system and/or receiving waters.

"Hearing officer" means the director of public works of the city of Whittier, who shall preside at the administrative hearings authorized by this chapter.

"Illicit connection" means any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections.

Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

"Illicit discharge" Any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illicit discharge includes any non-storm water discharge, except authorized non-storm water discharges; conditionally exempt non-storm water discharges; and non-storm water discharges resulting from natural flows specifically identified in Part III.A.1.d.

"Industrial activity" means any of the eleven classifications of industrial facilities specified in 40 Code of Federal Regulations Section 122.26(b)(14), defined by Standard Industrial Classification (SIC) and which is required to obtain a NPDES permit.

"Maximum extent practicable (MEP)"
In selecting BMPs which will achieve MEP, it is important to remember that municipalities will be responsible to reduce the discharge of pollutants in storm water to the maximum extent practicable. This means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive. The following factors may be useful to consider:

1. Effectiveness: Will the BMP address a pollutant of concern?
2. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?
3. Public acceptance: Does the BMP have public support?
4. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?
5. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc.?

After selecting a menu of BMPs, it is of course the responsibility of the discharger to insure that all BMPs are implemented.

"Municipal NPDES permit" California Regional Water Quality Control Board, Los Angeles Region. Order No. R4-2012-0175, NPDES Permit No. CAS004001 Waste Discharge Requirements For Municipal Separate Storm Sewer System (MS4) Discharge Within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating From the City of Long Beach MS4, and any amendment thereto or re-issuance thereof.

"Municipal stormwater system" or "MS4" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or

other public body (created by or pursuant to State law) having jurisdiction over disposal of
sewage, industrial wastes, storm water, or other wastes, including special districts under State
law such as a sewer district, flood control district or drainage district, or similar entity, or an
Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United
States;

(ii) Designed or used for collecting or conveying storm water;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §
122.2.

(40 CFR § 122.26(b)(8))

"Nonstormwater discharge" means any discharge to the storm drain system and/or receiving waters that is not composed entirely of stormwater.

"NPDES" or "National Pollutant Discharge Elimination System" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405. The term includes an "approved program."

"Owner" as applied to a building or real property, means any part owner, joint owner, tenant in common, tenant in partnership, joint tenant or tenant by the entirety of the whole or of a part of such building or real property.

"Person" means, within the context of this chapter, any natural person, firm, association, organization, partnership, business trust, corporation or company.

"Pollutant" those "pollutants" defined in CWA §502(6) (33.U.S.C.§1362(6)), and incorporated by reference into California Water Code §13373, and may include but is not limited to garbage, debris, lawn clippings, leaves, fecal waste, biological waste, sediment, sludge, manure, fertilizers, pesticides, oil, grease, gasoline, paints, solvents, cleaners, and any fluid or solid containing toxic or nontoxic chemicals, metals, including batteries.

"Public works director" means the director of public works of the city of Whittier.

"Receiving waters" means rivers, lakes, oceans, or other bodies of water that receive runoff.

"Regional Board" means the appointed members of the California Regional Water Quality Control Board, Los Angeles Region.

"Runoff" means Any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

"State Board" means the State Water Resources Control Board of the California Environmental Protection Agency (hereinafter "SWRCB").

"Stormwater runoff" means any surface water flow produced by rain or snow melt.

"Urban runoff" means surface water flow produced by non-storm water resulting from residential, commercial and industrial activities.

8.36.050 Illicit discharges and nonstormwater discharges.

A. No person shall cause or allow an illicit discharge to enter the municipal stormwater system.

B. Any person causing an illicit discharge to the MS4 may be required by the public works director to pay for the cost of clean-up and remediation.

C. Any owner of any private property from which a nonstormwater discharge is observed may be required by the public works director to pay for the cost of collecting and analyzing the discharge to determine if it is an illicit discharge.

D. The following non-storm water discharges are considered exempt or conditionally exempt illicit discharges:

   1. Discharges identified in Part III.A of the 2012 NPDES MS4 permit.

8.36.060 Illegal disposal/dumping.

No person shall intentionally place, litter, accumulate, maintain, discharge, or cause to enter into the MS4 any pollutant or any foreign object such as batteries, tires, waste receptacles, yard debris, refuse, rubbish, food waste, chemicals, animal waste or oil cans.

8.36.070 Illicit connections.

A. No person shall maintain or intentionally use a connection that operates to convey an illicit discharge to the municipal stormwater system.

B. Upon discovery of an illicit connection, the person owning or operating such connection shall either remove it or render it incapable of conveying an illicit discharge.

C. If any person fails to eliminate an illicit connection after being called upon by the city to do so, the public works director shall take appropriate measures to remove or disable the illicit connection and may recover such costs from the owner of such illicit connection.

8.36.080 Reduction of pollutants in runoff.

A. No person shall cause or threaten to cause the discharge of pollutants to the MS4 by exposing such pollutants to storm water runoff.

B. The owner of parking lot surfaces, public or private, with a capacity of twenty-five spaces or more, shall cause the parking lot surface to be cleaned as often as necessary to remove refuse, residual oil, grease, or other pollutants that might otherwise be discharged to the MS4 by runoff.

8.36.090 Control of pollutants from commercial facilities.

Commercial facilities specified in the municipal NPDES permit shall implement BMPs prescribed by the regional board or its executive officer, through programs or actions made pursuant to the municipal NPDES permit, or by the city's director of public works, to minimize the discharge of pollutants to the MS4.

8.36.100 Control of pollutants from industrial activities.

A. It shall be a violation of this chapter for any industry in the city that is subject to waste discharge requirements specified in the SWRCB Water Quality Control Board's Industrial General Permit (IGP) , to operate without a NPDES general industrial activities stormwater permit.

B. Industries that require a NPDES IGP shall retain on-site the following documents which evidence compliance with permit requirements: (1) a copy of the notice of intent for general permit to discharge stormwater associated with industrial activity as submitted to the State Board or a copy of the report of waste discharge (ROWD) as submitted to the Regional Board; (2) a waste discharge identification number issued by the SWRCB; (3) a stormwater pollution prevention plan and monitoring program plan; (4) any storm water quality data; and (5) evidence of facility self-inspection.

C. Any industry in the city requiring a NPDES IGP shall, upon reasonable request from a duly authorized officer of the city, provide any of the documents described in subsection B of this section.

D. Industrial facilities not subject to the NPDES Industrial General permit that are subject to pollution control requirements under the municipal NPDES permit, shall implement BMPs prescribed by the Regional Board or its executive officer, through programs or actions made pursuant to the Municipal NPDES Permit.

8.36.110 Control of pollutants from construction activities requiring general construction activity stormwater permit.

A. No person shall commence or continue any construction activity in the city that causes the disturbance of one acre or more of soil by clearing, grading, and excavating without demonstrating to the city that such person has obtained a NPDES Construction General Permit from the SWRCB. The NPDES Construction General Permit does not apply to the following construction activity:

(1) Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility;
(2) Disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and leveling, and soil preparation;
(3) Construction activity covered by an individual NPDES Permit for storm water discharges;
(4) Landfill construction activity that is subject to the Industrial General Permit; or
(5) Construction activity that discharges to Combined Sewer Systems.

In the case of a public emergency that requires immediate construction activities, a discharger shall submit a brief description of the emergency construction activity within five days of the onset of construction, and then shall submit all PRDs within thirty days.

B. Any person engaged in a construction activity in the city requiring a NPDES construction permit shall retain at the construction site the following documents: (1) a copy of the notice of intent to comply with terms of the general permit to discharge water associated with construction activity; (2) a waste discharge identification number issued by the SWRCB; (3) a stormwater pollution prevention plan and monitoring program plan for the construction activity requiring the construction permit; and (4) records of all inspections, compliance and noncompliance reports, evidence of self-inspection and good house keeping practices.

C. Any person engaged in a construction activity in the city requiring a general construction stormwater activity permit shall, upon reasonable request from a duly authorized officer of the city, provide any of the documents specified in subsection B of this section and shall retain said documents for at least three years after completion of construction.

D. Construction activity not subject to the NPDES Industrial General permit that are subject to pollution control requirements under the Municipal NPDES Permit, shall implement BMP's prescribed by the Regional Board or its executive officer, through programs or actions made pursuant to the Municipal NPDES Permit.

8.36.120 Control of pollutants from other construction activities.

Any person engaged in a construction activity subject to Municipal NPDES Permit, shall be required to implement BMPs specified by the Regional Board, its executive officer, or the city's public works director.

8.36.130 Control of pollutants from new developments.

A. Prior to the construction of a development or new development project, such project shall be evaluated by the city for its potential to discharge pollutants to the MS4 based on its intended land use. Such evaluation shall be conducted in accordance with development planning requirements established by the Regional Board or its executive officer, pursuant to the Municipal NPDES Permit.

B. Once a development or new development project has been evaluated for its potential to discharge pollutants to the MS4, the city shall require appropriate BMPs to be implemented during construction and following project completion in order to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations. The prescription of BMPs shall be in keeping with requirements established by the regional board or its executive officer, pursuant to the Municipal NPDES Permit.

C. All structural BMPs are required to be properly operated and maintained according to product specifications and site characteristics to maintain effectiveness in reducing the discharge of pollutants. Documentation on operation and maintenance activities shall be retained onsite at all times, and made available upon request by an authorized enforcement officer.

8.36.140 Inspection.

A. Authority to Inspect. The director of public works and his designees (hereinafter "authorized officers") are authorized and directed to enforce all provisions of this chapter. Prior to commencing any inspection, the authorized enforcement officer shall obtain either the consent of the owner or occupant of the property or shall obtain an administrative inspection or criminal search warrant.

B. Authority to Conduct Sampling and Establish Sampling Devices. With the consent of the owner or occupant or pursuant to a search warrant, any authorized enforcement officer may establish on any property such devices as necessary to conduct sampling or monitoring activities necessary to determining the concentrations of pollutants in storm water and/or non-storm water runoff. During all inspections as provided herein, the authorized enforcement officer may take any samples deemed necessary to aid in the pursuit of the inquiry or in the recordation of the activities on-site.

C. Requirement to Sample or Monitor. Any authorized enforcement officer may request that any person engaged in any activity and/or owning or operating any facility which may cause or contribute to stormwater pollution or contamination, illicit discharges, and/or discharge of non-storm water to the stormwater system, undertake such monitoring activities and/or analyses and furnish such reports as the authorized enforcement officer may specify. The burden, including costs, of these activities, analyses and reports shall be paid by the owner of the property and bear a reasonable relationship to the need for the monitoring, analyses and reports and the benefits to be obtained.

8.36.150 Enforcement.

A. Criminal Sanctions.

1. Penalty for Violation. It is unlawful for any person to violate any provisions or fail to comply with any of the requirements of this chapter. Any violation of the provisions of this chapter shall be deemed an infraction, and may be punished as such, notwithstanding the fact that at the discretion of the enforcing attorney, the violation of any section of this chapter may be filed as a misdemeanor or an infraction. The complaint charging such violation shall specify whether the violation is a misdemeanor or an infraction.

2. Prosecutor. The enforcing attorney may act on the request of the city manager or his/her designee, to pursue enforcement actions in accordance with the provisions of this chapter.

B. Administrative Remedies. The authorized enforcement officer may, in his/her discretion, issue either a notice of noncompliance or a cease and desist order as hereinafter described. In determining which remedy option to pursue, the authorized enforcement officer may consider the severity of the discharge or violation, the potential for irreparable harm which may be caused by the discharge or violation, and/or whether the owner, occupant or responsible person is a repeat offender of the same or similar violation.

1. Notice of Noncompliance. The authorized enforcement officer may deliver to a permittee, the owner or occupant of any property, or to any person responsible for an illicit connection or prohibited discharge, or any other violation of this chapter, a notice of noncompliance. The notice of noncompliance shall be delivered in accordance with subsection (B)(4) of this section.

   a. The notice of noncompliance shall identify the provision(s) of this chapter and/or the applicable permit, which has been violated. The notice of noncompliance shall state that continued noncompliance may result in additional enforcement actions against the owner, occupant and/or person.

   b. The notice of noncompliance shall state a compliance date that must be met by the owner, occupant and/or person provided, however, that the compliance date may not exceed ninety days unless the authorized enforcement officer extends the compliance deadline up to an additional ninety days where good cause exists for an extension.

c. The notice of noncompliance may include the following terms and requirements:

   i. Specific steps and time schedules for compliance as reasonably necessary to eliminate an existing prohibited discharge and/or to prevent the imminent threat of a prohibited discharge including, but not limited to, a prohibited discharge from any pond, pit, well, surface impoundment, holding or storage area;

   ii. Specific steps and time schedules for compliance as reasonably necessary to discontinue any illicit connection;

   iii. Specific requirements for containment, cleanup, removal, storage, handling, use, proper disposal, and treatment of any pollutant having the potential to contact storm water or non-storm water runoff;

   iv. Any other terms or requirements reasonably calculated to prevent the imminent threat of or continuing violations of this chapter including, but not limited to, requirements for compliance with best management practices guidance documents promulgated by any federal, state of California or regional agency; and

   v. Any other terms or requirements reasonably calculated to achieve full compliance with the terms, conditions and requirements of any permit issued pursuant hereto.

2. Cease and Desist Orders. The authorized enforcement officer may issue a cease and desist order. A cease and desist order shall be delivered in accordance with subsection (B)(4) of this section. A cease and desist order may direct a permittee, the owner or occupant of any property and/or other person responsible for a violation of this chapter to:

   a. Immediately discontinue any illicit connection or prohibited discharge to the stormwater drainage system;

   b. Immediately contain or divert any flow of water off the property, where the flow is occurring in violation of any provision of this chapter;

   c. Immediately discontinue any other violation of this chapter;

   d. Clean up or remediate the area affected by the violation; or

   e. Immediately cease any activity not in compliance with the terms, conditions and requirements of the permit issued pursuant to this chapter.

3. Recovery of Costs. The authorized enforcement officer may deliver to the owner or occupant of any property, any permittee or any other person who has failed to comply with either a notice of noncompliance or a cease and desist order, an invoice for costs (invoice of cost) for reimbursement of the city's actual costs incurred in issuing and enforcement of any provision of this chapter.

Actual costs shall include, but are not limited to, the cost to the city for the reinspection of the property, preparation, issuance and enforcement of any subsequent notice or order. The invoice of cost shall not apply to the first reinspection after service of the notice or order if the owner or occupant of any property, the permittee or person has corrected all violations as set forth in the notice or order. The costs charged herein are intended to compensate for administration costs and not for enforcement of the law.

The invoice for costs shall be due and payable to the city within thirty days from the date of service. If any owner, occupant, permittee or person fails to pay the invoice for costs or file a timely appeal pursuant to subsections (B)(5) through (B)(9) of this section then the enforcing attorney may institute collection proceedings.

4. Delivery of Notice. Any notice of noncompliance, cease and desist order, notice of legal nonconforming connection or invoice of costs (hereinafter, collectively referred to as the "notice") shall be delivered pursuant to the following requirements:

   a. The notice shall state that the recipient has a right to appeal the matter as set forth in subsections (B)(5) through (B)(9) of this section;

   b. Delivery shall be deemed complete upon: (i) personal service to the recipient, (ii) deposit in the U.S. mail, postage pre-paid for first class delivery, or (iii) facsimile service with confirmation of receipt;

   c. Where the recipient of notice is the owner of the property, the address for notice shall be the address from the most recently issued equalized assessment roll for the property or as otherwise appears in the current records of the city;

   d. Where the recipient is a permittee, the address for notice shall be the address set forth on the application for a permit; and

   e. Where the owner or occupant of any property cannot be located after the reasonable efforts of the authorized enforcement officer, a notice shall be deemed delivered after posting said notice on the property for a period of ten business days.

5. Administrative Hearing. Except as set forth in subsection (B)(7) of this section any person receiving a notice, or any person who is subject to any adverse determination made pursuant to this chapter, may appeal the matter by requesting an administrative hearing as set forth below. Notwithstanding the foregoing, these administrative appeal procedures shall not apply to criminal proceedings initiated to enforce this chapter.

6. Request for Administrative Hearing. Any person appealing a notice or an adverse determination shall, within thirty days of receipt thereof, file a written request for an administrative hearing with the office of the city clerk, accompanied by an administrative hearing fee as established by separate resolution. A copy of the request for administrative hearing shall also be mailed

on the date of filing to the hearing officer. Thereafter, a hearing on the matter shall be held before the hearing officer within forty-five business days of the date of filing of the written request unless, in the reasonable discretion of the hearing officer and pursuant to a written request by the appealing party, a continuance of the hearing is granted.

7. Administrative Hearing for Cease and Desist Orders and Emergency Abatement Actions. An administrative hearing on the issuance of a cease and desist order or following an emergency abatement action shall be held within five business days following the issuance of the order or the action of abatement, unless the hearing (or the time requirement for the hearing) is waived in writing by the party subject to the cease and desist order or the emergency abatement. A request for an administrative hearing shall not be required from the person subject to the cease and desist order or the emergency abatement action.

8. Hearing Proceedings. The authorized enforcement officer shall appear in support of the notice, determination or emergency abatement action and the appealing party shall appear in opposition of the notice, determination or emergency abatement action. Each party shall have the right to present testimony and other documentary evidence as necessary for explanation of the case. The decision of the hearing officer shall be issued within ten business days of the conclusion of the hearing and shall be delivered by first-class mail, postage prepaid, to the appealing party.

Notwithstanding the above, the decision of the hearing officer in any preceding determining the validity of a cease and desist order or following an emergency abatement action shall be mailed within five business days following the conclusion of the hearing. However, all other provisions in this chapter regarding appeal procedures shall apply to cease and desist orders.

9. Final Decision and Appeal to the City Manager. A person may appeal the decision of the hearing officer by filing a written notice of appeal with the city manager's office within ten business days from the date of mailing of the hearing officer's decision. The appeal shall be scheduled for city manager or his/her designee action in accordance with customary filing deadlines for projects submitted to the city manager. The notice of appeal shall state in detail the factual basis for the appeal. The city manager shall consider the appeal not less than ten, nor more than forty-five days, following the filing of the appeal. The city manager may continue the hearing date where necessary. At the time and place set for such appeal hearing, the city manager shall hold a de novo hearing. If the city manager finds from the relevant evidence at the hearing that the action taken was in conformance with the provisions of this chapter, it shall require compliance with the hearing officer's decision. A copy of the city

manager's decision shall be mailed to the appellant within five working days after adoption thereof.

The decision of the city manager shall be final. The decision must include notice that any legal challenge to the final decision shall be made pursuant to the provisions of Code of Civil Procedure Section 1094.5 and Section 1094.6 and shall be commenced within ninety days following issuance of the final decision. The administrative hearing fee paid by a prevailing party in an appeal shall be refunded.

10. City Abatement. In the event the owner or occupant of property, the operator of a facility, a permittee or any other person fails to comply with any provision of a compliance schedule issued to such owner, occupant, operator, permittee or person pursuant to this chapter, the authorized enforcement officer may request the enforcing attorney to obtain an abatement warrant or other appropriate judicial authorization to enter the property, abate the condition and restore the property. Any costs incurred by the city in obtaining and carrying out an abatement warrant or other judicial authorization may be recovered pursuant to subsection (C)(4) of this section.

C. Nuisance. Any condition in violation of this chapter including, but not limited to, the maintenance or use of any illicit connection or the occurrence of any prohibited discharge, shall constitute a threat to the public health, safety and welfare, and is declared and deemed a nuisance pursuant to Government Code Section 38771. At the request of the city manager or his/her designee, the enforcing attorney may seek a court order to enjoin and/or abate the nuisance.

1. Court Order to Enjoin and/or Abate. At the request of the city manager or his/her designee, the enforcing attorney may seek a court order to enjoin and/or abate the nuisance.

2. Notice to Owner and Occupant. Prior to seeking any court order to enjoin or abate a nuisance or threatened nuisance, the authorized enforcement officer shall provide notice of the proposed injunction or abatement to the owner and occupant, if any, of the property where the nuisance or threatened nuisance is occurring.

3. Emergency Abatement. In the event the nuisance constitutes an imminent danger to public health and/or safety or the environment, the city manager or his/her designee may enter the property from which the nuisance emanates, abate the nuisance and restore any property affected by the nuisance. To the extent reasonably practicable, informal notice shall be provided to the owner or occupant prior to abatement. If necessary to protect the public health and/or safety or the environment, abatement may proceed without prior notice to or consent from the owner or occupant thereof and without judicial warrant.

An imminent danger shall include, but is not limited to, exigent circumstances created by the dispersal of pollutants, where the same presents a significant and immediate threat to the public health and/or safety of the environment. Notwithstanding the authority of the city to conduct an emergency abatement action, the administrative hearing and appeal procedures pursuant to subsections (B)(5) through (B)(9) of this section shall follow the abatement action.

4. Reimbursement of Costs. All costs incurred by the city in responding to any nuisance, all administrative expenses and all other expenses recoverable under state law shall be recoverable from the person(s) creating, causing, committing, permitting or maintaining the nuisance.

5. Nuisance Lien. All costs shall become a lien against the property from which the nuisance emanated and a personal obligation against the owner thereof in accordance with Government Code Section 38773.1 and Section 38773.5. The owner of record of the property subject to any lien shall be given notice of the lien prior to recording as required by Government Code Section 38773.1.

   At the direction of the city manager or his/her designee, the enforcing attorney may be authorized to collect nuisance abatement costs or enforce a nuisance lien in an action brought for a money judgement or by delivery to the county assessor of a special assessment against the property in accordance with the conditions and requirements of Government Code Section 38773.5.

D. Consecutive Violations. Each day in which a violation occurs and each separate failure to comply with either a separate provision of this chapter, a notice of noncompliance, a cease and desist order or a permit issued pursuant to this chapter shall constitute a separate violation of this chapter punishable by fines or sentences issued in accordance herewith.

E. Nonexclusive Remedies. Each and every remedy available for the enforcement of this chapter shall be nonexclusive and it is within the discretion of the authorized enforcement officer or enforcing attorney to seek cumulative remedies, except that multiple monetary fines or penalties shall not be available for any single violation of this chapter.

F. Violations of Other Laws. Any person acting in violation of this chapter also may be acting in violation of the Federal Clean Water Act or the State Porter-Cologne Act and other laws and also may be subject to sanctions including civil liability. Accordingly, the enforcing attorney is authorized to file a citizen suit, pursuant to Federal Clean Water Act Section 505(a), seeking penalties, damages, and orders compelling compliance, and other appropriate relief. The enforcing attorney may notify Regional Board or any other appropriate state or local agency, of any alleged violation of this chapter.

G. Injunctions. At the request of the city manager or his/her designee, the enforcing attorney may file in a court of competent jurisdiction a civil action seeking an injunction against any threatened or continuing noncompliance with the provisions of this chapter. Any temporary, preliminary or permanent injunction issued pursuant hereto may include an order for reimbursement to the city of all costs incurred in enforcing this chapter including costs of inspection, investigation and monitoring, the costs of abatement undertaken at the expense of the city, costs relating to restoration of the environment and all other expenses as authorized by law.

H. Other Civil Remedies.

1. The city manager or his/her designee may cause the enforcing attorney to file an action for civil damages in a court of competent jurisdiction seeking recovery of: (a) all costs incurred in enforcement of the chapter including, but not limited to, costs relating to investigation, sampling, monitoring, inspection, administrative expenses, all other expenses as authorized by law and consequential damages, (b) all costs incurred in mitigating harm to the environment or reducing the threat to human health, and (c) damages for irreparable harm to the environment.

2. The enforcing attorney is authorized to file actions for civil damages resulting from any trespass or nuisance occurring on public land or to the MS4 from any violation of this chapter where the same has caused damage, contamination or harm to the environment, public property or the MS4.

I. Whenever necessary, interagency coordination will be employed to enforce the provisions of this chapter.

SECTION 2. Any provision of the Whittier Municipal Code or appendices thereto inconsistent with the provisions of the Ordinance, to the extent of such inconsistencies and no further, are repealed or modified to that extent necessary to affect the provisions of this Ordinance.

SECTION 3. If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council of the City of Whittier hereby declares that it would have adopted this Ordinance and each section, subsection, sentence, clause, phrase or portion thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases, or portions be declared invalid or unconstitutional.

SECTION 4. The Mayor shall sign and the City Clerk shall attest to the passage of this Ordinance. The City Clerk shall cause the same to be published once in the official newspaper within 15 days after its adoption. This Ordinance shall become effective 30 days from its adoption.

APPROVED AND ADOPTED this 12th day of November 2013.

BOB HENDERSON, Mayor

ATTEST:

KATHRYN A. MARSHALL
City Clerk-Treasurer

CITY OF WHITTIER)
) SS
STATE OF CALIFORNIA)

I, Kathryn A. Marshall, City Clerk-Treasurer in and for the City of Whittier, California, hereby certify that the foregoing ordinance was duly introduced at a regular meeting of the City Council of the City of Whittier on the 22nd day of October 2013, and adopted at a regular meeting of the City Council of the City of Whittier on the 12th day of November 2013 by the following roll call vote:

AYES:	J.A. Vinatieri	F. Dutra	O. Newcomer
	C. Warner	R.L. Henderson	
NOES:	None		
ABSENT:	None		

WITNESS my hand and the official seal of the City of Whittier, California, this 18th day of November 2013.

Kathryn A. Marshall
KATHRYN A. MARSHALL
City Clerk-Treasurer

Published as required by law: November 26, 2013.

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CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

October 30, 2014

Lower San Gabriel River Watershed Management Group
(See Distribution List)

REVIEW OF THE LOWER SAN GABRIEL RIVER WATERSHED MANAGEMENT AREA DRAFT WATERSHED MANAGEMENT PROGRAM, PURSUANT TO PART VI.C OF THE LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NPDES PERMIT NO. CAS004001; ORDER NO. R4-2012-0175) AND PART VII.C OF THE LONG BEACH MS4 PERMIT (NPDES PERMIT NO. CAS004003; ORDER NO. R4-2014-0024)

Dear Lower San Gabriel River Watershed Management Group:

The Regional Water Board has reviewed the draft Watershed Management Program (WMP) submitted on June 30, 2014 by the Lower San Gabriel River Watershed Management Group. This program was submitted pursuant to the provisions of NPDES Permit No. CAS004001 (Order No. R4-2012-0175), which authorizes discharges from the municipal separate storm sewer system (MS4) operated by 86 municipal Permittees within Los Angeles County (hereafter, LA County MS4 Permit). The LA County MS4 Permit allows Permittees the option to develop either a Watershed Management Program (WMP) or Enhanced Watershed Management Program (EWMP) to implement permit requirements on a watershed scale through customized strategies, control measures, and best management practices (BMPs). Development of a WMP or EWMP is voluntary and may be developed individually or collaboratively.

NPDES Permit No. CAS004003 (Order No. R4-2014-0024) authorizes MS4 discharges from the City of Long Beach (hereafter, Long Beach MS4 Permit). The Long Beach MS4 Permit similarly allows for the City of Long Beach to develop either a WMP or EWMP to implement permit requirements, with the option of collaborating with LA County MS4 Permit Permittees. For simplicity, this letter and its enclosures cite provisions in the LA County MS4 Permit, though the City of Long Beach is a member of the Lower San Gabriel River Watershed Management Group and is permitted under its own individual permit.

The purpose of a WMP or EWMP is for a Permittee to develop and implement a comprehensive and customized program to control pollutants in MS4 discharges of stormwater and non-stormwater to address the highest water quality priorities. These include complying with the required water quality outcomes of Part V.A (Receiving Water Limitations) and Part VI.E and Attachments L through R (Total Maximum Daily Load (TMDL) Provisions) of the LA County MS4 Permit. If a Permittee opts to develop a WMP or EWMP, the WMP or EWMP must meet the requirements, including conducting a Reasonable Assurance Analysis (RAA), of Part VI.C (Watershed Management Programs) of the LA County MS4 Permit and must be approved by the Regional Water Board.

As stated above, on June 30, 2014, the Lower San Gabriel River Watershed Management Group submitted a draft WMP to the Regional Water Board pursuant to Part VI.C.4.c of the LA County MS4 Permit.

The Regional Water Board has reviewed the draft WMP and has determined that, for the most part, the draft WMP includes the elements and analysis required in Part VI.C of the LA County MS4 Permit. However, some revisions to the City's draft WMP are necessary. The Regional Water Board's comments on the draft WMP, including detailed information concerning necessary revisions to the draft WMP, are found in Enclosure 1 and Enclosure 2, respectively. The LA County MS4 Permit includes a process through which necessary revisions to the draft WMP can be made (Part VI.C.4 in the LA County MS4 Permit). The process requires that a final WMP, revised to address Regional Board comments identified in the enclosures, must be submitted to the Regional Water Board not later than three months after comments are received by the Permittees on the draft program. Please make the necessary revisions to the draft WMP as identified in the enclosures to this letter and submit the revised WMP as soon as possible and no later than **January 30, 2015.**

The revised WMP must be submitted to losangeles@waterboards.ca.gov with the subject line "LA County MS4 Permit – Revised Draft Lower San Gabriel River WMP" with a copy to Ivar.Ridgeway@waterboards.ca.gov and Chris.Lopez@waterboards.ca.gov.

If the necessary revisions are not made, the Lower San Gabriel River Cities will be subject to the baseline requirements in Part VI.D of the Order and shall demonstrate compliance with receiving water limitations pursuant to Part V.A and with applicable interim and final water quality-based effluent limitations (WQBELs) in Part VI.E and Attachment P pursuant to subparts VI.E.2.d.i.(1)-(3) and VI.E.2.e.i.(1)-(3), respectively.

Until the draft Lower San Gabriel River WMP is approved, the Cities are required to:

(a) Continue to implement all watershed control measures in its existing storm water management programs, including actions within each of the six categories of minimum control measures consistent with Title 40, Code of Federal Regulations, section 122.26(d)(2)(iv);
(b) Continue to implement watershed control measures to eliminate non-storm water discharges through the MS4 that are a source of pollutants to receiving waters consistent with Clean Water Act section 402(p)(3)(B)(ii); and
(c) Target implementation of watershed control measures in (a) and (b) above to address known contributions of pollutants from MS4 discharges to receiving waters.

In addition on June 30, 2014, the Lower San Gabriel River Watershed Management Group submitted a draft Coordinated Integrated Monitoring Program (CIMP) to the Regional Water Board pursuant to Part IV.C of Attachment E of the LA County MS4 Permit. The Regional Water Board review and comments on the draft CIMP will be provided under separate cover.

If you have any questions, please contact Mr. Chris Lopez of the Storm Water Permitting Unit by electronic mail at Chris.Lopez@waterboards.ca.gov or by phone at (213) 576-6674. Alternatively, you may also contact Mr. Ivar Ridgeway, Chief of the Storm Water Permitting Unit, by electronic mail at Ivar.Ridgeway@waterboards.ca.gov or by phone at (213) 620-2150.

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer

Enclosures:

Enclosure 1 – Summary of Comments and Necessary Revisions
Enclosure 2 – Comments on Reasonable Assurance Analysis

cc: John Hunter, John L. Hunter and Associates, Inc.

Enclosure 1 to October 30, 2014 Letter Regarding the Lower San Gabriel River Watershed Management Group's Draft Watershed Management Program

Summary of Comments and Necessary Revisions to Draft Watershed Management Program

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.1.d (Purpose of Watershed Management Program)	Section 1.1 of the draft WMP states, "the goal of these requirements is to reduce the discharge of pollutants from MS4s to the maximum extent practicable." The goal of the three permits and of a WMP is broader than presented (p. 1-1). Per Part VI.C.1.d of the LA County MS4 Permit, the goals of the Watershed Management Programs are to "... ensure that discharges from the Permittee's MS4: (i) achieve applicable water quality-based effluent limitations in Part VI.E and Attachments L through R pursuant to the corresponding compliance schedules, (ii) do not cause or contribute to exceedances of receiving water limitations in Parts V.A and VI.E and Attachments L through R, and (iii) do not include non-storm water discharges that are effectively prohibited pursuant to Part III.A. The programs shall also ensure that controls are implemented to reduce the discharge of pollutants to the maximum extent practicable (MEP) pursuant to Part IV.A.1." The revised WMP needs to acknowledge the broader goals set forth in the permit.
Part VI.C.5.a.ii.(1) (Category 1 Pollutants)	The MS4 permit requires WMPs to include the applicable numeric WQBELs for each approved TMDL within the WMA. These should be clearly listed within the WMP. They are currently identified in the RAA in Tables 5-4 and 5-5, but do not appear presented in the main document.
Part VI.C.5.a.ii.(2)-(3) (Categories 2 and 3 Pollutants)	The WMP needs to specify the applicable receiving water limitations for Category 2 water body pollutant combinations. These should be clearly listed within the WMP. It appears these are listed in Tables 2-3 to 2-11 in association with monitoring site specific summaries of exceedances of water quality objectives; however, it would provide greater clarity to also summarize them in a single table.

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.a.iii.(1)(a)(vii) (Source Assessment)	The MS4 Permit requires a map of the MS4 including major outfalls and major structural controls. Appendix H of the CIMP provides maps showing the major outfalls and Appendix D of the draft WMP provides a tabular list of existing and proposed BMPs. The revised WMP should include a map (or GIS project file) of these BMPs as well. Also, the outfall database should be submitted with the revised WMP. In addition, Section VII.A of Attachment E to the MS4 Permit requires maps of the drainage areas associated with the outfalls and these were not provided. Section 1.3.2 of the WMP does note that 107 catchments are located in the watershed, and maps showing these drainage areas should be provided. If these are not readily available, a process and timeline for developing this spatial information should be included in the revised WMP.
Part VI.C.5.a.iv (Watershed Control Measures)	Where data indicate impairment or exceedances of RWLs and the findings from the source assessment implicate discharges from the MS4, the Permit requires a strategy for controlling pollutants that is sufficient to achieve compliance as soon as possible. Although Section 3 includes a compliance strategy, the program needs to more clearly demonstrate that the compliance schedules (Section 5) ensure compliance is "as soon as possible." The WMP needs to provide a clear schedule that demonstrates implementation of the BMPs will achieve the required interim metal reductions by the compliance deadlines. The WMP schedule should at the least provide specificity on actions within the current and next permit terms. Also, given the Gateway Proposition 84 project has received funding as of May 2014, and sites have been identified for BMP installation, it would be reasonable to update the WMP to contain project milestones and implementation timeframes for projects that will be implemented under this grant.

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.b.iv.(5)(c) (Selection of Watershed Control Measures)	For waterbody-pollutant combinations not addressed by TMDLs, the MS4 Permit requires that the plan demonstrate using the reasonable assurance analysis (RAA) that the activities and control measures to be implemented will achieve applicable receiving water limitations as soon as possible. The RAA demonstrates the control measures would be adequate to comply with the limitations/deadlines for the "limiting pollutants" for TMDLs and concludes that this will ensure compliance for all other pollutants of concern. However, it does not address the question of whether compliance with limitations for pollutants not addressed by TMDLs could be achieved in a shorter time frame.
Part VI.C.5.b.iv.(1)(a)(ii) (Minimum Control Measures – Industrial/Commercial Facilities Program)	The Group proposes to alter the commercial and industrial facility inspection frequencies in Parts VI.D.6.d and VI.D.6.e of the LA County MS4 Permit. The proposed modification includes a prioritization process in which the member Cities rate applicable facilities as high, medium, or low priority. High priority facilities are inspected more frequently and low priority facilities are inspected less frequently. The prioritization scheme included in Figure ICF-2 prioritizes facilities by their potential water quality impact. However, the draft WMP also notes that Cities "may follow an alternative prioritization method provided it results in a similar three-tiered scheme." The revised WMP should ensure that any alternative prioritization method used by a City must also be based on water quality impact. No statement to this effect was included. Furthermore, the draft WMP also notes that Cities can prioritize and reprioritize facilities at any time based on their discretion. The Group should revise their draft WMP to clearly state when the initial prioritization of facilities will occur. Additionally, the Group should be explicitly clear that during any reprioritization, the ratio of low priority to high priority facilities must always remain at 3:1 or lower to maintain inspection frequencies identified in the draft WMP.
Part VI.C.5.b.iv.(4)(b)-(c) (Selection of Watershed Control Measures)	The RAA identifies potential areas for green street conversion and assumes a 30% conversion of the road length in the suitable areas; however, the specific locations and projects are not identified. Although it may not be possible to provide detailed information on specific projects at this time, the WMP should at least commit to the construction of the necessary number of projects to ensure compliance with permit requirements per applicable compliance schedules.

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.b.iv.(4)(d) (Watershed Control Measures – Milestones)	The MS4 Permit requires that the WMP provide specificity with regard to structural and non-structural BMPs, including the number, type, and location(s), etc. adequate to assess compliance. In a number of cases, additional specificity on the number, type and general location(s) of watershed control measures as well as the timing of implementation for each is needed. (Regional Water Board staff notes, for example, that many watershed control measures in the implementation schedule only reference the year (or years) that a measure or milestone will be implemented. This should be revised to include more specific and/or exact dates where appropriate.) Additionally, many watershed control measures in the implementation schedule are ongoing measures that are not new interim milestones (e.g. MCMs, implementation of SB 346, enhanced street sweeping, etc.). For transparency, Regional Water Board staff recommends that ongoing measures clearly be separated from interim milestones for structural controls and non-structural BMPs in the implementation schedule. Regional Water Board staff recognizes uncertainties may complicate establishment of specific implementation dates, however there should at least be more specificity on actions within the current and next permit terms to ensure that the following interim requirements are met: (1) a 10% reduction in metals loads during wet weather and a 30% reduction in dry weather by 2017 and (2) a 35% reduction in metals loads during wet weather and a 70% reduction during dry weather by 2020.
Part VI.C.5.b.iv.(4)(c) (Watershed Control Measures – SB 346 Copper Reductions)	The draft WMP appears to rely mostly on the phase-out of copper in automotive brake pads, via approved legislation SB 346, to achieve the necessary copper load reductions. Given the combination of other Cu sources identified in various LA TMDLs such as building materials, other vehicle wear, air deposition from fuel combustion and industrial facilities, and that SB 346 progressively phases out Cu content in brakes of new cars (5% by weight until 2021, 0.5% by weight until 2025), then other structural and non-structural BMPs may still be needed to reduce Cu loads sufficiently to achieve compliance deadlines for interim and/or final WQBELs.

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Limiting Pollutant)	The RAA identifies zinc as the limiting pollutant and notes that this pollutant will drive reductions of other pollutants. If the Group believes that that this approach demonstrates that activities and control measures will achieve applicable receiving water limitations, it should explicitly state and justify this for each category 1, 2, and 3 pollutant.
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – New Non-Structural Controls)	The draft assumes a 10% pollutant reduction from new non-structural controls. Although 10% is a modest fraction of the overall controls necessary, additional support for this assumption should be provided, particularly since the group appears to be relying almost entirely on these controls for near-term pollutant reductions to achieve early interim milestones/deadlines. Additionally, as part of the adaptive management process, the Permittees should commit to evaluate this assumption during program implementation and develop alternate controls if it becomes apparent that the assumption is not supported.
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Irrigation Reductions)	For dry weather, the WMP assumes a 25% reduction in irrigation (RAA, section 7.1.2). Additional support should be provided for this assumption, particularly since the group appears to be relying almost entirely on this non-structural BMP for near-term pollutant reductions to meet early interim milestones/deadlines. Additionally, as part of the adaptive management process, the Permittees need to commit to evaluate this assumption during program implementation and develop alternate controls if it becomes apparent that the assumption is not supported.
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Regional BMPs)	Section 1.4.2 of Attachment A to the RAA points out that additional potential regional BMPs were identified to provide the remaining BMP volume noted in Table 9-4. It indicates they can be found in Section 4 of the WMP (actually, they are found in Section 3). The RAA should clarify that sufficient sites were identified so that the remaining necessary BMP volume can be achieved by those sites that were not "excluded for privacy."

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Permitted Industrial Facilities)	The draft WMP, including the RAA, excludes stormwater runoff from non-MS4 facilities within the WMA from the stormwater treatment target. In particular, industrial facilities that are permitted by the Water Boards under the Industrial General Permit or an individual stormwater permit were identified and subtracted from the treatment target. Regional Water Board staff recognizes that this was done with the assumption that these industrial facilities will retain their runoff and/or eliminate their cause/contribution to receiving water exceedances, as required by their respective NPDES permit. However, it is important that the Group's actions under its Industrial/Commercial Facilities Program—including tracking critical industrial sources, educating industrial facilities regarding BMP requirements, and inspecting industrial facilities—ensure that all industrial facilities are implementing BMPs as required.

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Caltrans Facilities)	The draft WMP, including the RAA, takes a similar approach for areas under the jurisdiction of the California Department of Transportation (Caltrans). Caltrans facilities that are permitted under the Caltrans MS4 permit (Order No. 2012-0011-DWQ) were also identified and subtracted from the treatment target. It should be noted that the Amendment to the Caltrans Permit (Order WQ 2014-0077-DWQ) includes provisions to address TMDL requirements throughout the state. Revisions to Attachment IV of the Caltrans Permit require that Caltrans prioritize all TMDLs for implementation of source control measures and BMPs, with prioritization being "consistent with the final TMDL deadlines to the extent feasible." Additionally, the Caltrans Permit also includes provisions for collaborative implementation through Cooperative Implementation Agreements between Caltrans and other responsible entities to conduct work to comply with a TMDL. By contributing funds to Cooperative Implementation Agreements and/or the Cooperative Implementation Grant Program, Caltrans may receive credit for compliance units, which are needed for compliance under the Caltrans Permit. In a similar manner, the LA County MS4 Permit includes provisions for Permittees to control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other MS4 owners—such as Caltrans—to successfully implement the provisions of the Order (see Parts VI.A.2.a.viii and VI.A.4.a.iii). Therefore, the Group should ensure that it is closely coordinating with appropriate Caltrans District staff regarding the identification and implementation of watershed control measures to achieve water quality requirements (i.e. applicable Receiving Water Limitations and WQBELs). Regional Water Board staff recognizes that the Group has taken the initial steps for such collaboration since Caltrans participates in the Group.

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.b.iv.(4)(a) (Watershed Control Measures, page 63)	In Section 3.4.1.1, the draft WMP states, "[a]s recognized by the footnote in Attachment K-4 of the Permit, the Participating Agencies have entered into an Amended Consent Decree with the United States and the State of California, including the Regional Board, pursuant to which the Regional Board has released the Participating Agencies from responsibility for toxic pollutants in the Dominguez Channel and the Greater Los Angeles and Long Beach Harbors." This statement misinterprets the Regional Water Board's findings. Footnote 1 to Table K-4 of the LA County MS4 Permit states, "[t]he requirements of this Order to implement the obligations of this TMDL do not apply to a Permittee to the extent that it is determined that the Permittee has been released from that obligation pursuant to the Amended Consent Decree entered in United States v. Montrose Chemical Corp., Case No. 90-3122 AAH (JRx)." As stated in the responses to comments received on the Dominguez Channel and Greater Harbor Waters Toxic Pollutants TMDL, "...primarily one pollutant, DDT, is associated with the Superfund site and also addressed by the TMDL. The TMDL addresses numerous pollutants and utilizes a different process than Superfund. The other pollutants – heavy metals, PAHs, PCBs and other legacy pesticides are not within Superfund's focus at the Montrose OU2 Site..." Further, the WQBELs in Attachment P, Part E of the LA County MS4 Permit and Part VIII.P of the Long Beach MS4 Permit are for ongoing discharges from the MS4, not for the historic contamination of the bed sediments. Therefore, the statement in the draft WMP incorrectly concludes that the aforementioned Consent Decree releases MS4 Permittees from any obligation to implement the WQBELs in the MS4 permits.
Part VI.C.5.b.iv.(6) (Legal Authority)	Appendix 7 to the draft WMP includes a copy of legal certifications for all Group members except for Long Beach. The legal certification for Long Beach should be submitted in the revised WMP.

LA County MS4 Permit Provision*	Regional Water Board Staff Comment and Necessary Revision
Part VI.C.5.c (Compliance Schedules)	Page 6-1 notes that "[t]he final non-TMDL water quality standard compliance date is projected to be sometime in 2040." However, the pollutant reduction plan milestones in Section 5 only appear to go up to the year 2026. For watershed priorities related to addressing exceedances for receiving water limitations, the permit requires milestones based on measureable criteria or indicators, a schedule with dates for achieving the milestones, and a final date for achieving the receiving water limitations as soon as possible. These need to be included in the revised WMP.

* Equivalent provisions are also found in the Long Beach MS4 Permit

Los Angeles Regional Water Quality Control Board

TO: Lower San Gabriel River Watershed Management Group

FROM: C.P. Lai, Ph.D., P.E. and Thanhloan Nguyen
LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

DATE: October 30, 2014

SUBJECT: COMMENTS ON REASONABLE ASSURANCE ANALYSIS FOR LOWER SAN GABRIEL RIVER WATERSHED MANAGEMENT AREA

This memorandum contains comments on the Reasonable Assurance Analysis (RAA), dated June 6, 2014, which was submitted by the Lower San Gabriel River Watershed Management Group.

A. General comments on the draft Reasonable Assurance Analysis section (Section 4 and Appendix A-4-1) of the Watershed Management Program.

1. The Lower San Gabriel River Watershed Management Area (LSGR WMA) is subject to interim and final water quality-based effluent limitations pursuant to Attachment P, Part A "San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL" for both wet and dry weather conditions. The LSGR WMA is required to analyze a strategy to implement pollutant controls necessary to achieve applicable interim and final water quality-based effluent limitations for metals and selenium consistent with the interim and final implementation deadlines in the Basin Plan Amendment, Resolution No. R13-004 - Implementation Plan for the TMDLs for Metals and Selenium in the San Gabriel River and Impaired Tributaries. These include:

   - By September 30, 2017, for WQBELs applicable in wet weather a 10% reduction, and dry weather a 30% reduction in the difference between current pollutant loads and the WQBEL.
   - By September 30, 2020, for WQBELs applicable in wet weather a 35% reduction, and in dry weather a 70% reduction in the difference between current pollutant loads and the WQBEL.

   As proposed in the WMP, the 10% load reduction was assumed to result from the cumulative effect of nonstructural BMPs. There is uncertainty in the ability of these BMPs to meet the required reductions by September 2017. Additional support for the anticipated pollutant load reductions from these non-structural BMPs and source control measures over the next two to three years should be provided to increase the confidence that these measures can achieve the near-term interim WQBELs by September 2017.

2. Section 5 Compliance Schedule of the draft Watershed Management Plan only provided implementation schedule for non-structural targeted control measures up to 2017. The LSGR Watershed Management Group must provide measureable milestones for implementing each one of the proposed control measures that will allow an assessment of progress toward the interim and final WQBELs and receiving water limitations every two years.

3. LSGR WMA is also subject to Category 2 priority pollutants, including coliform bacteria. The LSGR WMP proposes to address bacteria with the same runoff reduction and stormwater capture measures proposed for Category 1 pollutants as well as ongoing implementation of minimum control measures. However, this might not be sufficient to reduce bacteria loading to the required levels. The LSGR WMP acknowledges that it will address bacteria more directly during the second and third adaptive management cycles. The LSGR WMP should include a more specific strategy to implement pollutant controls necessary to address this and other Category 2 pollutants prior to the second and third adaptive management cycles.

B. Modeling comments regarding analysis of copper, lead, zinc, DDT, PCB, PAH, and bacteria concentrations/loads:

1. The model predicted stormwater runoff volume is used as a surrogate for required pollutant load reductions for wet weather conditions. Thus, the predicted flow volume becomes a very important parameter for evaluating required volume reductions and BMP scenarios. Based on the results of the hydrology calibration shown in Table 4-3, the error difference between modeled flow volumes and observed data is 19% for the Lower San Gabriel River. The higher error percentage could be due to the exclusion of contributions of flow volume from upstream. For calibration purposes, upstream flow volume should be included to determine whether that improves the model performance to within the "Good" or "Very Good" range, per the RAA Guidelines. Once model calibration has been completed, the upstream flow volume can then be excluded when presenting the volume reduction targets in Tables 8-3 to 8-4.

2. While we understand that there is significant reliance on a volume-based approach, the predicted baseline concentrations and loads for all modeled pollutants of concern, including TSS, should be presented in summary tables for wet weather conditions. This model output should be available, since it is the basis for the percent reductions in pollutant load presented in Table 5-6. (See Table 5. Model Output for Both Process-based BMP Models and Empirically-based BMP Models, pages 20-21 of the RAA Guidelines).

3. Further, the differences between baseline concentrations/loads and allowable concentrations/loads should be presented in time series for each pollutant under long-term continuous simulation and as a summary of the differences between pollutant concentrations/loads and allowable concentrations/loads for the critical wet weather period. (See Table 5. Model Output for Both Process-based BMP Models and Empirically-based BMP Models, pages 20-21 of the RAA Guidelines).

4. We note that modeling was not conducted for organics (DDT, PCBs, and PAHs). It is not clear why these pollutants were not modeled or why previous modeling of these pollutants could not be used, such as that conducted during the development of the

Dominguez Channel and Greater LA and Long Beach Harbor Waters Toxic Pollutants TMDL. An explanation for the lack of modeling is needed.

5. The report presents the existing runoff volumes, required volume reductions and proposed volume reductions from BMP scenarios to achieve the 85th percentile, 24-hour volume retention standard for each major watershed area (e.g., LLAR, LCC and LSGR) and by jurisdiction. The same information on the runoff volume associated with the 85th percentile, 24-hour event and the proposed runoff volume reduction from each BMP scenario also needs to be presented for each modeled subbasin (e.g., a series of tables similar to 8-3 and 8-4 and 9-6 and 9-7). See Table 5 of the RAA Guidelines. Additionally, more explanation is needed as to what constitutes the "incremental" and "cumulative" critical year storm volumes in tables 9-6 and 9-7 and how these values were derived from previous tables.

6. The report needs to present the same information, if available, for non-stormwater runoff. Alternatively, the report should include a commitment to collect the necessary data in each watershed area, through the non-stormwater outfall screening and monitoring program, so that the model can be re-calibrated during the adaptive management process to better characterize non-stormwater flow volumes and to demonstrate that proposed volume retention BMPs will capture 100 percent of non-stormwater that would otherwise be discharged through the MS4 in each watershed area.

7. The ID number for each of the subwatersheds from the model input file should be provided and be shown in the simulation domain to present the geographic relationship of subwatersheds, within each watershed area, that are simulated in the LSPC model.

Los Angeles Regional Water Quality Control Board

November 21, 2014

Lower San Gabriel River Watershed Management Group
(See Distribution List)

REVIEW OF THE LOWER SAN GABRIEL RIVER WATERSHED MANAGEMENT GROUP'S DRAFT COORDINATED INTEGRATED MONITORING PROGRAM, PURSUANT TO PART VI.B AND ATTACHMENT E PART IV.B OF THE LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NPDES PERMIT NO. CAS004001; ORDER NO. R4-2012-0175) AND PART VII.B AND ATTACHMENT E, PART IV.B OF THE CITY OF LONG BEACH MS4 PERMIT (NPDES PERMIT NO. CAS004003; ORDER NO. R4-2014-0024)

Dear Lower San Gabriel River Watershed Management Group:

The Regional Water Board has reviewed the draft Coordinated Integrated Monitoring Program (CIMP) submitted on June 30, 2014 by the Lower San Gabriel River (LSGR) Watershed Management Group (WMG). This program was submitted pursuant to the provisions of NPDES Permit No. CAS004001 (Order No. R4-2012-0175), which authorizes discharges from the municipal separate storm sewer system (MS4) operated by 86 municipal Permittees within Los Angeles County (hereafter, LA County MS4 Permit).

The LA County MS4 Permit allows Permittees the option to develop and implement, in coordination with an approved Watershed Management Program per Part VI.C, a customized monitoring program that achieves the five Primary Objectives set forth in Part II.A of Attachment E and includes the elements set forth in Part II.E of Attachment E. Customized monitoring programs may be developed on an individual jurisdictional basis, referred to as an Integrated Monitoring Program (IMP), or a on watershed basis, referred to as a CIMP. These programs must be approved by the Executive Officer of the Regional Water Board.

NPDES Permit No. CAS004003 (Order No. R4-2014-0024) authorizes discharges from the MS4 operated by the City of Long Beach (hereafter, Long Beach MS4 Permit). The Long Beach MS4 Permit similarly allows the City of Long Beach to develop either an IMP or CIMP to implement Permit requirements, with the option of collaborating with LA County MS4 Permit Permittees. For simplicity, this letter and its enclosures cite provisions in the LA County MS4 Permit even though the City of Long Beach is a member of the LSGR WMG and is permitted under its own individual Permit.

The Regional Water Board has reviewed the draft CIMP and has determined that, for the most part, the CIMP includes the elements set forth in Part II.E and will achieve the Primary Objectives set forth in Part II.A of Attachment E of the LA County MS4 Permit. However, some additions and revisions to the CIMP are necessary. The Regional Water Board's comments on the CIMP, including detailed information concerning necessary additions and revisions to the CIMP, are found in Enclosure 1 and Enclosure 2.

Please make the necessary additions and revisions to the CIMP as identified in the enclosures to this letter and submit the revised CIMP as soon as possible and no later than **February 19, 2015.** The revised CIMP must be submitted to losangeles@waterboards.ca.gov with the subject line "LA County MS4 Permit – Revised LSGR CIMP" with a copy to Ivar.Ridgeway@waterboards.ca.gov and Chris.Lopez@waterboards.ca.gov.

Upon approval of the revised CIMP by the Executive Officer, the Permittees must prepare to commence their monitoring program within 90 days. If the necessary revisions are not made, the Permittees must comply with the Monitoring and Reporting Program (MRP) and future revisions thereto, in Attachment E of the LA County MS4 Permit and Attachment E of the Long Beach MS4 Permit.

Until the Permittees' CIMP is approved by the Executive Officer, the monitoring requirements pursuant to Order No. 01-182 and MRP CI 6948, Order No. 99-060 and MRP CI 8052 and pursuant to approved TMDL monitoring plans shall remain in effect for the Permittees.

If you have any questions, please contact Mr. Chris Lopez of the Storm Water Permitting Unit by electronic mail at Chris.Lopez@waterboards.ca.gov or by phone at (213) 576-6674. Alternatively, you may also contact Mr. Ivar Ridgeway, Chief of the Storm Water Permitting Unit, by electronic mail at Ivar.Ridgeway@waterboards.ca.gov or by phone at (213) 620-2150.

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer

Enclosures:

Enclosure 1 – Summary of Comments and Necessary Revisions to Draft CIMP
Enclosure 2 – Comments on Aquatic Toxicity Monitoring
Lower San Gabriel River WMG Distribution List

cc: John Hunter, John L. Hunter and Associates, Inc.

Enclosure 1 – Summary of Comments and Necessary Revisions to Draft CIMP

Lower San Gabriel River Watershed Management Group

CIMP Reference	MRP Element/ Reference* (Attachment E)	Comment and Necessary Revision
Receiving Water Monitoring		
Section 5 (Metals TMDL Monitoring)	Part II.A.2	The draft CIMP indicates in Table 5-1 (page 21) that metals monitoring for the San Gabriel River Metals TMDL will include monitoring of three wet weather events per year instead of the minimum of four events recommended in the TMDL. The frequency of monitoring for metals should be increased to four wet weather events to be consistent with the recommendations listed in the TMDL. Wet-weather monitoring results from the first year may be evaluated to determine whether reducing the frequency to three wet-weather events per year would still provide sufficient data. The Lower San Gabriel River Watershed Management Group may request a reduction in frequency on the basis of this data evaluation. Furthermore, the USEPA TMDL recommends dry weather effectiveness monitoring at the San Gabriel River Estuary. However, the draft CIMP does not mention any Metals TMDL monitoring at the estuary in Table 3-1 (page 11).
Section 5.4 (PCBs)	Part XIV	For water samples taken under the water column monitoring requirement of the Harbor Toxics TMDL, it is unclear whether PCBs will be analyzed by EPA Method 1668C and reported as congeners as noted in Appendix F. Monitoring for PCBs in sediment or water should be reported as the summation of a minimum of 40 (and preferably at least 50) congeners. See Table C8 in the state's Surface Water Ambient Monitoring Program's Quality Assurance Program Plan (Page 72 of Appendix C), which can be downloaded at http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/qaprp082209.pdf for guidance. It is preferable samples be analyzed using EPA Methods 8270 or 1668C (as appropriate), and High Resolution Mass Spectrometry.
Section 5.5 (Mercury)	Part XIV	Table 5-7 (page 27) indicates that the EPA Method 245.1 will be used to analyze Mercury. This method is inadequately sensitive. The

CIMP Reference	MRP Element/ Reference* (Attachment E)	Comment and Necessary Revision
		draft CIMP should be revised to use either EPA Method 245.7 or 1631E to ensure sufficiently sensitive minimum levels that are comparable to the water quality criteria.
Section 5 (1st Year Screening)	Part VI.C.1.e and Part VI.D.1.d	Tables 5-1 and 5-2 (pages 21-22) indicate that Table E-2 parameters will be measured at all receiving water sites during the first year. However, the narrative on pages 17-19 only mention E-2 screening for monitoring sites S13 and GR1. The narrative should reflect that all Long-Term Assessment (LTA) receiving water monitoring sites will monitor Table E-2 parameters in their first year of monitoring. Additionally, Tables 5-1 and 5-2 should include and note the appropriate frequencies of analysis for Table E-2 constituents that are detected above the lowest applicable water quality objective during the 1st year of monitoring.
Section 6 (Adaptive Management)	Part VI.C.1 and Part VI.D.1	The draft CIMP notes on page 30 that category 2 water body-pollutant combinations "will be downgraded if data indicates that the pollutant meets delisting criteria." Furthermore, the draft CIMP notes on page 31 that category 3 water body-pollutant combinations "will be removed from the list of monitored constituents at the site if they are not detected at levels that exceed the minimum, appropriate water quality criteria for a period of two consecutive years." The CIMP needs to be revised to clarify that any such reduction in monitoring, including elimination of parameters from the monitoring program, would need to be proposed to the Regional Water Board and would be subject to Executive Officer approval.
Outfall Monitoring		
Section 3.2 (Outfall Monitoring Sites)	Part VIII.A.2.a	The MRP requires monitoring of "at least one major outfall per subwatershed (HUC 12) drainage area, within the Permittee's jurisdiction, or alternate approaches as approved in an IMP or CIMP." The draft CIMP identifies five HUC 12 drainage areas, but only establishes three outfall monitoring sites. Two sites are located in the "Coyote Creek – San Gabriel River" HUC 12 equivalent area and one site is located in the "Brea Creek – Coyote Creek" HUC 12 equivalent area. The draft CIMP notes on page 14 that "Brea Creek – Coyote Creek" is one of the two major HUC 12 equivalent units in the LSGR, however it should be noted that the majority of "Brea Creek – Coyote Creek" is in Orange County, and only portions of La Mirada

CIMP Reference	MRP Element/ Reference* (Attachment E)	Comment and Necessary Revision
		and Diamond Bar appear to be within the subwatershed. In contrast, the draft CIMP identifies the "La Mirada Creek" HUC 12 equivalent unit as "mid-size," although a larger area of the LSGR group lies within it as compared to the "Brea Creek-Coyote Creek" HUC 12 equivalent. Although the Group has established the NFC1 receiving water site within this area, an outfall monitoring location should also be established for this HUC 12 equivalent unit. The "Lower San Jose Creek" and "Upper San Jose Creek" HUC 12 equivalent units also do not have outfall monitoring sites. The Group has not provided thorough justification for not establishing monitoring stations for each of these areas, and should include outfall monitoring stations at these locations in its revised CIMP or provide further justification (that includes a description of land uses) that the one outfall monitoring site in the City of Diamond Bar is representative of the discharges from the "Lower San Jose Creek" and "Upper San Jose Creek" HUC 12 equivalent units.
Section 3.2 (SW Outfall Monitoring)	Part VIII.A.2.b	The draft CIMP states on page 14 that "[t]he drainage areas of the outfall monitoring sites are representative of a wide variety of land uses within the LLSG including residential, commercial and industrial." However, the draft CIMP does not provide a breakdown of land uses for each of these monitoring sites to support this statement. The Group should include a breakdown of land uses for each outfall monitoring site, a comparison of these land uses to the land uses in the entire watershed area, and an explanation of how these sites are representative.
Section 9 (SW Outfall Monitoring Constituents)	Part VIII.B.1.c.iii	Table 9-1 (page 61) does not include diazinon as a constituent to be monitored at stormwater outfall monitoring sites. However, diazinon is listed on the 303(d) list for Coyote Creek.
Section 10-3 (Maps and Databases)	Part VII.A	Table 10-3 (page 68) indicates the status of basic database and mapping information for the watershed. All of the completed mapping information as listed in Part VII.A of the MRP should be included and submitted in the revised CIMP.

*Equivalent provisions are also found in Attachment E of Long Beach MS4 Permit

ENCLOSURE 2
COMMENTS ON AQUATIC TOXICITY TESTING
LOWER SAN GABRIEL RIVER CIMP

Part XII.G.1. (Page E-30) and Part XII.G.2. (Page E-30) of the Monitoring and Reporting Program state that Permittees shall conduct aquatic toxicity monitoring utilizing the critical life stage chronic toxicity test methods listed. The draft CIMP does not propose use of critical life stage chronic toxicity test methods for assessment of toxicity in wet weather samples and instead proposes use of acute toxicity test methods. This is not acceptable; the appropriate chronic toxicity test method listed in the MRP must be used and both survival and sublethal endpoints must be reported. We suggest the group consult the State Water Resources Control Board 2011 publication, "Implementation Guidance: Toxicity Testing for Stormwater" to gain insight on how to run chronic toxicity tests on wet weather samples.

Part VIII.B.1.c.vi. (Page E-23) and Part VIII.G.1.d. (Page 27) of the Monitoring and Reporting Program state that where the TIE conducted at the downstream receiving water monitoring station was inconclusive then aquatic toxicity shall be monitored at the outfall. The draft CIMP does not propose conducting this required outfall toxicity monitoring.

While development of the proposed Discharge Assessment Plan (DAP) will be useful, it cannot take the place of the required outfall toxicity monitoring following an inconclusive TIE in the receiving water. And, while there may be situations where TIEs cannot be resolved due to non-persistent toxicity and no further action on that sample can be pursued, inconclusive TIEs often result from a lack of following well-defined procedures rather than non-persistent toxicity. As mentioned elsewhere in this comment letter, including pyrethroids in the TIE procedure will reduce the occurrence of inconclusive TIEs as will including chemical testing for fipronils and its degradates for comparison to U.S. EPA benchmarks.

Additionally, the toxicity flowcharts do not show the need to proceed to outfall toxicity testing should a TIE of a toxic receiving water sample be inconclusive and instead focus on the response to non-persistent toxicity. We strongly recommend a more cohesive approach whereby Permittees develop a Toxicity Assessment Plan analogous to the Discharge Assessment Plan currently proposed in the CIMP.

Part XII.I.1. (Page E-33) of the Monitoring and Reporting Program states that a toxicity test sample is immediately subject to TIE procedures if either survival or sublethal endpoints demonstrate a Percent Effect value equal to or greater than 50% at the Instream Waste Concentration, the draft CIMP does not propose to perform a TIE when at least a 50% sublethal effect is seen but instead proposes to first collect a confirmatory sample two weeks later.

This is not an acceptable approach. The CIMP seems to be implying that chronic toxicity has some inherent non-persistent quality to it that makes the results unreliable. It also implies that chronic toxicity is of lesser importance. Although it would be hard to generalize to all possible situations, the fact that a large number of invertebrates (or fish) living in a receiving water can survive an ambient pollutant concentration but are impacted in terms of growth or reproduction means that the population as a whole will be impacted, and could eventually collapse. Some species living in the receiving water have very short lifespans and during critical times of the year may be prey for other organisms that will in turn be impacted by their population decline.

Suggested Special Study: The 2013 study released by the California Stormwater Quality Association (CASQA) entitled "Review of Pyrethroid, Fipronil and Toxicity Monitoring Data from California Urban Watersheds" reviewed stormwater data from studies conducted during 2005 - 2012 and highlighted the toxicity impacts from use of pesticides not currently required to be monitored for by the MRP. We suggest the group begin monitoring for these chemicals in the receiving water and, in addition, assess toxicity using the 2002 acute toxicity testing protocol (EPA-821-R-02-012) with the amphipod *Hyalella azteca* as the test organism. *H. azteca* is known to be much more sensitive to pyrethroids than is *Ceriodaphnia dubia*, while the latter is useful for its sensitivity to OP pesticides. The two species together may also prove to be more useful in detecting toxicity from fipronil. And, should 50% or greater effect be detected in the toxicity test, we suggest a procedure to incorporate pyrethroids into the subsequent TIE be documented (three possible treatments have been identified by researchers, see http://www.pubfacts.com/detail/20018342/Focused-toxicity-identification-evaluations-to-rapidly-identify-the-cause-of-toxicity-in-environment). While fipronil does not have a TIE procedure identified currently, chemical testing for the parameter (and degradates) and comparison to U.S. EPA Office of Pesticide Program's aquatic life benchmarks at http://www.epa.gov/oppefed1/ecorisk_ders/aquatic_life_benchmark.htm will aid in determining the cause(s) of toxicity in order to follow up with outfall testing of the parameter(s) with the ultimate goal of removing the source. This approach will also help minimize inconclusive TIE results which would lead to required toxicity testing in a representative upstream outfall.

Lower San Gabriel River Watershed Management Group

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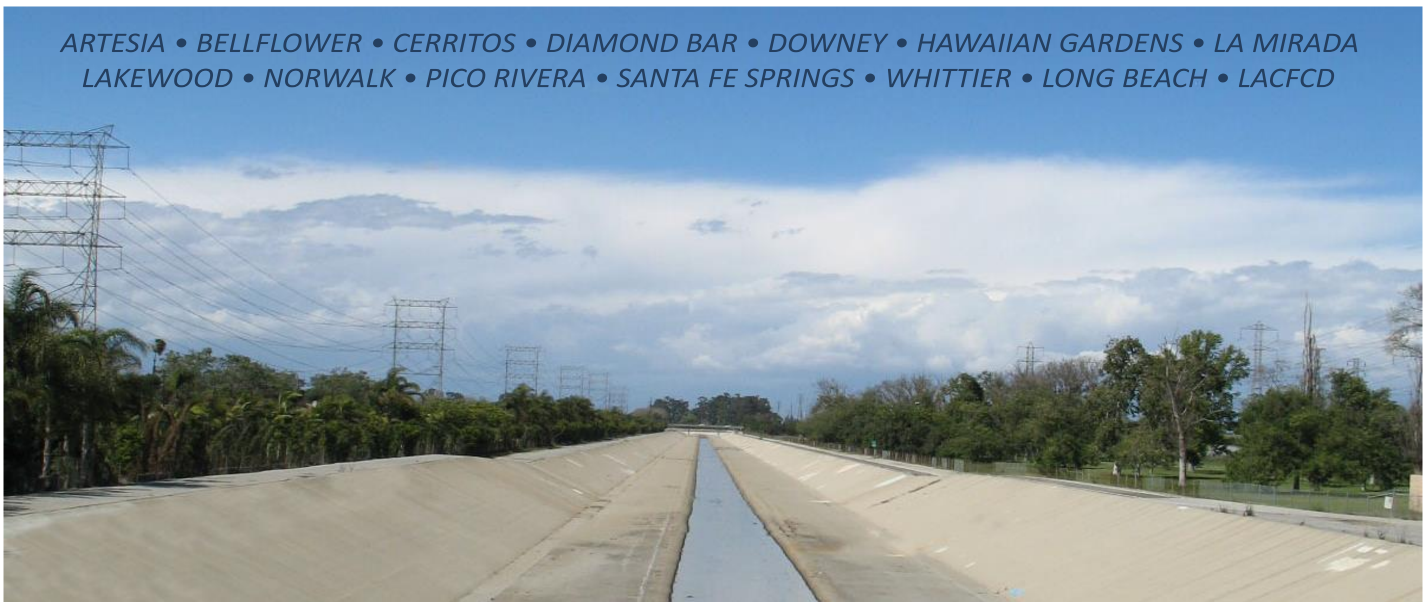
Lower San Gabriel River Watershed Management Program

January 30, 2015



Prepared For:

Lower San Gabriel River Watershed Group

Prepared By:

John L. Hunter
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RB-AR14487

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EXECUTIVE SUMMARY

This Watershed Management Program (WMP) sets forth a path to achieve reductions in the pollutants in the waterbodies of the Lower San Gabriel River and its tributaries. The WMP includes: a discussion of existing and planned watershed control measures; a Reasonable Assurance Analysis (RAA) based upon the Watershed Management Modeling System previously developed by the Los Angeles County Flood Control District in collaboration with the USEPA; and a Coordinated Integrated Monitoring Program (CIMP) being implemented over a four year period which began in 2013 with the installation of an early action monitoring site.

The agencies of the Lower San Gabriel River (SGR) Watershed have been working cooperatively towards the goal of a cleaner watershed for several years. In 2011 the cities tributary to Coyote Creek (a major tributary of the San Gabriel River) formed a Technical Committee to address the USEPA's Metals TMDL. As the Regional Board neared completion of the current fourth term MS4 Permit, and as many of the Technical Committee agencies also had areas tributary to the San Gabriel River and in some cases San Jose Creek, the Technical Committee rapidly expanded to include these areas. Funding for the Technical Committee was originally approved by City Councils and agency governing boards through a Memorandum of Understanding (MOU) for the TMDL, which was quickly superseded by a second MOU with funding through December 31, 2022, for selected activities pertaining to the WMP and CIMP provisions of the fourth term MS4 permit. Through this cooperative effort, the Technical Committee requested and supported the Regional Board's effort to adopt a Basin Plan Amendment for a Metals TMDL implementation schedule which was accomplished in June of 2013. This cooperative effort continues and in 2014, the Watershed Group was notified of their successful multi-city grant application (as part of a larger Gateway effort) to install 17 LID BMPs along selected major thoroughfares.

Prior to 2012, MS4 permits required cities and agencies to implement a series of best management practices such as street sweeping and catch basin cleaning to demonstrate compliance. With the adoption of the fourth term MS4 permit by the Los Angeles Regional Water Quality Control Board on November 8, 2012, the emphasis shifted to a more watershed based effort that includes the goals of achieving specific pollutant targets as runoff leaves the storm drain system and enters the main river channels. This WMP and the accompanying RAA and CIMP constitute the first step in that watershed based effort.

The jurisdictional boundaries of the Lower San Gabriel River Watershed are complex. Coyote Creek has a larger drainage area in Orange County which is under a separate MS4 Permit issued by a different Regional Board. Efforts to coordinate activities between the areas of Orange and Los Angeles County are in their infancy and would benefit from a realignment of the two MS4 Permits. Many Cities have drainage areas in multiple watersheds. To facilitate the implementation of control measures and minimize the impact of multiple watershed implementation plans within a single city, the Cities have combined the efforts of the Lower Los Angeles River Watershed and the Los Cerritos Channel to create similar Watershed Management Programs. Two cities have areas that drain to San Jose Creek, also tributary to the San Gabriel River – these areas have been included in this WMP.

This WMP is a long-term planning document that takes a comprehensive look at the Lower SGR Watershed, including its land uses, MS4 system, existing and planned control measures (both structural and nonstructural), existing storm water treatment systems, historical monitoring data and the various segments of the San Gabriel River and its tributaries that have been identified as impaired by various pollutants. Using that data, the Watershed Management Modeling System, one of the three modeling system authorized by the MS4 Permit, is used to generate a Reasonable Assurance Analysis (RAA) which predicts an optimal combination of structural treatment systems and construction timelines to achieve the goals of the MS4 Permit. The RAA spreads responsibility for implementation of future treatment systems amongst all Participating Agencies.

The RAA identifies wet weather zinc as the primarily pollutant of concern[1]. This means that by designing treatment systems and other nonstructural controls measures for zinc, the targets for other pollutants of concern will also be met. The first target for zinc occurs in 2017, when 10 percent wet weather reduction of zinc must be demonstrated. The next targets specified in the MS4 Permit occur in 2020, 2023 and 2026 when 35, 65 and 100 percent respectively of the wet weather zinc reductions must be demonstrated. This WMP establishes milestones that are to be met through the implementation of enhanced nonstructural control measures (such as the City of Whittier's existing vacant parcel sediment ordinance that targets sediment reduction) and construction of structural treatment projects (such as the City of Downey's Discovery Park infiltration system and over 500 existing individual treatment systems).

The RAA provides a recommended volume of runoff on a city-by-city basis that must be treated in order to meet the milestones. In total, the RAA establishes a final (2026) goal of capturing and treating a cumulative 37 acre feet in the San Gabriel and 81.6 acre feet in the Coyote Creek portions of the Lower SGR Watershed. The ultimate cost will vary considerably depending on the availability and configuration of suitable treatment locations and effectiveness of nonstructural watershed control measures but is estimated to be cumulatively in the range of $33 to $65 million. The treatment volumes recommended by the RAA are estimates based on current land used data, historical monitoring and assumed treatment system efficiencies. The WMP also incorporates an adaptive management strategy to adjust and modify the various control measures as necessary.

A Coordinated Integrated Monitoring Program (CIMP) has been developed at a part of this WMP and greatly expands the monitoring of water quality in the Lower SGR Watershed. The CIMP goals are in part to measure the overall effectiveness of the control measures the Participating Agencies are implementing. Currently the Mass Emission Station operated by the Los Angeles County Flood Control District near the mouth of Coyote Creek is the only regularly monitored station in the watershed. A second Mass Emission Station located in the upstream section of the San Gabriel River near the Whittier Narrow Dam is conducting regular monitoring but due to its upstream location is only providing background and general health of the river monitoring information for the downstream portions of the San Gabriel River into which the Participating Agencies discharge.

[1] The discharge of copper is anticipated to be reduced as copper is removed from brake pads over the next decade.

The CIMP identifies five new monitor sites that will be phased in over a multi-year period and will include outfall and TMDL monitoring. The first of these sites has already been installed and is in operation at the base of the North Fork of Coyote Creek. Upon approval of the CIMP, a second station will be installed along the downstream portion of the San Gabriel River as it enters the estuary. Two stations will be added the following year and three potential sites have been identified for the year following that.

This WMP and its components, including Chapter 3 *Selection of Watershed Control Measures*, Chapter 4 *RAA* and Chapter 8 *CIMP* outline a path to achieve significantly improved water quality in the Lower SGR Watershed. The WMP outlines a path based on the optimal placement of treatment systems determined by the RAA, but this is not the only viable path. The agencies of the LSGR can follow the adaptive management strategy described in Chapter 9 to adjust the number, locations and sizes of future treatment systems as long as the timelines and goals of this WMP are followed. While this WMP has been developed to establish treatment and capture goals on an agency-by-agency basis, it does not preclude those agencies from collaborating (in actuality, collaboration is encouraged) on a regional and multi-agency basis.

As part of the overall collaborative and inclusive effort, this Draft Watershed Management Program was presented at a public stakeholder meeting at the Lakewood City Hall on April 30, 2014. The Watershed Control Measures, Reasonable Assurance Analysis and Coordinated Integrated Monitoring Programs were discussed and comments from interested members of the public were solicited.

1 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This Watershed Management Program (WMP) has been developed to implement the requirements of Los Angeles Regional Water Quality Control Board Order Nos. R4-2012-0175 and R4-2014-0024 (National Pollutant Discharge Elimination System (NPDES) Permit Nos. CA004001, CA004003 respectively) on a watershed scale. In addition, elements of this WMP relating to Total Maximum Daily Loads (TMDLs) address requirements of California State Water Resources Control Board Order No. 2012-0011-DWQ (the Caltrans Stormwater Permit) for those TMDLs within the watershed area as described in the Section 1.1.4. Combined, the Orders set forth waste discharge requirements for the Municipal Separate Storm Sewer (MS4) discharges by Caltrans, the Los Angeles County Flood Control District (LACFCD), the County of Los Angeles and 85 cities within the coastal watersheds of Los Angeles County (Permittees). These requirements include three fundamental elements: (i) effectively prohibit nonstormwater discharges through the MS4, (ii) implement controls to reduce the discharge of pollutants to the maximum extent practicable, and (iii) other provisions the Regional Water Board has determined appropriate for the control of such pollutants.[1] The ultimate goals of the WMP are listed in Section 1.2.3.

1.1.1 PARTICIPATING AGENCIES

This WMP is a collaborative effort of fourteen participating agencies with MS4 facilities within the subwatersheds[2] of Coyote Creek, Reaches 1, 2 and 3 of the San Gabriel River and San Jose Creek. For the purposes of this WMP, the area defined by the boundaries of the participating agencies with these subwatersheds is referred to as the Lower San Gabriel River Watershed (Lower SGR Watershed). The participating agencies and their respective MS4 stormwater Permits addressed by this WMP are listed in Table 1-1.

1.1.2 MS4 PERMITS ADDRESSED

As noted in Table 1-1, Caltrans and the City of Long Beach are regulated under their own MS4 Permits, separate from the Los Angeles MS4 Permit. The extent to which this impacts the contents of this WMP is explained in this section.

LONG BEACH AND LOS ANGELES MS4 PERMITS

The Long Beach and Los Angeles MS4 Permits, adopted by the Los Angeles Regional Water Quality Control Board (Regional Board) within 15 months of each other, contain similar language and requirements. Specifically, both Permits include an optional WMP approach to compliance. These similarities allow for the preparation of one WMP to address the requirements of both permits. Except

[1] LA County NPDES MS4 Permit Findings, page 20.

[2] Subwatersheds within this WMP are the “HUC-12 Equivalent” drainage areas as defined in 1.1.4.

where otherwise noted, the term *MS4 Permit* will refer exclusively to the Los Angeles and Long Beach MS4 Permits.

Table 1-1: Participating Agencies of the Lower SGR Watershed

Agency	Permit Order No.	Permit Name
Artesia	R4-2012-0175	Los Angeles County NPDES MS4 Permit (LA MS4 Permit)
Bellflower		
Cerritos		
Diamond Bar		
Downey		
Hawaiian Gardens		
La Mirada		
LACFCD[3]		
Lakewood		
Norwalk		
Pico Rivera		
Santa Fe Springs		
Whittier		
Long Beach	R4-2014-0024	Long Beach NPDES MS4 Permit (LB MS4 Permit)
Caltrans[3]	2012-0011-DWQ	Caltrans Stormwater Permit (Caltrans MS4 Permit)

CALTRANS STORMWATER PERMIT

Discharges to Caltrans' MS4 are regulated through the Caltrans MS4 Permit. Although the Caltrans Permit does not include a WMP compliance approach like the Los Angeles and Long Beach MS4 Permits, its TMDL provisions do require cooperation with agencies subject to the same TMDLs. As such, Caltrans' participation is restricted to those sections of the WMP related to TMDL requirements. Caltrans has acknowledged their intent to participate.

1.1.3 NON-PARTICIPATING AGENCIES

All other NPDES MS4 permitted agencies within these subwatersheds that are not listed in Table 1-1 have developed either individual or collaborative draft WMPs or draft EWMPs separately and are not participating in this WMP. Non-participating agencies include the County of Los Angeles (unincorporated areas), the City of La Habra Heights, multiple cities within and upstream of Reach 3 of the San Gabriel River and San Jose Creek and the agencies draining to Coyote Creek located within Orange County. Figure 1-1 shows the participating agencies within the Lower SGR.

[3] LACFCD and Caltrans participation is restricted to their land and stormwater facilities within the Lower SGR Watershed.

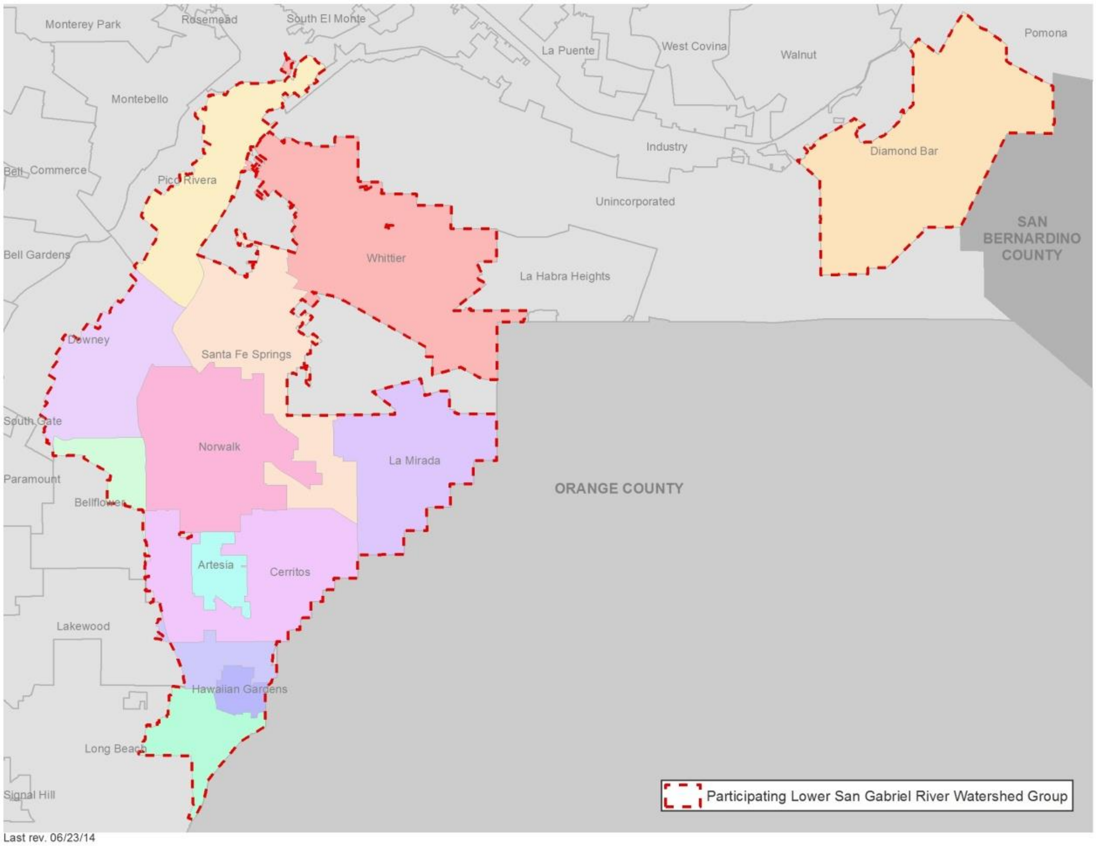


Figure 1-1: Participating Agencies map

1.1.4 THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

DESIGNATION

Prior to the adoption of the MS4 permit, the participating agencies – with the exception of Caltrans, the LACFCD and the City of Pico Rivera – were under a Memorandum of Understanding to develop an Implementation Plan for the San Gabriel River Metals TMDL. After Permit adoption, this group decided to continue their collaborative efforts to develop a WMP. Caltrans, the LACFCD and the City of Pico Rivera decided to participate in this joint effort. The agencies' intent was to focus collective resources on water quality prioritization and implementation efforts to their shared receiving waters. The fourteen agencies submitted a Notice of Intent to develop a WMP to the Regional Board prior to the June 28, 2013[4], deadline and each signed a MOU to develop the WMP. Neighboring Los Angeles MS4 Permittees within the San Gabriel WMA chose to develop separate WMPs, either individually or collaboratively.

BOUNDARIES

The boundaries of the Lower SGR Watershed are both hydrological and jurisdictional. The jurisdictional boundaries, located in the east region, are primarily a consequence of the division of Coyote Creek

[4] The Notice of Intent was approved by the Regional Board on September 25, 2013

between the Counties of Los Angeles, Orange and San Bernardino. The Coyote Creek subwatershed is also split between Whittier and Diamond Bar, separated by the communities of La Habra Heights (incorporated) and Rowland Heights (unincorporated County), which are not participating in this WMP. In addition, the northeast boundary within the San Jose Creek subwatershed is defined by the jurisdictional boundaries of Diamond Bar. This WMP also applies to approximately 400 acres within Diamond Bar that does not have an MS4 draining to the San Gabriel River Watershed. The hydrological boundaries of Reach 1 and 2 of the San Gabriel River and Coyote Creek define the west region and most of the north region.

The Lower SGR Watershed is located within the San Gabriel River Watershed Management Area (WMA) as designated in the Los Angeles MS4 Permit (Figure B-5). The water bodies located within the Lower SGR Watershed - Coyote Creek, Reaches 1, 2 and 3 of the San Gabriel River and San Jose Creek - are defined by the Regional Board as inland Surface Waters of the State (A-9). As part of the main stem of the San Gabriel River, Reaches 1, 2 and 3 are considered Waters of the United States. By definition its tributaries are also Waters of the United States, which includes Coyote Creek and San Jose Creek (A-9). The drainage areas of these five water bodies in turn define five subwatersheds.

The main channels of the San Gabriel River, Coyote Creek and San Jose Creek and most of their tributaries are owned by the LACFCD, with the exception of a small area within the City of Pico Rivera owned by the Army Corps of Engineers. Figure 1-2 shows this area. Additionally, there are privately owned and maintained drains and open channels.

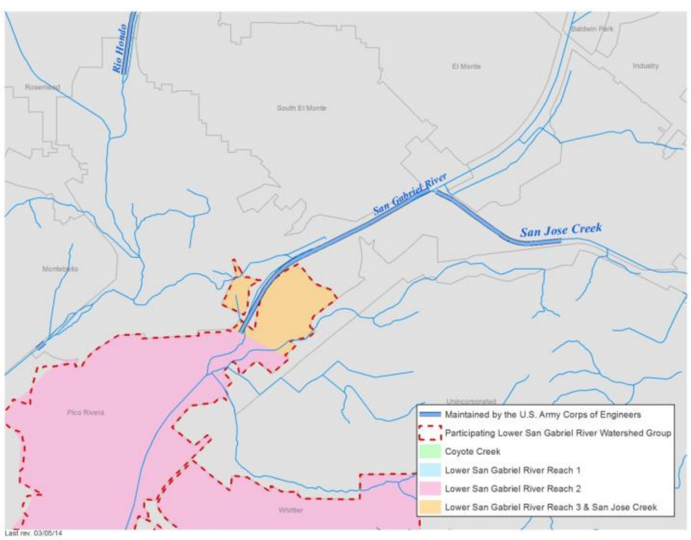


Figure 1-2: Extent of channel ownership by the Army Corps of Engineers

HYDROLOGIC UNIT CODES (HUC)

The United States Geological Survey's (USGS) Hydrologic Unit Codes (HUCs) are referenced in the MS4 Permits. The HUC system divides the United States into a hierarchical classification of defined, hydrologically-based watersheds. The LACFCD found that some of the HUC boundaries within the Los Angeles Basin were incorrect and have since developed more accurate "HUC equivalents". Following the

HUC Equivalent system, San Gabriel River Reach 1, 2 and 3 are within subwatershed 18070160606, Coyote Creek is within subwatersheds 180701060602, 180701060603 and 180701060606 and San Jose Creek is within subwatersheds 180701060501 and 180701060502. The subwatersheds of the Lower SGR Watershed are shown in Figure 1-3 and listed in Table 1-2.

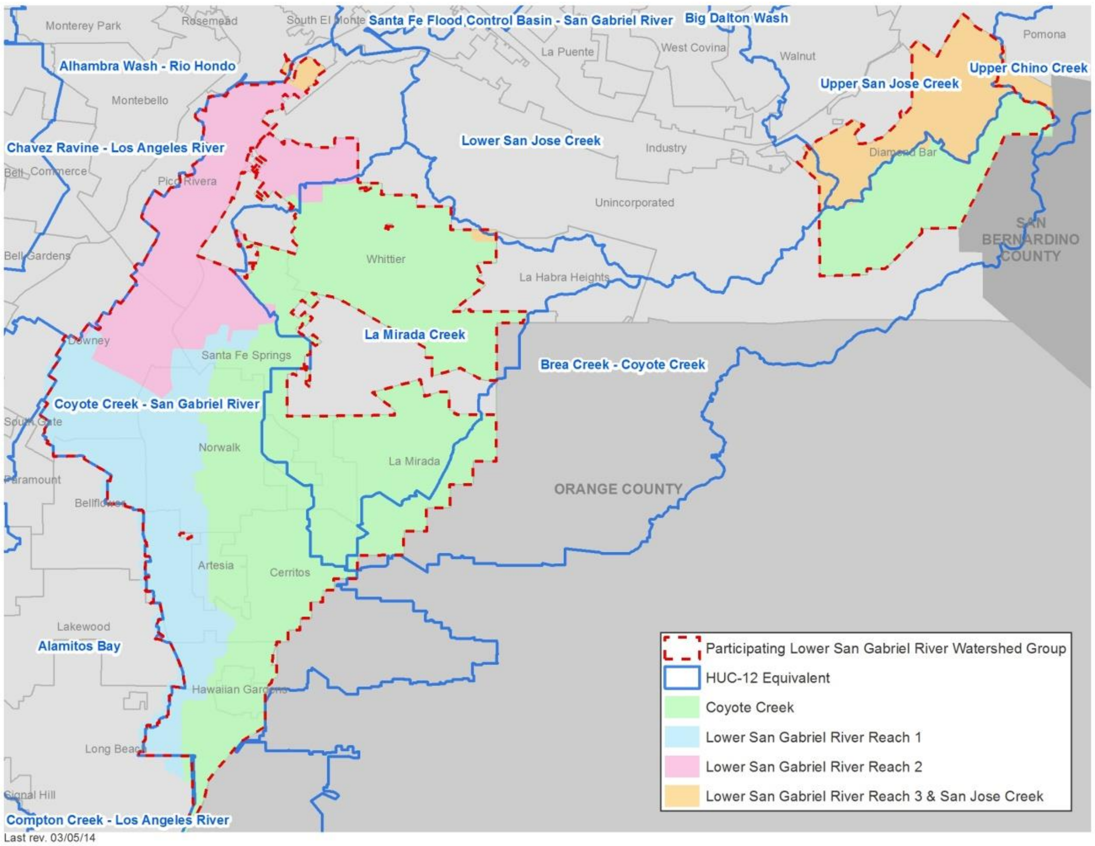


Figure 1-3: Watershed map with HUC-12 equivalent subwatershed

The subwatersheds defined by these 12 digit numbers are referred to as HUC-12. Groups of subwatersheds that share a common downstream waterbody form a watershed. A watershed is designated by the first 10 digits of a HUC-12 and as such is referred to as HUC-10. In the case of the Lower San Gabriel River Watershed, Coyote Creek and San Gabriel River Reach 1, 2 and 3 are within the Lower San Gabriel River HUC-10 watershed and San Jose Creek is itself a HUC-10 watershed. Both watersheds are within the San Gabriel HUC-08 subbasin, which shares most of its borders with the San Gabriel River WMA (Figure B-4).

WATERSHED AUTHORITY GROUP

Watershed Authority Groups (WAGs) as described in State Assembly Bill 2554, which in 2010 amended the Los Angeles County Flood Control District Act, are referenced in the MS4 Permits. The purpose of the WAGs is to implement collaborative water quality improvement projects and services, with the goal of improving water quality and reducing stormwater and urban runoff pollution. The creation and

funding of the WAGs has not yet occurred - it is dependent upon voter approval of the LACFCD's Water Quality Funding Initiative (a countywide parcel fee). AB 2554 divides the County into 9 WAGs - the LSGRW is located within the Lower San Gabriel River WAG, which shares borders with the Lower San Gabriel River HUC-10 watershed. Figure 1-4 is a complete map of the WAG groups.

Table 1-2: Subwatersheds/waterbodies within the Lower SGR Watershed

Subwatershed/ Waterbody	HUC 12 Equivalent	HUC Name	Area within Lower SGR Watershed (mi^2)
Coyote Creek	180701060602	La Mirada Creek	68.05
	180701060603	Brea Creek-Coyote Creek	
	180701060606	Coyote Creek-San Gabriel River	
San Gabriel Reach 1	180701060606	Coyote Creek-San Gabriel River	16.31
San Gabriel Reach 2	180701060606	Coyote Creek-San Gabriel River	15.45
San Gabriel Reach 3	180701060606	Coyote Creek-San Gabriel River	0.51
San Jose Creek	180701060501	Upper San Jose Creek*	7.7

* The USGS Hydrologic Unit Code Equivalent HUC boundaries created by LACFCD included the City of Diamond Bar in the Upper SJC HUC (180701060501); however, this designation does not coincide with the LA Basin Plan Reach designations that commence the Upper SJC (Reach 2) at Temple Avenue in Pomona. According to this designation, Diamond Bar drains solely to SJC Reach 1.

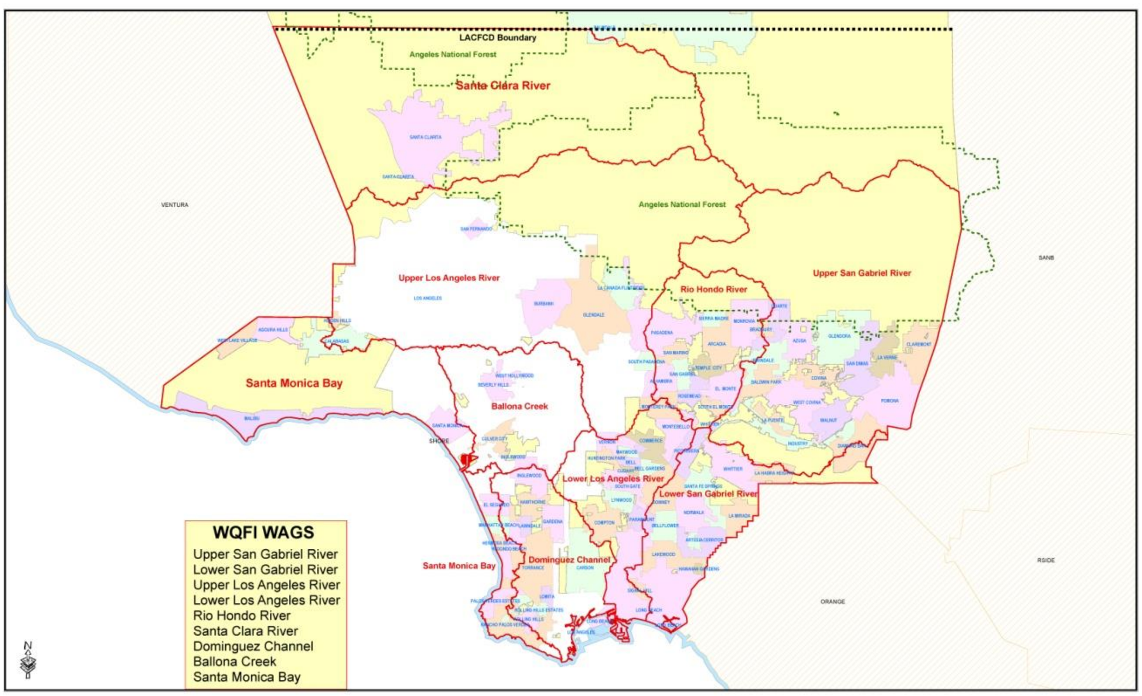


Figure 1-4: WAG map

1.2 The Watershed Management Program

1.2.1 Purpose of the MS4 Permit

MS4s receive stormwater and non-stormwater discharges from various sources, including municipal MS4s and other public agencies, discharges under NPDES permits or authorized by the USEPA[5], groundwater and natural flow. As the discharges flow over the urban landscape, they may pick up pollutants generated by urban activities, such as metals, bacteria, pesticides, fertilizers and trash. Polluted stormwater and non-stormwater discharges conveyed through the MS4 ultimately reach receiving waters, resulting in adverse water quality impacts.[6]

The goal of the MS4 Permit is to reduce the discharge of these pollutants from MS4s to the maximum extent practicable.

1.2.2 Watershed Management Emphasis

The watershed management approach to permit implementation - described in the current MS4 Permits as a voluntary approach to compliance - is a departure from previous permit structures. The previous MS4 Permits (Order Nos. 01-182 and 99-060) addressed implementation through jurisdictional Stormwater Quality Management Programs (SQMPs). The Los Angeles countywide SQMP, prepared jointly by the Permittees and approved by the Regional Board in 2001, described the controls to be implemented in order to comply with the special provisions (now referred to as the Minimum Control Measures, or MCMs) of the MS4 Permit. These controls were identical for each Permittee and did not: 1) differentiate between watersheds or agencies or 2) target or identify priority pollutants.

The emphasis of the prior SQMP approach was rote program development and implementation. In contrast, management actions under the WMP are driven by the water quality conditions of the receiving waters and outfalls within the watershed.

The Regional Board outlines several reasons for this shift in emphasis from the prior MS4 permit. A watershed based structure for permit implementation is consistent with TMDLs developed by the Los Angeles Water Board and USEPA, which are established at a watershed or subwatershed scale and are a prominent part of the MS4 Permit. Many of the Permittees have already begun collaborating on a watershed scale to develop monitoring and implementation plans required by TMDLs.

[5] Including discharges subject to a decision document approved pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
[6] MS4 Permit Fact Sheet (pg. F7)

1.2.3 WATERSHED MANAGEMENT GOALS

Addressing MS4 discharges on a watershed scale focuses on water quality results by emphasizing the receiving waters and outfalls within the watershed[7]. The conditions of the receiving waters drive management actions, which in turn focus on the measures to address pollutant contributions from MS4 discharges.

The ultimate goals of the Watershed Management Programs is to ensure that discharges from the MS4:

1. Achieve applicable Water Quality Based Effluent Limitations (WQBELs) that implement TMDLs,
2. Do not cause or contribute to exceedances of receiving water limitations,
3. Non-stormwater discharges from the MS4 are not a source of pollutants to receiving waters.

1.2.4 WATERSHED MANAGEMENT APPROACH

In order to achieve the goals listed in the previous section, the approach of the WMP is to:

- Prioritize water quality issues resulting from stormwater and non-stormwater discharges from the MS4 to receiving waters,
- Identify and implement strategies, control measures, and BMPs that:
  - Achieve applicable water quality-based effluent limitations[8]
  - Do not cause or contribute to exceedances of receiving water limitations[9]
  - Do not include non-stormwater discharges that are effectively prohibited[10]
  - Ensure that controls are implemented to reduce the discharge of pollutants to the maximum extent practicable[11]
- Execute an integrated monitoring program and assessment program[12] to determine progress towards achieving applicable limitations and/or action levels
- Modify strategies, control measures, and BMPs as necessary based on analysis of monitoring data collected pursuant to the Monitoring and Reporting Program (MRP) to ensure that applicable water quality-based effluent limitations and receiving water limitations and other milestones set forth in the WMP are achieved in the targeted timeframes.
- Provide opportunity for meaningful stakeholder input. This includes participation in a permit-wide WMP technical advisory committee (TAC) that advises and participates in the development of the WMP from month six through the date of program approval.

[7] MS4 compliance is measured at 1) Receiving water monitoring, 2) Stormwater outfall based monitoring, 3) Non-storm water outfall based monitoring, and 4) New Development/Re-development effectiveness tracking

[8] Pursuant to Part VI.E and Attachments L through R pursuant to corresponding compliance schedules

[9] Pursuant to Parts V.A and VI.E and Attachments L through R of the Permit

[10] Pursuant to Part III.A of the Permit

[11] Pursuant to Part IV.A.1 of the Permit

[12] Pursuant to Attachment E – MRP, Part IV of the Permit

The overall approach is adaptive, whereby BMPs will be implemented, their effectiveness monitored and modifications to this WMP will be made as needed. These modifications will maintain consistency with the assumptions and requirements of applicable TMDL Waste Load Allocations.

1.2.5 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The goals and objectives of the WMP may be achieved by development of stormwater structural controls that may require discretionary approval subject to review under the California Environmental Quality Act (CEQA). The participating agencies intend to comply with CEQA when implementing structural BMPs. Public agencies responsible for carrying out or approving stormwater structural controls are identified as the lead agency. The environmental review required imposes both procedural and substantive requirements. At a minimum, the lead agency must adhere to the consultation and public notice requirements set forth in the CEQA Guidelines, make determinations whether the proposed stormwater treatment control is a “project”, and if so, conduct an initial review of the project and its environmental effects. The lead agency must identify and document the potential environmental impacts of the proposed project in accordance with CEQA, (Public Resources Code Section 21000 et seq.), and the CEQA Guidelines (Title 14 of the California Code of Regulations, Section 15000, et seq.).

Certain classes of projects have been determined not to have significant effect on the environment and are exempt from the provisions of CEQA by statute or category. When a public agency decides that a project is exempt from CEQA, and the public agency approves or determines to carry out the project, the agency may file a Notice of Exemption. For projects deemed not exempt, the lead agency will prepare and Initial Study and decide whether a Negative Declaration will be required for the project, or depending on the potential effects, a further, and more substantial review may be conducted in the form of an Environmental Impact Report (EIR). A project may not be approved as submitted if feasible alternatives or Mitigation Measures are able to substantially lessen the significant environmental effects of the project. Moreover, environmental review must include provisions for wide public involvement, formal and informal, in order to receive and evaluate public reactions to environmental issues, and when deciding the matter, the lead agency must consider all comments it receives (Cal. Pub. Res. Code § 21091(d)(1); 14 CCR § 15074(b)). The lead agency will use the EIR in determining the environmental effects of the proposed storm water structural control project, and whether or not to approve the proposed project. If the proposed project is approved, all conditions and mitigations made in the adopted EIR will become part of any subsequent actions taken by the lead agency. The EIR will also be used by permitting agencies, funding agencies and the public to support proposed project decisions.

The National Environmental Quality Act (NEPA) comes into play less often than CEQA, but may be included for storm water treatment control projects involving federal funding. A joint NEPA and CEQA review process is encouraged to improve coordination and avoid redundancies. Like CEQA, NEPA process provides opportunities to address issues related to proposed projects early in the planning stages. NEPA was codified under Title 42 of the United States Code sections 4331 et seq. (42 U.S.C. 4331 et seq.).

1.3 LOWER SAN GABRIEL RIVER WATERSHED

1.3.1 OVERVIEW OF THE SAN GABRIEL RIVER WATERSHED

The San Gabriel River Watershed drains a watershed of 689 square miles. The main channel of the San Gabriel River is approximately 58 miles long. Its headwaters originate in the San Gabriel Mountains with the East, West, and North Forks. The river empties to the Pacific Ocean at the Los Angeles and Orange Counties boundary in Long Beach. The main tributaries of the river are Big and Little Dalton Wash, San Dimas Wash, Walnut Creek, San Jose Creek, Fullerton Creek, and Coyote Creek. Part of the Coyote Creek subwatershed is in Orange County and is under the authority of the Santa Ana Water Board. Land use in the watershed is diverse and ranges from predominantly open space in the upper watershed to urban land uses in the middle and lower parts of the watershed.

The remaining discussion on the watershed will solely refer to the specific characteristics of the Lower San Gabriel River Watershed.

1.3.2 LOWER SAN GABRIEL RIVER WATERSHED AREA

REGIONAL AND LOCAL SETTING

The Lower SGR Watershed encompasses an approximately 78.5 square miles (50,240 acres) within Los Angeles County and comprises 11.4% drainage area for the San Gabriel River Watershed. There are approximately 150 stream miles located in the watershed. The boundaries of the watershed are shown in Figure 1-1 and further explained in Section 1.1.

CLIMATE

Average annual precipitation for the watershed area is highly variable and terrain-dependent, averaging fifteen (15) inches annually and mainly occurring during the winter months (November through April). Due to the dominance of the stable marine layer, significant precipitation is rare between May and October.

During the winter months Pacific storms often push cold fronts across California from northwest to southeast. These storms and frontal systems account for the vast bulk of the area's annual rainfall. Such rainy season storms are migratory, with wet and dry periods alternating during the winter and early spring with irregularity in timing and duration. Rainfall patterns average 3.68 inches of rainfall in February to 0.01 inches of rainfall in July[13].

With the highly developed conditions within the watershed, most stormwater flows generated by the rainfall is routed to the ocean through the curb and gutters along the streets, catch basins and storm drains into the San Gabriel River. The velocity of the storm flows within this watershed ranges up to 20 feet per second within the waterways.

[13] National Climatic Data Center, http://lwf.ncdc.noaa.gov

RAINFALL AND FLOW CHARACTERISTICS

Historical rainfall records from 3 existing rain gauges located adjacent to the LSGR watershed were obtained and utilized in this analysis. These meteorological stations and resulting rain gauge data are maintained by National Climatic Data Center. The gauges were chosen due to their active status and the duration of available data. These locations are shown in Figure 1-5 with detailed location information provided in Table 1-3.

Table 1-3: Rainfall data summary

Station ID	Station	Period	Latitude	Longitude	Elevation (ft)	Mean Annual Precipitation (in)	85th Percentile Storm (in)
GHCND: USC00042494	Downey Fire Station	1949 - 2012	33.929	-118.145	110	12.32	0.22
GHCND: USW00023129	Long Beach Daugherty Field	1949 - 2014	33.811	-118.1463	30.84	11.20	0.18
GHCND: USC00049660	Whittier City Yard	1998 - 2014	33.9758	-118.0222	445.87	9.86	0.03

(1) National Climatic Data Center, http://lwf.ncdc.noaa.gov

Average monthly rainfall for the historical record has been calculated for each rain gauge and is provided in Table 1-3. The monthly values are similar among the two rain gauges.

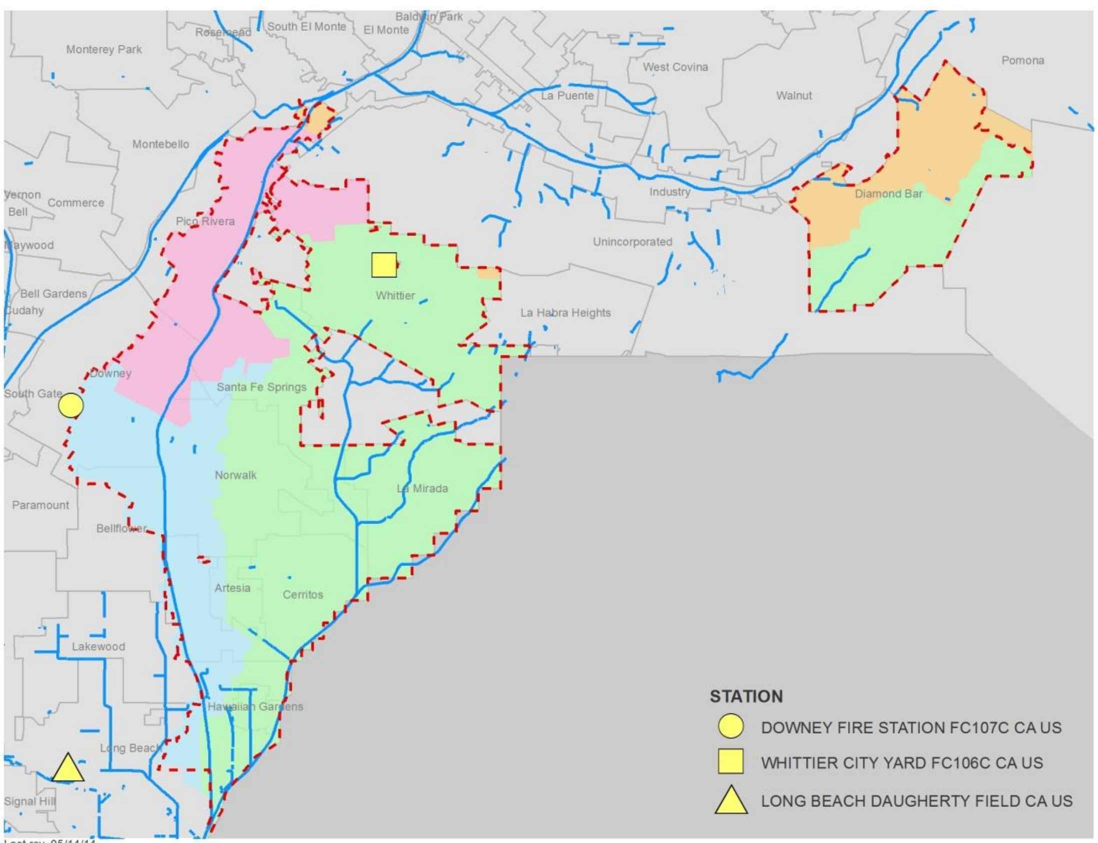


Figure 1-5: Rainfall gauge stations in Downey and Long Beach (yellow squares)

Table 1-4: Summary of average monthly rainfall (in)

Month	Downey Fire Station	Long Beach Daugherty Field	Whittier City Yard
January	3.3	2.8	2.8
February	3.3	3.6	3.7
March	2.4	2.2	2.2
April	1.0	0.6	0.7
May	0.3	0.3	0.3
June	0.1	0.2	0.1
July	0.0	0.0	0.0
August	0.1	0.1	0.1
September	0.3	0.3	0.3
October	0.4	0.4	0.4
November	1.5	1.0	0.9
December	2.0	2.0	2.0
Total Average Monthly Rainfall	1.2	1.1	1.1

(1) National Climatic Data Center, http://lwf.ncdc.noaa.govhttp://lwf.ncdc.noaa.gov/

DRY WEATHER FLOWS TO THE LOWER SAN GABRIEL RIVER

Dry weather flow in the San Gabriel River comes predominantly from effluent discharges and groundwater inflow. Sources of effluent discharges in the Lower San Gabriel River watershed include the Sanitation Districts of Los Angeles County, urban runoff such as irrigation overflows and car wash water, and various industrial discharges.

The Sanitation Districts of Los Angeles County maintain a regional, interconnected sewerage system called the Joint Outfall System. The Joint Outfall System includes five satellite water reclamation plants (WRPs) that discharge effluent into the San Gabriel River during dry weather:

THE LONG BEACH WRP is located at 7400 E. Willow Street in the City of Long Beach. The plant occupies 17 acres west of the San Gabriel River (605) Freeway and began operation in 1973. The Long Beach WRP provides primary, secondary and tertiary treatment for 25 million gallons of wastewater per day, and serves a population of approximately 250,000 people. Almost 6 million gallons per day of the reclaimed water is reused at over 60 reuse sites, including landscape irrigation of schools, golf courses, parks, and greenbelts by the City of Long Beach. The remaining water is discharged directly to Coyote Creek at one effluent discharge point directly above the confluence with the San Gabriel River. The average monthly effluent discharge from the Long Beach WRP was 11.97 MGD in 2012, with the average monthly max being 17.50 MGD and the average monthly minimum flows measured at 7.84 MGD.

THE LOS COYOTES WRP is located at 16515 Piuma Avenue in the city of Cerritos and occupies 34 acres at the northwest junction of the San Gabriel River (605) and the Artesia (91) Freeways. The Los Coyotes WRP provides primary, secondary and tertiary treatment for 37.5 million gallons of wastewater per day, and serves a population of approximately 370,000 people. Over 5 million gallons per day of the reclaimed water is reused at over 270 reuse sites, including landscape irrigation of schools, golf courses, parks, nurseries, and greenbelts. The remaining water is discharged directly to the San Gabriel River at one effluent discharge point above the confluence

with Coyote Creek. The average monthly effluent discharge from the Los Coyotes WRP was 18.85 MGD in 2012, with the average monthly max being 22.62 MGD and the average monthly minimum flows measured at 15.58 MGD.

The Pomona WRP is located at 295 Humane Way in the City of Pomona. The plant occupies 14 acres northeast of the intersection of the Pomona (60) and Orange (57) Freeways. The Pomona WRP provides primary, secondary and tertiary treatment for 15 million gallons of wastewater per day, and serves a population of approximately 130,000 people. Approximately 8 million gallons per day of the reclaimed water is reused at over 190 different reuse sites, including landscape irrigation of parks, schools, golf courses, greenbelts. The remaining water is discharged to the San Jose Creek channel at 1 effluent discharge point, where it is allowed to percolate into the groundwater in the unlined portions of the San Gabriel River before flowing into the ocean. The average monthly effluent discharge from the Pomona WRP was 4.22 MGD in 2012, with the average monthly max being 7.42 MGD and the average monthly minimum flows measured at 2.09 MGD.

The San Jose Creek WRP is located at 1965 Workman Mill Road, in unincorporated Los Angeles County, next to the City of Whittier. The plant occupies 39 acres north of the Pomona (60) Freeway on both sides of the San Gabriel (605) Freeway and consists of an East WRP and a West WRP. The San Jose Creek WRP provides primary, secondary and tertiary treatment for 100 million gallons of wastewater per day, and serves a large residential population of approximately one million people. Approximately 42 million gallons per day of the reclaimed water is reused at over 130 different reuse sites, including groundwater recharge and irrigation of parks, schools, and greenbelts. The remainder is discharged to the San Gabriel River at 5 discharge points. The average monthly effluent discharge from the East San Jose Creek WRP was 31.64 MGD in 2012, with the average monthly max being 44.34 MGD and the average monthly minimum flows measured at 9.03 MGD. The average monthly effluent discharge from the West San Jose Creek WRP was 9.65 MGD in 2012, with the average monthly max being 18.00 MGD and the average monthly minimum flows measured at 1.28 MGD.

The Whittier Narrows WRP is located at 301 N. Rosemead Boulevard in the City of El Monte. The plant occupies 27 acres south of the Pomona (60) Freeway, and provides primary, secondary and tertiary treatment for 15 million gallons of wastewater per day. Most of the reclaimed water is reused as groundwater recharge into the Rio Hondo and San Gabriel Coastal Spreading Grounds, or for irrigation at an adjacent nursery. Remaining effluent is discharged directly into the San Gabriel River at 1 effluent discharge point above Whittier Narrows Dam. The average monthly effluent discharge from the Whittier Narrows WRP was 6.44MGD in 2012, with the average monthly max being 8.05MGD and the average monthly minimum flows measured at 4.97MGD.

Wet Weather Flows to the Lower San Gabriel River

In addition to stormwater flows within the Los Angeles Basin, wet weather flows from the San Gabriel River Mountains also contribute to flows in the San Gabriel River.

WATERSHED CATCHMENT HYDROLOGIC CONNECTIVITY

The main reach through the watershed is the San Gabriel River, with Coyote Creek and San Jose Creek as major tributaries. The stretch of the San Gabriel River within the watershed consists of a concrete lined channel spanning 140 to 200 feet in width. Coyote Creek and San Jose Creek also have concrete channels at their confluence with the San Gabriel River. Figure 1-6 shows the LACFCD storm drain system within the LSGRW as well as its main channels and tributaries.

The Coyote Creek subwatershed drains approximately 185 square miles to its confluence with the San Gabriel River. The subwatershed is almost entirely developed.

The San Jose Creek subwatershed drains approximately 7.29 square miles to its confluence with the San Gabriel River.

The Lower SGR Watershed drains runoff directly from urbanized area totaling approximately 78.5 square miles. From its upstream beginning in Whittier (in Reach 3 of the San Gabriel River) to its downstream confluence with the San Gabriel River Estuary, the Lower SGR stretches approximately 17.1 miles. The Los Angeles County Department of Public Works provided the delineation of the catchments within each subwatershed. Approximately 107 catchments are located within this watershed[14]. These delineations are based on a combination of contour information and existing underground storm sewer systems.

Drainage areas for individual outfalls are not readily available at this time. Defining these areas would require significant resources. The Group proposes to provide drainages areas for major outfalls with significant discharges and outfalls to be monitored as part of the CIMP. To complete this task, existing drainage maps from the LACFD and/or cities will be obtained and converted to GIS project files. This task will be completed within one year of WMP approval.

The watershed is predominately served by storm drain systems, extending across 15 agency jurisdictions, connecting drainage in urbanized areas with the main tributaries. Although most agencies are not directly adjacent to the LSGR, their runoff ultimately reaches the SGR through its tributaries and connected storm sewer systems.

[14] Los Angeles County Watershed Management Modeling System, http://dpw.lacounty.gov/wmd/wmms/

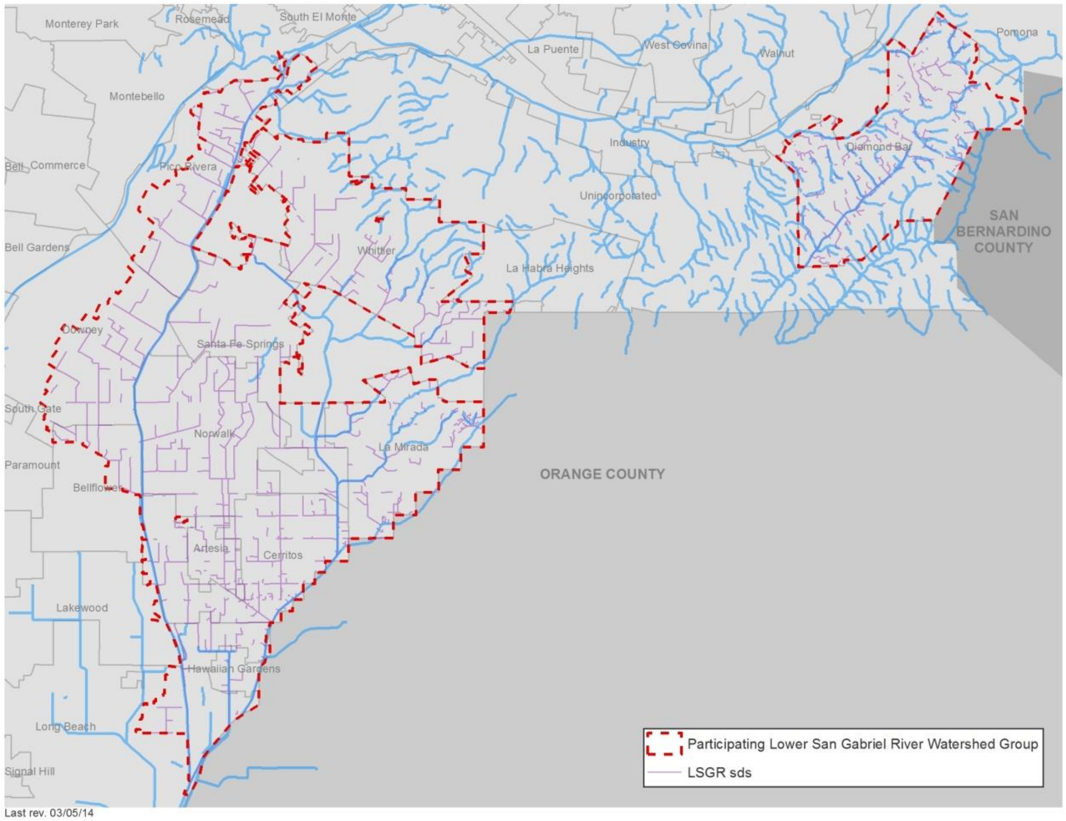


Figure 1-6: LACFCD storm drains

GEOPHYSICAL SETTING

TOPOGRAPHY

Natural topography is comprised of the existing soils, ground elevation/slope, vegetation, stream network, and groundwater. These features impact each other in both the natural and built environments, and therefore should not be analyzed independently when evaluating BMP location options.

SOILS

The Lower SGR Watershed can be characterized as having seven soil types. Figure 1-7 shows the various soil types underlying the watershed. Soils range from sandy loam to clay loam, having a varying range of saturated hydraulic conductivity.

GROUNDWATER

Groundwater flow in the Lower SGR Watershed generally mimics surface topography. Depth to the groundwater varies from 11 feet to greater than 40 feet. Figure 1-8 shows the groundwater basin for the Lower SGR Watershed.

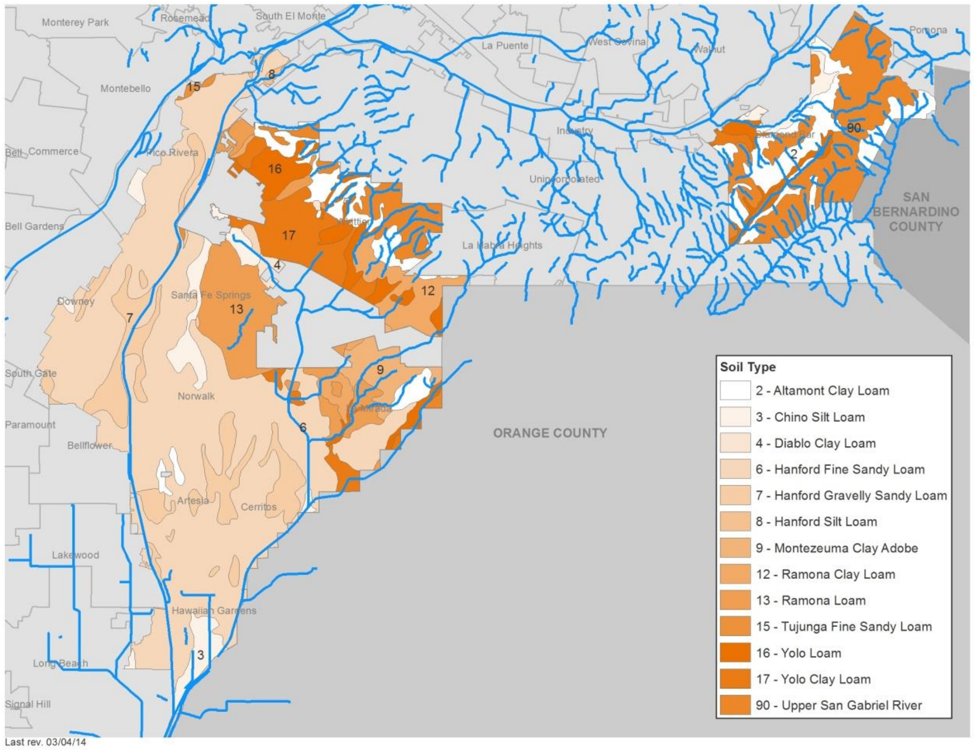


Figure 1-7: Soil types

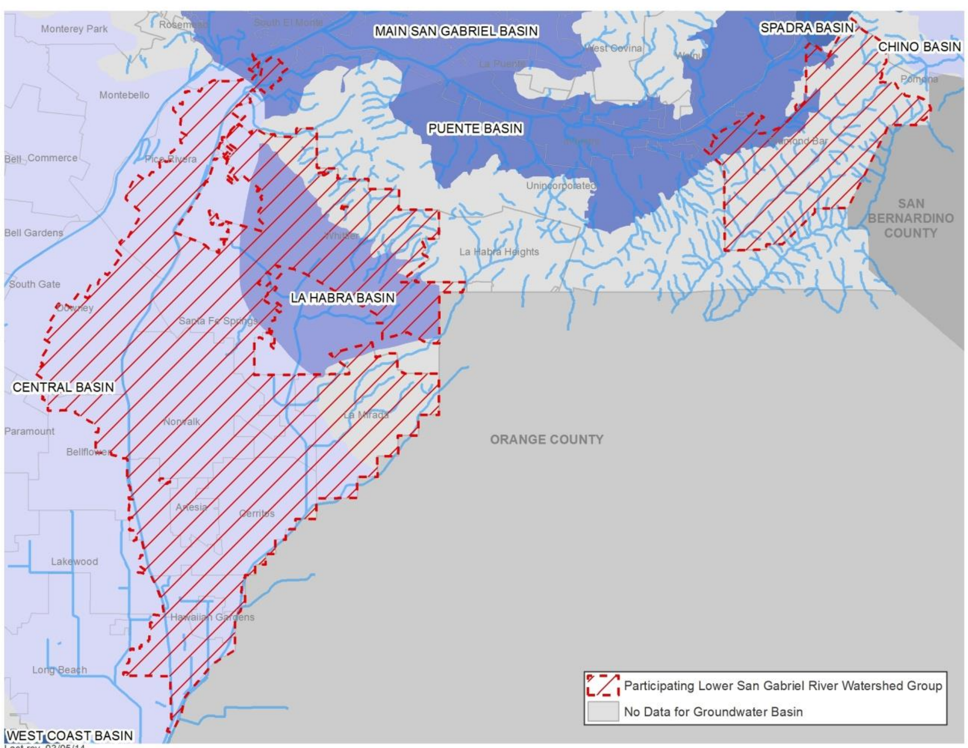


Figure 1-8: Groundwater basins

WATERSHED LAND AREA

Table 1-5 lists the percent land area within the Lower SGR for each participant. In addition to the areas listed in Table 1-5, the WMP will also cover the portions of the cities of Diamond Bar and Whittier do not drain to San Gabriel River Reach 1 and Reach 2 or Coyote Creek.

Table 1-5: Watershed land area

Permittee	Land Area (Acres)	Percent of Total Area
Artesia	1,037	2%
Bellflower	1,216	2%
Cerritos	5,645	11%
Diamond Bar	4,563	9%
Downey	4,237	8%
Hawaiian Gardens	614	1%
La Mirada	5,018	10%
Lakewood	1,293	3%
Long Beach	2,138	4%
Norwalk	6,246	11%
Pico Rivera	3,929	8%
Santa Fe Springs	5,683	11%
Whittier	9,382	16%
Caltrans	Caltrans owns and operates approximately 4% of the watershed	
LACFCD	N/A	N/A

LAND USES

Table 1-6 lists and Figure 1-9 shows the developed and undeveloped land within the Lower SGR Watershed.

Table 1-6: Developed and undeveloped land

Jurisdiction	Acres Developed	Acres Undeveloped	% Developed Lands
Artesia	***1,053***	15.90	99%
Bellflower	830	115	88%
Cerritos	4,600	250	95%
Diamond Bar	26,100	960	97%
Downey	4,090	166	96%
Hawaiian Gardens	1,650	2	100%
La Mirada	10,090	320	97%
LACFCD	ND	ND	ND
Lakewood	3,970	218	95%
Long Beach	4,330	700	86%
Norwalk	7,380	115	99%
Pico Rivera	3,770	283	93%
Santa Fe Springs	5,000	140	97%
Whittier	7,680	1,860	81%
Caltrans	ND	ND	ND

ND - Not delineated

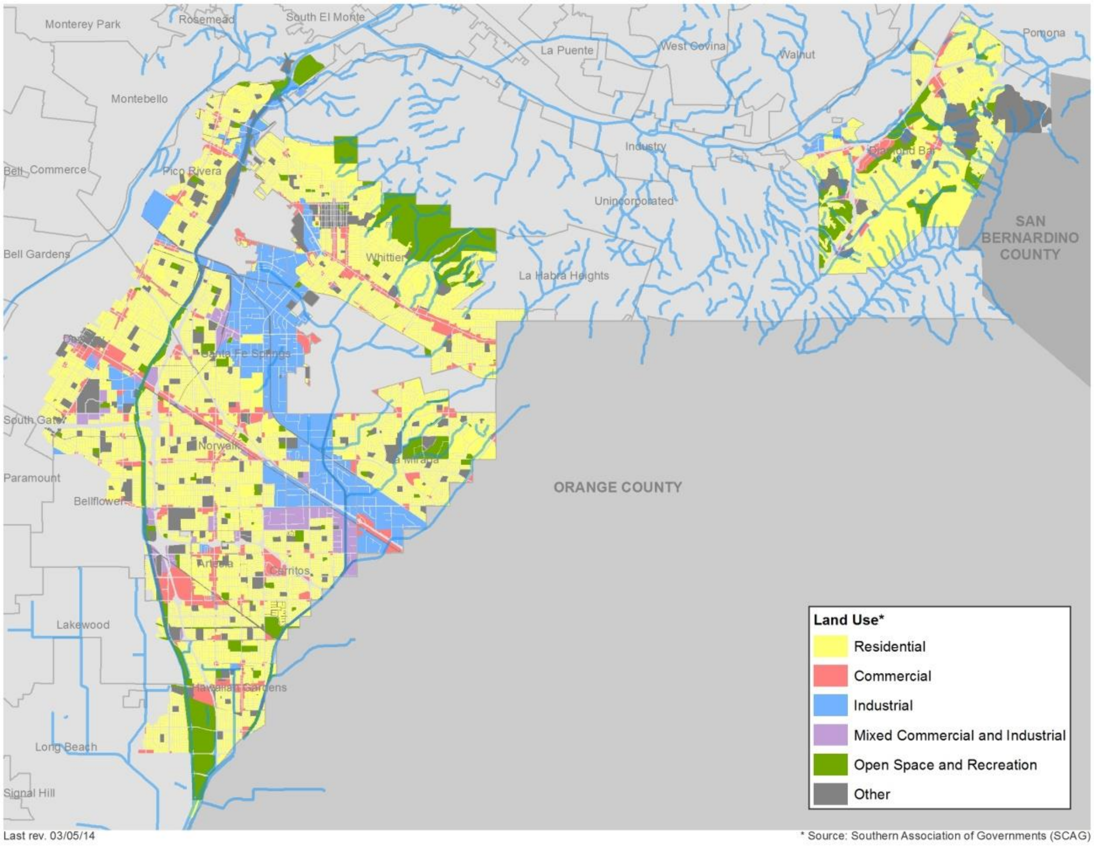


Figure 1-9: Land use map

DISADVANTAGED COMMUNITY

The Lower SGR Watershed is in a geographic area encompassing all or part of thirteen cities. This area is a high-minority and economically disadvantaged region. Of the thirteen cities participating in this WMP, twelve are categorized as disadvantaged communities in part (see Table 1-7)[15], meaning that the median income levels in the city as a whole are less than 80% of the state's median household income ($48,706).

[15] United States Census Bureau, as accessed at *http://www.census.gov/*. February 2014.

Table 1-7: Income statistics by City

City	DAC Percentage
Artesia	14%
Bellflower	30%
Cerritos	6%
Diamond Bar	0%
Downey	29%
Hawaiian Gardens	40%
La Mirada	7%
Lakewood	3%
Norwalk	23%
Pico Rivera	34%
Santa Fe Springs	80%
Whittier	16%
Long Beach	49%

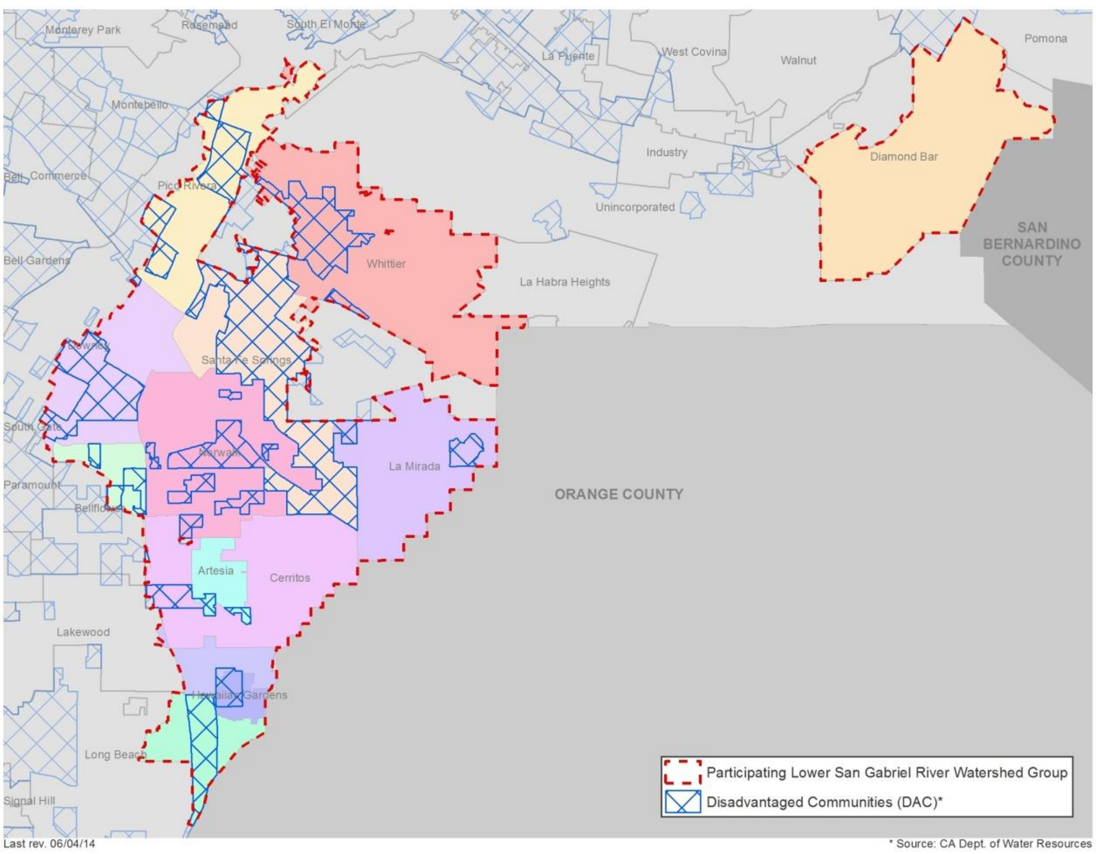


Figure 1-10: Disadvantage Community (DAC) map

1.4 Water Quality Impairments

1.4.1 History of Impairments in the Lower SGR Watershed

Various reaches of the Lower SGR Watershed are on the 2010 CWA Section 303(d) List of impaired water bodies due to metals (copper, lead, selenium, and zinc). Segments of the San Gabriel River and its tributaries are listed as exceeding water quality objectives for copper, lead, selenium, and zinc. Metals loadings to San Gabriel River have the potential to cause impairments of the WILD, WARM, COLD, RARE, EST, MAR, MIGR, SPWN, WET, MUN, IND, AGR, GWR, and PROC beneficial uses. The San Gabriel River metals and selenium TMDL found that the MS4 contributes a large percentage of the metals loadings during dry weather because although their flows are typically low, concentrations of metals in urban runoff may be quite high. During wet weather, most of the metals loadings are in the particulate form and are associated with wet-weather stormwater flow.

1.4.2 Organizing to address TMDLs

TMDLs represent large-scale efforts crossing jurisdictional boundaries and often encompassing the entire drainage of a major regional waterbody (e.g., San Gabriel River). These TMDLs involve coordinated participation from multiple agencies to address the impairments. Several agencies participating in the development of this WMP have already worked in a coordinated effort to address water quality issues throughout the San Gabriel River. This includes the Coyote Creek/San Gabriel River Metals TMDL Committee, which organized several cities under a Memorandum of Agreement in 2012 to develop an Implementation Plan for that TMDL. This effort has now been incorporated into this WMP approach in 2013 and development and adoption of a Basin Plan Amendment by the Regional Board in June 2013. Additional efforts included the cities of Downey, Norwalk, Pico Rivera, Santa Fe Springs and Whittier jointly applied for a Proposition 84 grant to install Low Impact Development (LID) BMPs along high traffic transportation corridors.

1.5 Water Quality Issues and the History of Water Quality Regulations

1.5.1 Federal and State Law

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for all inland surface waters, estuaries, and coastal waters. The federal Environmental Protection Agency (EPA) is ultimately responsible for implementation of the CWA and its associated regulations. However, the CWA allowed EPA to authorize the NPDES Permit Program to state governments, enabling states to perform many of the permitting, administrative, and enforcement aspects of the NPDES Program. California, like other states, implements the CWA by promulgating its own water quality protection laws and regulations. As long as this authority provides equivalent protections as the federal CWA, EPA can delegate CWA

responsibilities to the state while retaining oversight responsibilities. In some cases, California has established requirements that are more stringent than federal requirements.

The 1970 Porter-Cologne Water Quality Control Act granted the California State Water Resources Control Board (SWRCB) and nine California Regional Water Quality Control Boards (Regional Boards) broad powers to protect water quality. This Act and its governing regulations provide the basis for California's implementation of CWA responsibilities. The Los Angeles Regional Water Quality Control Board (Regional Board) is the governing regulatory agency for the Lower SGR Watershed.

Section 303(d) of the CWA requires waterbodies not meeting water quality objectives even after all required effluent limitations have been implemented (e.g. through wastewater or stormwater discharge permits) to be regularly identified. These waters are often referred to as "303(d) listed" or "impaired" waters. Waterbodies that are listed on the 303(d) list typically require development of a Total Maximum Daily Load (TMDL) for the pollutant(s) impairing the use of the water. Development and approval of the 303(d) list is a lengthy state and federal process. A list is not effective until the EPA approves the list. The current EPA-approved 303(d) list for California is the 2010 list; this list can be found in APPENDIX X.

A TMDL establishes the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. Depending on the nature of the pollutant, TMDL implementation requires limits on the contributions of pollutants from point sources (waste load allocation), nonpoint sources (load allocation), or both. The Regional Board is responsible for TMDL development in the LSGRW.

Adoption of a TMDL requires an amendment to the Water Quality Control Plan (known as the Basin Plan) for the Los Angeles Region. The Regional Board's Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of regional waters. Specifically, the Basin Plan (i) designates beneficial uses for surface and ground waters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and (iii) describes implementation programs to protect all waters in the Region. The Basin Plan is reviewed and updated as necessary (Regional Board 1994, as amended). Following adoption by the Regional Board, the Basin Plan and subsequent amendments are subject to approval by the State Board, the State Office of Administrative Law (OAL), and the Environmental Protection Agency (EPA).

1.5.2 WATER QUALITY REQUIREMENTS

The Regional Board designates "beneficial uses" for waterbodies in the watersheds that it governs and adopts water quality objectives to protect these uses[16]. In some cases, EPA may also promulgate objectives where it makes a finding that the state's objectives are not protective enough to protect the beneficial use. The nature of the objectives is directly related to the type of beneficial use. For example, the freshwater warm habitat beneficial use protects aquatic organisms resident in warm-water streams. The associated water quality objectives are for those constituents known to affect both the growth and reproduction of aquatic life. These objectives range from physical characteristics such as temperature,

[16] See Regional Board's 1994 Los Angeles Region Basin Plan, as amended.

dissolved oxygen, and pH to potential toxic constituents including metals and organics. In California, the objectives for metals and a number of organic compounds have been established by the federal EPA rather than the state (California Toxics Rule, 2000). The EPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions based on the determination that the numeric criteria were necessary (since the state had been without numeric water quality criteria for many priority toxic pollutants as required by the CWA) to protect human health and the environment. These Federal criteria are legally applicable in the state for inland surface waters, enclosed bays and estuaries for all purposes and programs under the CWA.

1.6 MS4 PERMIT REQUIREMENTS

The development of this WMP is a compliance option of the MS4 Permit held by the Permittees[17]. The WMP includes an evaluation of existing water quality conditions, including characterization of stormwater and non-stormwater discharges from the MS4 and receiving water quality to support identification and prioritization/sequencing of management actions. At a minimum, water quality priorities within each Watershed Management Area must include achieving applicable water quality based effluent limitations and/or receiving water limitations established.

The MS4 permit requires that this WMP identify strategies, control measures, and BMPs to implement through the stormwater management programs on a watershed scale, with the goal of creating an efficient program to focus collective resources on watershed priorities and effectively eliminate the source of pollutants. This WMP has identified strategies, control measures, and BMPs to be implemented on a watershed scale. Customization of the BMPs to be implemented, or required to be implemented, has been done with the goal of creating an efficient program to focus individual and collective resources on watershed priorities.

On the basis of the evaluation of existing water quality conditions, water body-pollutant combinations were classified into one of the following three categories:

- CATEGORY 1 (HIGHEST PRIORITY): Waterbody-pollutant combinations for which water quality based effluent limitations and/or receiving water limitations are included in the MS4 permit to implement TMDLs.

[17] The Cities of Pico Rivera, Downey, Norwalk, La Mirada and Artesia (hereinafter "the Cities") submitted Administrative Petitions (Petitions) to the California State Water Resources Control Board (SWRCB) pursuant to section 13320(a) of the California Water Code requesting that the SWRCB review various terms and requirements set forth in the 2012 MS4 Permit, Order No. R4-2012-0175 (2012 Permit) adopted by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board)." These Cities have participated in good faith in the development of this Lower San Gabriel River Watershed Management Program (WMP). Nothing in this WMP shall affect those cities' administrative petitions, nor shall anything in this WMP constitute a waiver of any positions or rights therein.

- CATEGORY 2 (HIGH PRIORITY): Pollutants for which data indicate water quality impairment in the receiving water according to the State's Listing Policy and for which MS4 discharges may be causing or contributing to the impairment.
- CATEGORY 3 (MEDIUM PRIORITY): Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in the MS4 permit and for which MS4 discharges may be causing or contributing to the exceedance.

Sources for the waterbody-pollutant combinations are identified by considering the following:

- Review of available data, including historical findings from the participating agencies' Minimum Control Measure and TMDL programs, watershed model results and other pertinent information, data or studies.
- Locations of major MS4 outfalls and major structural controls for stormwater and nonstormwater that discharge to receiving waters.
- Other known and suspected sources of pollutants from the MS4 to receiving waters.

Based on the findings of the source assessment, the issues within the watershed are prioritized and sequenced. Factors considered in establishing watershed priorities include:

1. Pollutants for which there are water quality based effluent limitations and/or receiving water limitations with interim or final compliance deadlines within the permit term.
2. Pollutants for which there are water quality based effluent limitations and/or receiving water limitations with interim or final compliance deadlines between October 26, 2012 and October 25, 2017.
3. Pollutants for which data indicate impairment in the receiving water and the findings from the source assessment implicates discharges from the MS4, but no TMDL has been developed.

1.6.1 REASONABLE ASSURANCE ANALYSIS AND WATERSHED CONTROL MEASURES

As part of the WMP plan, a Reasonable Assurance Analysis (RAA) is conducted for each waterbody-pollutant combination. The RAA consists of an assessment, through quantitative analysis or modeling, to demonstrate that the activities and control measures (i.e. BMPs) identified in the Watershed Control Measures section of the WMP are performed to demonstrate that applicable water quality based effluent limitations and/or receiving water limitations with compliance deadlines during the permit term will be achieved. Watershed Control Measures are subdivided into 1) Minimum Control Measures, 2) Non-Stormwater Discharge Measures 3) TMDL Control Measures and 4) other control measures for water-body pollutant Categories 1, 2 and 3.

Schedules are developed for strategies, control measures and BMPs to be implemented by each individual Permittee within its jurisdiction and for those that will be implemented by multiple

Permittees on a watershed scale. The schedule will measure progress and incorporate 1) Compliance deadlines occurring within the permit term for all applicable interim and/or final water quality based effluent limitations and/or receiving water limitations to implement TMDLs, 2) Interim deadlines and numeric milestones within the permit term for any applicable final water quality based effluent limitation and/or receiving water limitation to implement TMDLs, where deadlines within the permit term were not otherwise specified, and 3) For watershed priorities related to addressing exceedances of receiving water limitations.

1.6.2 ADAPTIVE MANAGEMENT

An adaptive management process will be implemented every two years from the date of program approval, adapting the WMP to become more effective, based on, but not limited to the following:

1. Progress toward achieving the outcome of improved water quality in MS4 discharges and receiving waters through implementation of the watershed control measures,
2. Progress toward achieving interim and/or final water quality based effluent limitations and/or receiving water limitations, or other numeric milestones where specified, according to established compliance schedules,
3. Re-evaluation of the highest water quality priorities identified for the Watershed Management Area based on more recent water quality data for discharges from the MS4 and the receiving water(s) and a reassessment of sources of pollutants in MS4 discharges,
4. Availability of new information and data from sources other than the Permittees' monitoring program(s) within the Watershed Management Area that informs the effectiveness of the actions implemented by the Permittees,
5. Regional Water Board recommendations; and
6. Recommendations for modifications to the WMP solicited through a public participation process

Based on the results of the iterative process, modifications necessary to improve the effectiveness of the WMP will be reported in the Annual Report, and as part of the Report of Waste Discharge (ROWD). Any necessary modifications to the WMP will be implemented upon acceptance by the Regional Water Board Executive Officer or within 60 days of submittal if the Regional Water Board Executive Officer expresses no objections.

2 IDENTIFICATION OF WATER QUALITY PRIORITIES

2.1 WATERBODY POLLUTANT CLASSIFICATION

One of the goals of this Watershed Management Program (WMP) is to identify and address water quality priorities within the Lower San Gabriel River Watershed (Lower SGR Watershed). In order to begin prioritizing water quality issues within the Lower SGR Watershed, an evaluation of existing water quality conditions, including characterization of stormwater and nonstormwater discharges from the Municipal Separate Storm Sewer System (MS4) and receiving waters has been completed per section VI.C.5.a of the MS4 Permit.

The existing water quality conditions of the Lower SGR Watershed were used to classify pollutants into three categories each with specific subcategories. These categories outline watershed priorities, which include, at a minimum, achieving applicable water quality-based effluent limitations and/or receiving water limitations established pursuant to TMDLs. The categories and subcategories are described below:

- Category 1: Waterbody-pollutant combinations for which water quality-based effluent limitations and/or receiving water limitations are established in Part VI.E TMDL Provisions and Attachments L through R of the MS4 Permit.
    - Category 1A: **Final** deadlines within permit term (after approval of WMP[1] & prior to December 28, 2017)
    - Category 1B: **Interim** deadlines within permit term (after approval of WMP[2] & prior to December 28, 2017)
    - Category 1C: **Final** deadlines between December 29, 2017 - December 28, 2022
    - Category 1D: **Interim** deadlines between December 29, 2017 - December 28, 2022
    - Category 1E: **Interim & final** deadlines after December 28, 2022
    - Category 1F: **Past final** deadlines (final deadlines due prior to approval of WMP)
- Category 2: Pollutants for which data indicate water quality impairment in the receiving water according to the State Board's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment.
    - Category 2A: Non-legacy pollutants
    - Category 2B: Bacterial indicators
    - Category 2C: Legacy pollutants
    - Category 2D: Water quality indicators
- Category 3: Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in this Order and for which MS4 discharges may be causing or contributing to the exceedance.

[1] Upon approval and no later than April 28, 2015.

[2] *Ibid.*

- Category 3A: Non-legacy pollutants
- Category 3B: Bacterial indicators
- Category 3C: Legacy pollutants
- Category 3D: Water quality indicators

The Lower SGR Watershed encompasses Reaches 1, 2, and 3 of the San Gabriel River, Coyote Creek, and the lower portions of the San Jose Creek (SJC Reach 1)[3]. A small portion of the watershed in the Diamond Bar area drains primarily through natural drainage to Chino Creek and the jurisdiction of the Santa Ana Region (Region 8). This area will be addressed through watershed control measures discussed in later chapters of this WMP. The pollutants for which the Lower SGR Watershed is listed as impaired for are shown on Figure 1-1.

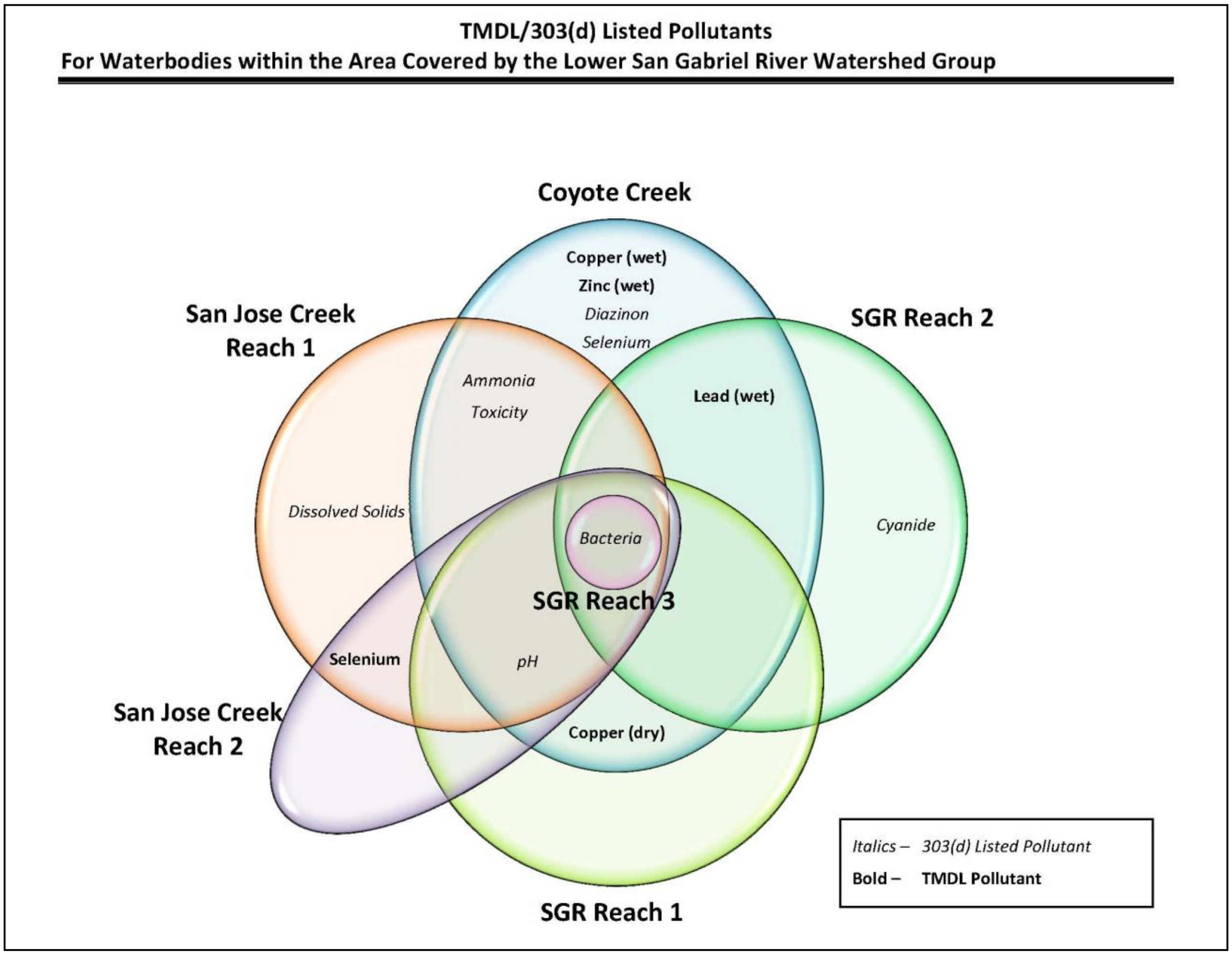


Figure 2-1: Lower San Gabriel River Watershed pollutant Venn diagram

[3] The USGS Hydrologic Unit Code Equivalent HUC boundaries created by LACFCD included the City of Diamond Bar in the Upper SJC HUC (180701060501); however, this designation does not coincide with the LA Basin Plan Reach designations that commence the Upper SJC (Reach 2) at Temple Avenue in Pomona. According to this designation, Diamond Bar drains solely to SJC Reach 1.

The pollutant categories are summarized below including the weather condition for which impairment was determined:

Category 1 B

- ***Copper*** *– San Gabriel River Reach 1 (Dry), Coyote Creek (Wet & Dry), North Fork Coyote Creek (Wet)*
- ***Lead*** *– San Gabriel River Reach 2 (Wet), Coyote Creek (Wet), San Jose Creek Reach 1 (Wet), North Fork Coyote Creek (Wet)*
- ***Zinc*** *– Coyote Creek (Wet), North Fork Coyote Creek (Wet)*
- ***Selenium*** *– San Jose Creek Reach 1 (Dry)*

Category 2A

- ***Ammonia*** *– Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Cyanide*** *– Coyote Creek (Wet & Dry), San Gabriel River Reach 2 (Wet & Dry)*
- ***Diazinon*** *– Coyote Creek (Wet & Dry)*
- ***PAHs*** *– San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet and Dry)*Category 2B
- ***Bacteria*** *– San Gabriel River Reach 1 (Wet & Dry), San Gabriel River Reach 2 (Wet & Dry), Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry), North Fork Coyote Creek (Wet & Dry)*

Category 2C

- ***Copper*** *– San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Lead*** *– Coyote Creek (Dry)*
- ***Mercury*** *– North Fork Coyote Creek (Wet & Dry)*
- ***Nickel*** *– Coyote Creek (Dry)*
- ***Selenium*** *– North Fork Coyote Creek (Wet & Dry)*
- ***Zinc*** *–San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry), Coyote Creek (Dry)*

Category 2D

- ***Chloride*** *– San Jose Creek Reach 1 (Dry)*
- ***pH*** *– San Gabriel River Reach 1 (Wet & Dry), Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Total Dissolved Solids*** *– San Jose Creek Reach 1 (Dry)*
- ***Toxicity*** *– Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*

Category 3A

- ***Cyanide*** *– North Fork Coyote Creek (Wet and Dry), San Jose Creek Reach 1 (Wet and Dry)*
- ***Chloride*** *– San Gabriel River Reach 2 (Dry), Coyote Creek (Dry), San Jose Creek Reach 1 (Dry)*
- ***Lindane*** *– San Gabriel River Reach 2 (Wet and Dry)*

- ***Sulfate*** *– San Gabriel River Reach 2 (Dry)*[4]*, San Jose Creek Reach 1(Dry)*

CATEGORY 3C

- ***Alpha-Endosulfan*** *– Coyote Creek (Dry)*[5]
- ***Copper*** *– North Fork Coyote Creek (Dry)*
- ***Selenium*** *– San Gabriel River Reach 1 (Dry)*

CATEGORY 3D

- ***Dissolved Oxygen*** *– San Gabriel River Reach 1 (Dry),San Gabriel River Reach 2 (Wet and Dry), Coyote Creek (Wet)*[6]*, San Jose Creek Reach 1 (Wet & Dry)*
- ***MBAS*** *– Coyote Creek (Wet), San Gabriel River Reach 2 (Wet)*
- ***pH*** *–North Fork Coyote Creek (Dry)*
- ***Total Dissolved Solids*** *– San Gabriel River Reach 2 (Dry)*

Tables 2-1 and 2-2 summarize the waterbody pollutant combinations for the Lower SGR Watershed.

Table 2-1: Wet weather waterbody/pollutant categories

Category	Analyte	SGR1[(a)]	SGR2[(b)]	SJC1[(c)]	CC[(d)]	NFC[(e)]
1	Copper				×	×
	Lead		×	×	×	×
	Zinc				×	×
2	Ammonia			×	×	
	Copper		×	×		
	Cyanide		×		×	
	Diazinon				×	
	E. coli	×	×	×	×	×
	Mercury					×
	PAH		×	×		
	pH	×		×	×	
	Selenium					×
	Toxicity			×	×	
	Zinc		×	×		
3	Cyanide			×		×
	Dissolved Oxygen		×	×	×	
	Lindane		×			
	MBAS		×		×	
	Selenium	×				

[(a)]San Gabriel River Reach 1, [(b)]San Gabriel River Reach 2, [(c)]San Jose Creek Reach 1
[(d)]Coyote Creek, [(e)]North Fork Coyote Creek

[4] This waterbody/pollutant combination was added due to one exceedance occurring during the 09-10 storm year. There have been no exceedances detected since this time.

[5] This waterbody/pollutant combination was added due to one exceedance occurring during the 09-10 storm year. There have been no exceedances detected since this time.

[6] This waterbody/pollutant combination was added due to one exceedance occurring during the 03-04 storm year. There have been no exceedances detected since this time.

Table 2-2: Dry weather waterbody/pollutant categories

Category	Analyte	SGR1[a]	SGR2[b]	SJC1[c]	CC[d]	NFC[e]
1	Copper	X			X	
	Selenium			X		
2	Ammonia			X	X	
	Chloride			X		
	Copper		X	X		
	Cyanide		X		X	
	Diazinon				X	
	E. coli	X	X	X	X	X
	Lead				X	
	Mercury					X
	Nickel				X	
	PAH		X	X		
	pH	X		X	X	
	Selenium					X
	TDS			X		
	Toxicity			X	X	
	Zinc		X	X	X	
3	Alpha-endosulfan				X	
	Chloride		X	X	X	
	Copper					X
	Cyanide			X		X
	Dissolved Oxygen	X	X	X		
	Lindane		X			
	pH					X
	Selenium	X				
	Sulfate		X	X		
	TDS		X			

[a]San Gabriel River Reach 1, [b]San Gabriel River Reach 2, [c]San Jose Creek Reach 1
[d]Coyote Creek, [e]North Fork Coyote Creek

2.1.1 CATEGORY 1 POLLUTANTS

METALS (COPPER, LEAD, & ZINC) AND SELENIUM

Copper (for San Gabriel River Reach 1 and Coyote Creek), lead (for San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1), zinc (for Coyote Creek), and selenium (for San Jose Creek Reach 1) are classified as a Category 1B pollutants. These waterbody-pollutant combinations are addressed in the USEPA established San Gabriel River and Impaired Tributaries Metals and Selenium TMDL. Implementation of this TMDL to achieve applicable receiving water limitations for these pollutants is discussed in later chapters of this WMP. Table 2-3 lists the TMDL targets.

Table 2-3: TMDL Targets for Category 1 Pollutants

Weather	Waterbody	Pollutant	Target	Source
Wet	San Gabriel River Reach 2	Pb	81.34 ug/L	WQBEL
	Coyote Creek	Cu	24.71 ug/L	WQBEL
	Coyote Creek	Pb	96.99 ug/L	WQBEL
	Coyote Creek	Zn	144.57 ug/L	WQBEL
Dry	San Gabriel River Reach 1	Cu	18 ug/L	WQBEL
	San Gabriel River Reach 1	*E-coli*	126 MPN/100 mL	WQBEL
	San Jose Creek Reach 1, 2	Se	5 ug/L	WQBEL
	San Jose Creek Reach 1, 2	*E-coli*	126 MPN/100mL	WQBEL
	Coyote Creek	Cu	0.941 kg/d	WQBEL
	Coyote Creek	*E-coli*	126 MPN/100mL	WQBEL

2.1.2 CATEGORY 2 POLLUTANTS

The following pollutants have been categorized as Category 2 because data indicate water quality impairment due to these constituents according to the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy)[7]. This section concludes with Table 2-4, a summary of the applicable Water Quality Objectives (WQOs) for these pollutants.

AMMONIA[8]

Ammonia is a nutrient which is harmful in high levels. The 303(d) List has indicated that the San Jose Creek Reach 1 and Coyote Creek are impaired by ammonia; therefore, ammonia is classified as a Category 2A pollutant for San Jose Creek Reach 1 and Coyote Creek.

According to the California 2010 Integrated Report, ammonia was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reach 1; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

BACTERIA

The 303(d) List has indicated that the San Gabriel River (Reaches 1 & 2), San Jose Creek (Reach 1), North Fork Coyote Creek, and Coyote Creek are impaired by bacteria[9]. In addition, Los Angeles County Flood Control District (LACFCD) Tributary Station TS(17) North Fork Coyote Creek detected 8 out of 8 wet weather exceedances of LA Basin Plan bacterial WQOs for total coliform, fecal coliform, and fecal

[7] An excerpt of the 2010 California 303(d) List of Water Quality Limited Segments for Region 4 is included in Appendix 2-1

[8] According to the Council for Watershed Health's State of the San Gabriel River watershed, over the last 10 years, upgrades to water reclamation plant (WRP) technologies has resulted in significant decreases in nitrogen compounds (such as ammonia) in receiving waters.

[9] According to the California 2010 Integrated Report, bacteria was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reaches 1 and 2; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

enterococcus. Therefore, bacteria is classified as a Category 2B pollutant for Reaches 1, 2, and 3 of the San Gabriel River, Reach 1 of the San Jose Creek, and Coyote Creek.

CHLORIDE

LACSD data detected 26 out of 108 dry weather exceedances at C1, 22 out of 108 dry weather exceedances at C2, and 21 out of 102 dry weather exceedances at RD in of the LA Basin Plan WQO for chloride between 2004 and 2012. These stations all correspond to Coyote Creek. Since the number of exceedances meets the State Listing Criteria for 303(d) listing[10] chloride is classified as a Category 2D pollutant in Coyote Creek.

COPPER

LACFCD mass emission station S(14) San Gabriel River detected 23 out of 38 wet weather exceedances and 14 out of 21 dry weather exceedances, and LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 9 out of 10 wet weather exceedances and TS(15) Upper San Jose Creek detected 9 out of 10 wet weather and 4 out of 4 dry weather exceedances of the CTR WQO for copper between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[11] Copper is classified as a Category 2C pollutant in San Gabriel River Reach 2, North Fork Coyote Creek and San Jose Creek Reach 1.

CYANIDE

Cyanide is an inorganic chemical compound. The 303(d) List has indicated that San Gabriel River Reach 2 is impaired by cyanide. In addition, there were 4 out of 40 wet weather and 22 out of 23 dry weather exceedances of the CTR water quality objective for cyanide at Coyote Creek between 2002 and 2012[12]. Since this meets the State Listing Criteria for 303(d) listing[13], cyanide is classified as a Category 2A pollutant for the Reach 2 of the San Gabriel River and Coyote Creek.

DIAZINON

Diazinon is an organophosphate insecticide. The 303(d) List has indicated that Coyote Creek is impaired by diazinon; therefore, diazinon is classified as a Category 2A pollutant for the Reach 1 of Coyote Creek.

According to the California 2010 Integrated Report, diazinon was considered for removal from the 303(d) list for Coyote Creek; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards are exceeded and diazinon contributes to or causes the problem.

[10] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Conventionals – Table 3.2.

[11] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

[12] According to the California 2010 Integrated Report, cyanide was considered for placement onto 303(d) list for Coyote Creek; however, it was concluded that the pollutant should not be placed on the 303(d) list for Coyote Creek because applicable water quality standards for the pollutant are not being exceeded.

[13] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

LEAD

Lead is classified as a Category 1B pollutant for San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1 during wet weather as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided during dry weather.

Although Coyote Creek does not have an established dry weather WLA within the San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL, data indicates that Coyote Creek is impaired by lead in dry weather. LACFCD Mass Emission Station S(13) detected 9 out of 23 dry weather exceedances of the CTR water quality objective for lead between 2002 and 2012. Therefore, lead is classified as a Category 2C pollutant for Coyote Creek.

MERCURY

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by mercury, the LACFCD Tributary station TS(17) North Fork Coyote Creek collected 1 out of 4 wet weather samples and 2 out of 10 dry weather samples exceeding the California Toxics Rule WQO for this pollutant between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[14], mercury is classified a category 2C pollutant within this WMP. It is anticipated that the control measures used to address the pollutants within San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL will subsequently address mercury; however, if exceedances occur and the implemented or proposed control measures do not address mercury, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

NICKEL

LACSD data detected 58 out of 85 dry weather exceedances of the CTR WQO for nickel in the Coyote Creek between 2004 and 2012. Since this meets the State Listing Criteria for 303(d) listing[15] nickel is classified as a Category 2C pollutant in Coyote Creek.

PAHS

Although the San Gabriel River and San Jose Creek are not listed as impaired on the 303(d) List for PAHs, monitoring data from the LA County Sanitation Districts (LACSD) indicate numerous exceedances of PAH compounds in the San Gabriel River and San Jose Creek from 2004-2012. Therefore, PAHs are classified as a Category 2A pollutant for San Gabriel River Reach 2 and San Jose Creek Reach 1.

PH

pH is a measure of the acidity or basicity of an aqueous solution. The 303(d) List has indicated that San Gabriel River Reach 1, Coyote Creek, and San Jose Creek Reach 1 are impaired by pH; therefore, pH is

[14] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

[15] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

classified as a Category 2D for Reach 1 of the San Gabriel River, Coyote Creek, and Reach 1 of the San Jose Creek.

According to the California 2010 Integrated Report, pH was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reach 1; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

SELENIUM

Selenium is classified as a Category 1C pollutant for San Jose Creek Reaches 1 and 2 as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided for Reaches 1, 2, or 3 of the San Gabriel River or for Coyote Creek.

Although Coyote Creek does not have an established WLA within the San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL, the 303(d) List has indicated that North Fork Coyote Creek is impaired by selenium[16]. Therefore, selenium is classified as a Category 2C pollutant for Coyote Creek.

TOTAL DISSOLVED SOLIDS

Total Dissolved Solids (TDS) is a measure of the combined content of all inorganic and organic substances contained in a liquid. The 303(d) List has indicated that the San Jose Creek Reach 1 is impaired by TDS; therefore, TDS is classified as a Category 2D for San Jose Creek Reach 1.

TOXICITY

The 303(d) List has indicated that Coyote Creek and San Jose Creek Reach 1 are impaired by toxicity; therefore, toxicity is classified as a Category 2D for Coyote Creek and Reach 1 of the San Jose Creek.

According to the California 2010 Integrated Report, San Gabriel River Reaches 1 and 3 were originally listed on the 303(d) list for toxicity and were removed based on the conclusion that applicable water quality standards are not being exceeded.

ZINC

LACFCD mass emission station S(13) Coyote Creek detected 5 out of 23 dry weather exceedances, LACFCD mass emission station S(14) San Gabriel River detected 27 out of 38 wet weather exceedances and 8 out of 21 dry weather exceedances, and LACFCD Tributary Station TS(15) Upper San Jose Creek detected 9 out of 10 wet weather exceedances and 3 out of 4 dry weather exceedances of the CTR WQO

[16] Based on data from the State Listing Policy lines of evidence ID #2425, #2426, #25164, and #25162 collected by the County of Los Angeles Department of Public Works, and the Los Angeles County Sanitation Districts, selenium is being considered for removal from the 303(d) list for Coyote Creek. The Regional Board concluded that the pollutant should not be on the 303(d) list because applicable water quality standards are not being exceeded. It has been recommended that the decision be approved by the State Board and selenium has not yet been removed from the 303(d) list for Coyote Creek

for zinc between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[17] zinc is classified as a Category 2C pollutant in San Gabriel River Reach 2 and San Jose Creek Reach 1.

Table 2-4: Water Quality Objectives for Category 2 Pollutants

Pollutant	Weather	Lowest Applicable WQO	Source
Ammonia	Wet	Varies based on pH and temperature for Cold waters and Warm Waters (Table 3-1 to 3-4 of Basin Plan)	Basin Plan—Total Ammonia-Nitrogen (NH3-N)
	Dry		
Copper	Wet	5.7 ug/L[(a)]	CTR Freshwater (1 hr avg.) dissolved
	Dry	4.1 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved
Cyanide	Wet	22 ug/L	CTR Freshwater (1 hr avg.)
	Dry	5.2 ug/L	CTR Freshwater (4 day avg.)
Diazinon	Wet	0.16 ug/L[(b)]	CA Dept. of Fish and Game Freshwater (1-hour avg)
	Dry	0.1 ug/L[(b)]	CA Dept. of Fish and Game Freshwater (4-day avg)
PAHs	Wet	See footnote (c)	CTR Human Health other than drinking water
	Dry	See footnote (c)	CTR Human Health other than drinking water
E. coli	Wet	235/100 ml	LA Basin Plan
	Dry	235/100 ml	LA Basin Plan
Mercury	Wet/Dry	0.051 ug/L	CTR Human Health (30-d avg; fish consumption only)
pH	Wet/Dry	6.5-8.5	LA Basin Plan
Selenium	Wet	20 ug/L	NTR Freshwater (1 hr avg.) total recoverable
	Dry	5 ug/L	NTR Freshwater (4 day avg.) total recoverable
Toxicity	Wet/Dry	See footnote (d)	Basin Plan
Zinc	Wet	54 ug/L[(a)]	CTR Freshwater (1 hr avg.) dissolved
	Dry	54 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved
Chloride	Dry	150 mg/L	Basin Plan: applies to specific portions of watershed
Lead	Dry	0.92 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved
Nickel	Dry	20 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved

a) Objectives for these constituents are hardness dependent. Values listed are based upon a total hardness of 40 mg/L.

b) Value adjusted by removing *Gammarus fasciatus* study results per recommendation of Finlayson, California Dept. of Fish and Game.

c) CTR does not contain criteria for total PAHs. Each available human health CTR Water Quality Objectives for other than drinking water will be applied.

d) There shall be no acute toxicity in ambient waters, including mixing zones. The acute toxicity objective for discharges dictates that the average survival in undiluted effluent for any three consecutive 96-hour static continuous flow bioassay tests shall be at least 90%, with no single test having less than 70% survival when using an established USEPA, State Board, or other protocol authorized by the Regional Board. There shall be no chronic toxicity in ambient in ambient waters outside mixing zones. To determine compliance with this objective, critical life stage tests for at least three species with approved testing protocols shall be used to screen for the most sensitive species. The test species used for screening shall include a vertebrate, an invertebrate, and an aquatic plant. The most sensitive species shall then be used for routine monitoring. Typical endpoints for chronic toxicity tests include hatchability, gross morphological abnormalities, survival, growth, and reproduction.

[17] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

2.1.3 CATEGORY 3 POLLUTANTS

The waterbody-pollutant combinations described below have been identified as exceeding water quality objectives (WQOs) in the Lower SGR Watershed. Through the adaptive management process, water quality priorities identified in this WMP will be re-evaluated every two years, and if exceedances of Category 3 WQOs are identified through monitoring, then the WMP will be adapted to become more effective in addressing these constituents, per Section VI.C.8.a.ii of the MS4 Permit. Note that station S(14) is of limited value to the Lower SGR Watershed as the watershed's drainage comprises approximately 2% of the drainage captured by this station. Therefore its precision in measuring MS4 contributions from the watershed is uncertain.

ALPHA-ENDOSULFAN

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by Endulsulfan sulfates, the LACFCD Mass Emissions station S(13) in the Coyote Creek collected 1 out of 22 dry weather samples exceeding the California Toxics Rule WQO for this pollutant between 2002 and 2012. This exceedance occurred during the 2009-10 storm year, and there have been no further exceedances detected since this time. Alpha-Endosulfan is classified a category 3C. If exceedances are found to occur and the implemented or proposed control measures do not address Alpha-Endosulfan, the WMP will be revised to include control measures to address the pollutant directly.

CHLORIDE

According to the California 2010 Integrated Report, Coyote Creek was originally listed on the 303(d) list for chloride and was removed based on the conclusion that applicable water quality standards are not being exceeded. However, there were 4 out of 22 dry weather exceedances of the LA Basin Plan WQO for chloride at the LACFCD Mass Emissions station S(14) in San Gabriel River between 2002 and 2012 and 3 out of 23 wet weather exceedances of the USEPA National Recommended WQO for chloride at S(13) between 2002 and 2012; therefore, Chloride is classified a category 3A pollutant within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address chloride, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

COPPER

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 4 out of 4 dry weather exceedances of the CTR WQO for copper between 2002 and 2012. Copper is classified as a Category 3C pollutant within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address Copper, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

CYANIDE

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 1 out 8 wet weather and 1 out of 4 dry weather exceedances and Station TS(15) Upper San Jose Creek detected 1 out of 9 wet weather exceedances of the CTR WQO for cyanide between 2002 and 2012. Therefore Cyanide is classified as a

Category 3C pollutant for North Fork Coyote Creek and San Jose Creek Reach 1. If exceedances are found to occur and the implemented or proposed control measures are not expected to address cyanide, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

Dissolved Oxygen

According to the California 2010 Integrated Report, dissolved oxygen (more correctly a lack of dissolved oxygen) was considered for placement onto 303(d) list for Coyote Creek; however, it was concluded that the dissolved oxygen should not be placed on the 303(d) list for Coyote Creek because applicable water quality standards are not being exceeded.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by low dissolved oxygen, the LACFCD Mass Emissions station S(13) in Coyote Creek collected 1 out of 39 wet weather samples below the dissolved oxygen water quality criteria between 2002 and 2012. This exceedance occurred during the 2003-04 storm year, and there have been no exceedances detected since that time. In addition, LACSD detected 10 out of 501 samples during dry weather in San Jose Creek and 11 out of 550 samples in San Gabriel River that were below the WQO for dissolved oxygen between 2004 and 2012. Therefore, dissolved oxygen is classified as a Category 3D pollutant within this WMP. If exceedances are found to occur through monitoring and the implemented or proposed control measures are not expected to address the dissolved oxygen impairment, the WMP will be revised to include control measures to address it directly.

Lindane

Lindane is a persistent organic pollutant and is relatively long-lived in the environment.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by lindane, historical data detected exceedances of lindane in San Gabriel River Reach 2. Therefore, lindane is classified as Category 3A within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the pollutant, the WMP will be revised to include control measures to address it directly.

Methylene Blue Active Substances (MBAS)

An MBAS assay is used to detect the presence of detergents or foaming agents in water samples.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by MBAS, the LACFCD Mass Emissions station S(13) in Coyote Creek collected 5 out of 42 wet weather samples, the LACFCD Mass Emissions station S(14) in Upper San Gabriel River collected 1 out of 37 wet weather samples that exceeded the Basin Plan WQO for MBAS between 2002 and 2012. Therefore, MBAS is classified as Category 3D within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the pollutant, the WMP will be revised to include control measures to address it directly.

pH

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 3 out of 4 dry weather exceedances of the LA Basin Plan WQO for pH between 2002 and 2012. Therefore pH is classified as a Category 3D pollutant within this WMP. If exceedances are found to occur through monitoring and the implemented or proposed control measures are not expected to address the impairment, the WMP will be revised to include control measures to address pH directly.

Selenium

Selenium is classified as a Category 1B pollutant for San Jose Creek Reach 1 during dry weather as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided for the San Gabriel River or Coyote Creek.

Although the San Gabriel River Reach 1 is not listed as impaired by selenium, the Council for Watershed Health monitoring site SGLT5617 in the San Gabriel River detected 1 exceedance of the National Toxics Rule WQO for selenium between 2005 and 2009. Therefore, selenium is classified as a Category 3C pollutant within this WMP for the San Gabriel River Reach 1. It is anticipated that the control measures used to address the pollutants within the San Gabriel River and Impaired Tributaries Metals and Selenium TMDL will subsequently address selenium; however, if exceedances are found to occur and the implemented or proposed control measures do not address sulfates, the WMP will be revised.

Sulfates

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by sulfates, the LACFCD Mass Emissions station S(14) in the Upper San Gabriel River collected 1 out of 22 dry weather samples exceeding the Basin Plan WQO for sulfates between 2002 and 2012. This exceedance occurred during the 2009-10 storm year, and there have been no exceedances detected since that time. In addition, the LACSD detected 1 out of 503 dry weather samples exceeding the California Secondary MCL for sulfates between 2004 and 2012 in the San Jose Creek. Therefore, Sulfates are classified as a Category 3A within this WMP for the San Gabriel River Reach 1 and the San Jose Creek; however, these waterbody/pollutant combinations will not be directly addressed through the WMP. It is anticipated that the control measures used to address the pollutants within San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL will subsequently address sulfates; however, if exceedances are found to occur and the implemented or proposed control measures do not address sulfates, the WMP will be revised to include control measures to address the pollutant directly.

Total Dissolved Solids

Total Dissolved Solids (TDS) is a measure of the combined content of all inorganic and organic substances contained in a liquid. The LACFCD Mass Emission station S(14) collected 2 out of 22 dry weather samples exceeding the LA Basin Plan WQO for Total Dissolved Solids between 2002 and 2012.

Therefore TDS is classified as a Category 3D within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the condition, the WMP will be revised to include control measures to address it directly.

2.1.4 POLLUTANT CLASSIFICATION

In order to determine the sequence of addressing pollutants of concern, the pollutants have been placed into classification groups. Pollutants have been identified to be in the same "class" if they have a similar fate and transport, can be addressed via the same types of control measures, and can be addressed within the same timeline. The six following classes have been identified:

- Metals
- Nutrients
- Bacteria
- Pesticides
- Semivolatile Organic Compounds (SVOC)
- Water Quality Indicators/General

The specific classes and pollutants associated can be found below. Since similar control measures and timelines are to be implemented for pollutants within the same class, each class will be treated with the highest priority of any one pollutant within that class. Watershed Control Measures and Compliance Schedules are discussed in Sections 3 and 5, respectively.

METALS

Copper
Lead
Mercury
Nickel
Selenium
Zinc

NUTRIENTS

Ammonia

BACTERIA

Coliform Bacteria
E.Coli

PESTICIDES

Alpha Endosulfan
Diazinon
Lindane

SVOCS

PAHs

WATER QUALITY INDICATORS/GENERAL

Chloride
Cyanide
Dissolved Oxygen
MBAS
pH
Sulfate
Total Dissolved Solids
Toxicity

2.2 WATER QUALITY CHARACTERIZATION

In order to characterize existing water quality conditions in the Lower SGR Watershed, and to identify pollutants of concern for prioritization per section VI.C.5.a.ii of the MS4 Permit, available monitoring data collected during the previous ten years were analyzed. The following sources were utilized during the water quality characterization:

- LACFCD Mass Emission and Tributary Monitoring Programs
- Los Angeles County Sanitation Districts (LACSD)
- San Gabriel River Regional Watershed Monitoring Program (SGRRMP)
- County of Orange Coyote Creek Monitoring Program

A summary of each of these monitoring efforts and relevant findings is presented below. In addition to providing a characterization of the current conditions within the watershed, this information will be used to target watershed management efforts in the Lower SGR Watershed.

2.2.1 MASS EMISSIONS HISTORICAL DATA ANALYSIS

Since 1994, the LACFCD has conducted stormwater monitoring in Los Angeles County. The LACFCD operates seven mass emission monitoring stations, which collect runoff from the major watersheds in the county with the goal of estimating the mass emissions from the MS4, assessing mass emissions trends, and determining whether the MS4 is contributing to exceedances of water quality standards by comparing results to applicable objectives in the Water Quality Control Plan for the Los Angeles Region (Basin Plan), and the California Toxics Rule (CTR).

The mass emissions monitoring dataset is the most comprehensive information to date regarding the condition of water quality in the San Gabriel River and its tributaries. Two LACFCD Monitoring Stations, S(13) and S(14), collect samples that are applicable to the Lower SGR Watershed.

COYOTE CREEK MONITORING STATION S(13)

The Coyote Creek Monitoring station, S(13), is located at the existing Army Corps of Engineers stream gauge station (i.e. Stream Gauge F354-R) below Spring Street in the Lower SGR Watershed. The upstream tributary area is 150 square miles and extends into Orange County. The sampling station was chosen to avoid backwater effects from the San Gabriel River to ensure that all water being sampled is from Coyote Creek only. Coyote Creek is a concrete-lined trapezoidal channel at this location. Figure 2-2 shows the location and sub-drainage area of this station.

SAN GABRIEL MONITORING STATION S(14)

The San Gabriel River Monitoring Station, S(14), is located at an historic stream gauge station (Stream Gauge F263C-R), below San Gabriel River Parkway in Pico Rivera. Approximately 10% of the Lower SGR Watershed area drains to the San Jose Creek which discharges to the San Gabriel River Reach 2 upstream of the S(14) monitoring station. Lower SGR Watershed drainage comprises approximately 2% of the drainage captured by this station. While the Watershed Group is aware of this monitoring

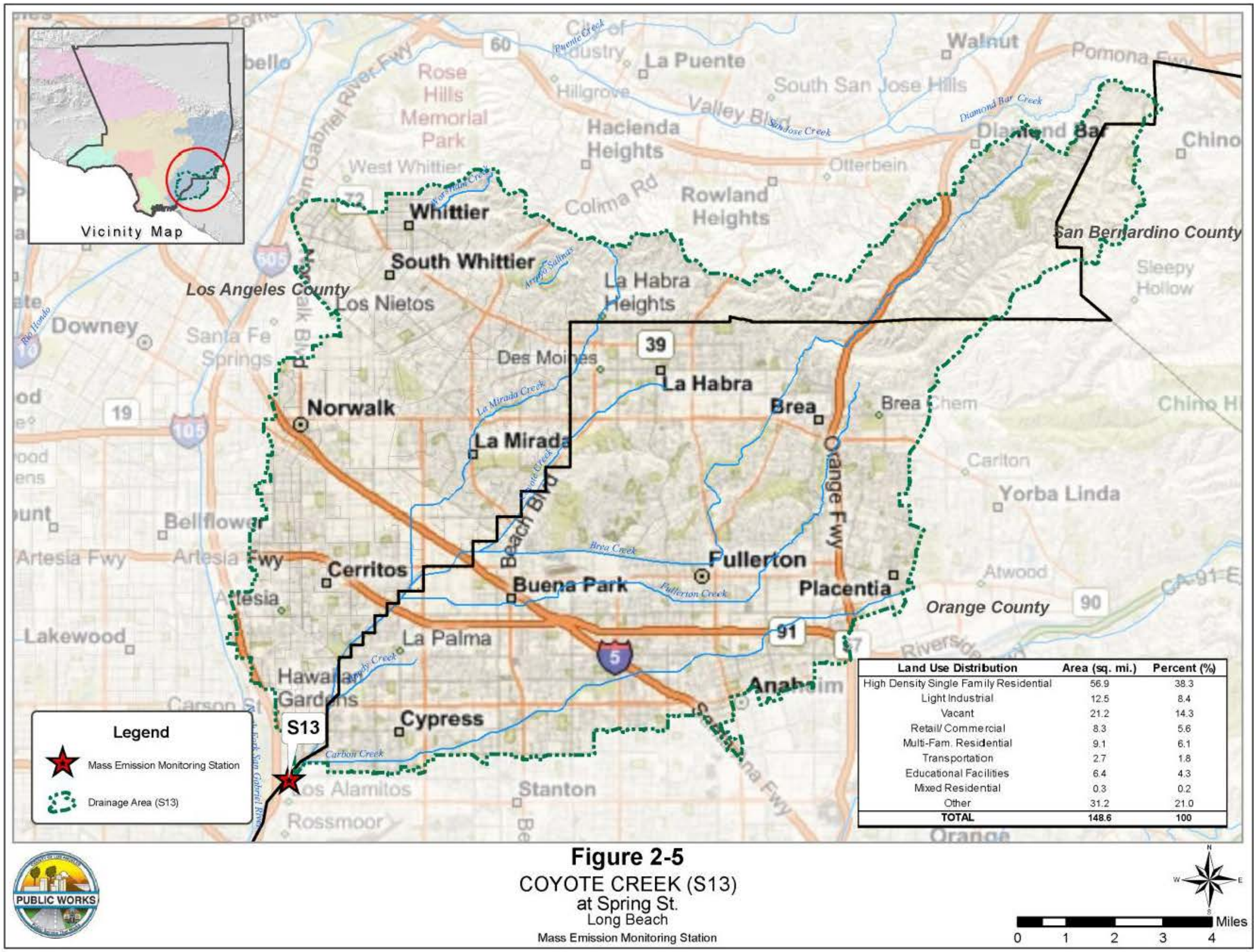
location and analyzed 10 years of data to determine WQPs, it may not be wholly representative of MS4 contributions from the Lower SGR Watershed since the station captures runoff from a large area outside of the Lower SGR Watershed. The Lower SGR Watershed Group will continue to monitor this station through the Lower SGR CIMP.

The upstream tributary area for station S(14) is 450 square miles (most of this area falls outside of the Lower SGR Watershed). The San Gabriel River is a grouted rock-concrete stabilizer along the western levee and a natural section on the eastern side. Flow measurement and water sampling are conducted in the grouted rock area along the western levee of the river. The length of the concrete stabilizer is nearly 70 feet. The San Gabriel River sampling location has been an active stream gauging station since 1968. Figure 2-3 shows the location and sub-drainage area of this station.

Both stations, S(13) and S(14), are equipped with automated samplers with integral flow meters, and collect flow composite samples from a minimum of three storm events, including the first storm, and two dry weather events in accordance with the 1996 MS4 Permit.

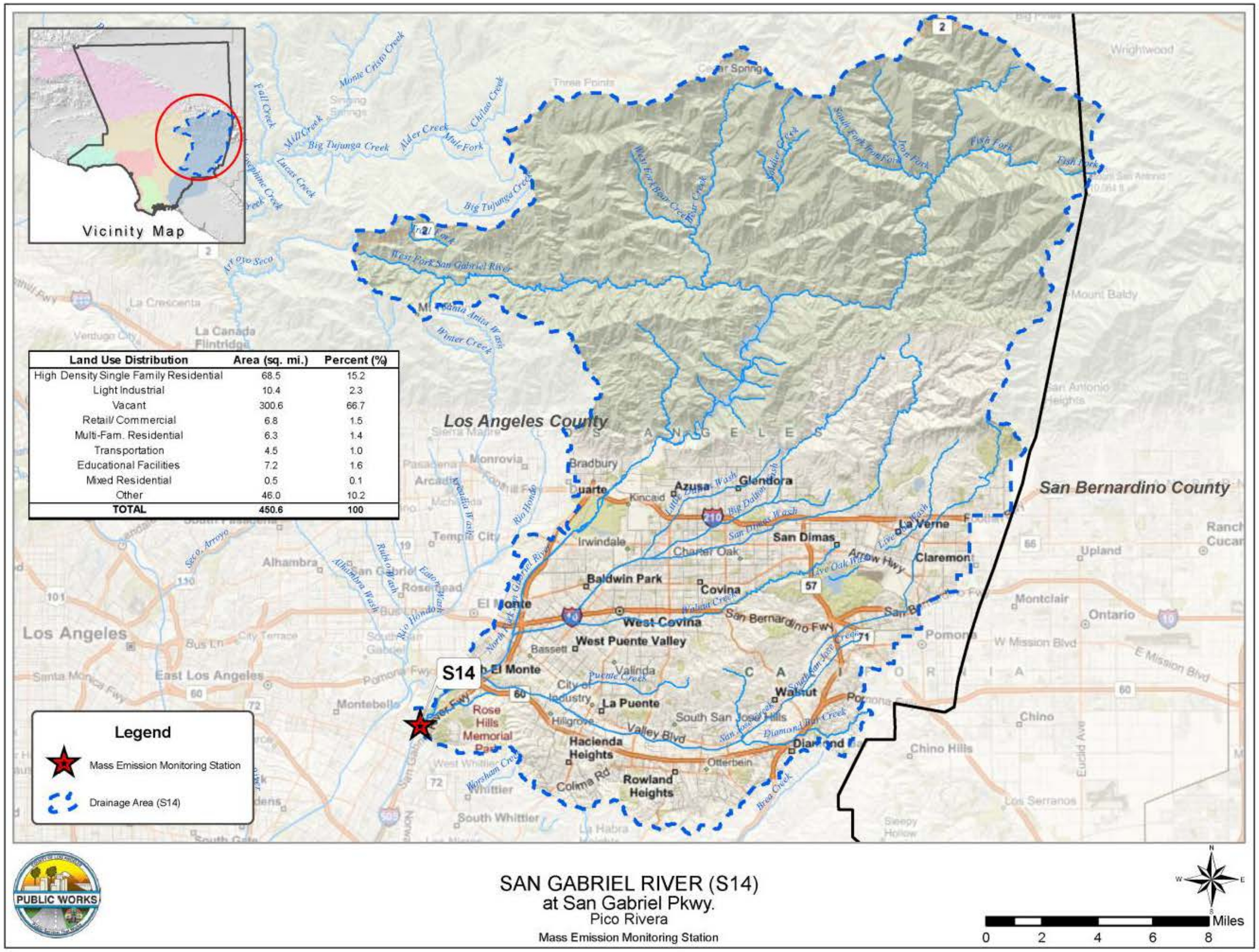
Monitoring data from stormwater collected at stations S(13) and S(14) were compared to the most stringent applicable WQOs to determine exceedances of receiving water limitations. WQOs were determined pursuant to TMDLs, the Basin Plan and the California Toxics Rule, 40 CFR Part 131.38 (CTR). Water quality objectives for chlorpyrifos and diazinon were determined using the freshwater final acute criteria set by the California Department of Fish and Game. Many of the WQOs were used as benchmarks for determining Water Quality Priorities, and should not be used for compliance purposes. Please refer to the Lower SGR Watershed Coordinated Integrated Monitoring Plan (CIMP) for a table of monitored constituents along with their most up-to-date WQOs.

A summary of the constituents not attaining WQOs at stations S(13) and S(14) during the monitoring years 2002-2012 is presented in Tables 2-5 to 2-8 below. Complete tables of monitoring results can be found in Appendix 2-2. Constituents were compared against the most appropriate WQO to date. Refer to CIMP Appendices for a table of monitored constituents along with applicable WQOs.



Land Use Distribution	Area (sq. mi.)	Percent (%)
High Density Single Family Residential	56.9	38.3
Light Industrial	12.5	8.4
Vacant	21.2	14.3
Retail/ Commercial	8.3	5.6
Multi-Fam. Residential	9.1	6.1
Transportation	2.7	1.8
Educational Facilities	6.4	4.3
Mixed Residential	0.3	0.2
Other	31.2	21.0
TOTAL	148.6	100

Figure 2-2: Coyote Creek S(13) monitoring station



Land Use Distribution	Area (sq. mi.)	Percent (%)
High Density Single Family Residential	68.5	15.2
Light Industrial	10.4	2.3
Vacant	300.6	66.7
Retail/ Commercial	6.8	1.5
Multi-Fam. Residential	6.3	1.4
Transportation	4.5	1.0
Educational Facilities	7.2	1.6
Mixed Residential	0.5	0.1
Other	46.0	10.2
TOTAL	**450.6**	**100**

Figure 2-3: San Gabriel River (S14) Monitoring Location

Table 2-5: S(13) Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	40	4	10	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	42	2	5	6.5-8.5	LA Basin Plan
Dissolved Oxygen	39	1	3	5	LA Basin Plan
Total Coliform	40	37	93	10000	LA Basin Plan - Marine Waters
Fecal Coliform	40	40	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	40	40	100	104	LA Basin Plan - Marine Waters
MBAS	42	5	12	0.5	LA Basin Plan
Total Copper	42	26	62	27	SG River Metals TMDL
Total Lead	42	1	2	106	SG River Metals TMDL
Total Selenium	42	1	2	5	SG River Metals TMDL
Dissolved Zinc	42	8	19	120	CTR-100mg/L CMC
Total Zinc	42	29	69	106	SG River Metals TMDL
Diazinon	42	3	7	0.08	CADF&G

Table 2-6: S(13) Constituents Exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	23	22	96	0.0052	CTR Freshwater Aquatic Life Protection, Chronic
pH	23	5	22	6.5-8.5	LA Basin Plan
Total Coliform	23	10	43	10000	LA Basin Plan - Marine Waters
Fecal Coliform	23	18	78	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	23	16	70	104	LA Basin Plan - Marine Waters
Chloride	23	3	13	230	USEPA National Recommended Criteria
Total Copper	23	3	13	19.1	SG River Metals TMDL
Total Lead	23	9	39	0.92	CTR Freshwater Aquatic Life Criteria - Chronic
Total Selenium	23	14	61	5	SG River Metals TMDL
Total Zinc	23	1	4	95.6	SG River Metals TMDL
Diazinon	23	2	9	0.05	CADF&G
Alpha Endosulfan	23	1	0.04	0.034	CTR Freshwater Aquatic Life Protection, Chronic

Table 2-7: S(14) Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	38	4	11	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	38	2	5	6.5-8.5	LA Basin Plan
Total Coliform	38	33	87	10000	LA Basin Plan - Marine Waters
Fecal Coliform	38	36	95	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	38	36	95	104	LA Basin Plan - Marine Waters
MBAS	37	1	3	0.5	LA Basin Plan
Total Copper	38	23	61	14	CTR Aquactic Life Protection - Acute
Total Zinc	38	27	71	54	CTR Aquactic Life Protection - Acute
Diazinon	39	4	10	0.08	CADF&G

Table 2-8: S(14) Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	22	16	73	0.0052	CTR Freshwater Aquatic Life Protection - Chronic
pH	21	3	14	6.5-8.5	LA Basin Plan
Total Coliform	22	11	50	10000	LA Basin Plan - Marine Waters
Fecal Coliform	22	12	55	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	22	12	55	104	LA Basin Plan - Marine Waters
Chloride	22	4	18	150	LA Basin Plan
Sulfate	22	1	5	300	LA Basin Plan
Total Dissolved Solids	22	2	9	750	LA Basin Plan
Total Copper	21	14	67	9.3	CTR Aquatic Life Protection - Chronic

2.2.2 LACFCD TRIBUTARY MONITORING

In addition to the Mass Emission Station monitoring, LACFCD conducted tributary monitoring during the 2006-07 and 2007-08 storm years. This monitoring occurred at 4 tributary stations that fall within the Lower SGR Watershed: TS15: Upper San Jose Creek, TS16: Maplewood Channel, TS17: North Fork Coyote Creek, and TS18: SD 21 (Artesia Norwalk Drain). Two of these sites are located in the storm drain system (TS15 and TS18), while TS15 and TS17 are in 303(d) listed receiving waterbodies. Note: only the data from TS15 and TS17 was used to characterize receiving water and identify WQPs in the Lower SGR watershed. Data analyzed from the TS16 and TS18 will be considered in pollutant source identification during WMP implementation.

TS15: UPPER SAN JOSE CREEK

The Upper San Jose Creek tributary monitoring site is located on Upper San Jose Creek in the City of Industry, upstream of the confluence with Puente Creek. The site is approximately 500 feet south of where Don Julian Road crosses Puente Creek. The upstream tributary watershed area of Upper San Jose Creek is approximately 72.60 square miles.

TS16: MAPLEWOOD CHANNEL

The Maplewood Channel tributary monitoring site is located on Maplewood Channel in Bellflower City, where Trabuco Street ends and crosses Maplewood Channel. The upstream tributary watershed area of Maplewood Channel is approximately 4.90 square miles.

TS17: NORTH FORK COYOTE CREEK

The North Fork Coyote Creek tributary monitoring site is located on North Fork Coyote Creek in the City of Cerritos, where Artesia Boulevard crosses North Fork Coyote Creek. The upstream tributary watershed area of North Fork Coyote Creek is approximately 34.89 square miles.

TS 18: SD 21 (ARTESIA-NORWALK DRAIN)

The SD 21 (Artesia-Norwalk Drain) monitoring site is located on SD 21 (Artesia–Norwalk Drain) in the City of Long Beach, where Wardlow Road crosses the SD 21 (Artesia-Norwalk Drain). The upstream tributary watershed area of this site is approximately 4.14 square miles.

Monitoring data from stormwater collected at stations TS15 and TS17 were compared to the most stringent applicable WQOs to determine exceedances of receiving water limitations. WQOs were determined pursuant to TMDLs, the Basin Plan and the California Toxics Rule, 40 CFR Part 131.38 (CTR). WQOs for chlorpyrifos and diazinon were determined using the freshwater final acute criteria set by the California Department of Fish and Game. Many of the WQOs were used as benchmarks for determining Water Quality Priorities, and should not be used for compliance purposes. Please refer to the CIMP for a table of monitored constituents along with their most up-to-date WQOs.

A summary of the constituents not attaining WQOs at stations TS(15) and TS(17) during the monitoring years 2002-2012 is presented in Tables 2-9 to 2-12 below. Complete tables of monitoring results can be found in Appendix 2-2.

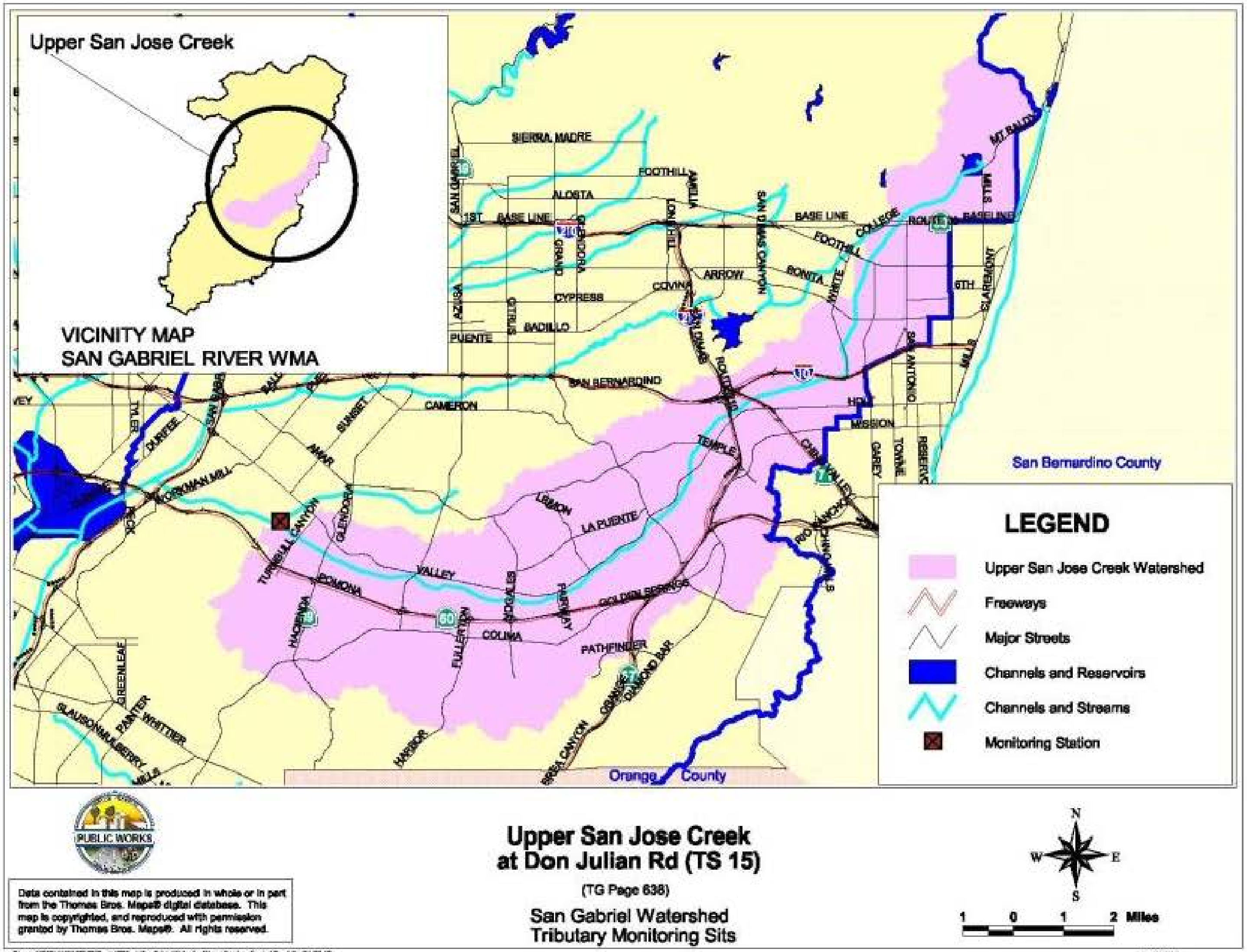


Figure 2-4: TS15 monitoring location

Figure 2-5: TS16 monitoring location

Figure 2-6: TS17 monitoring location

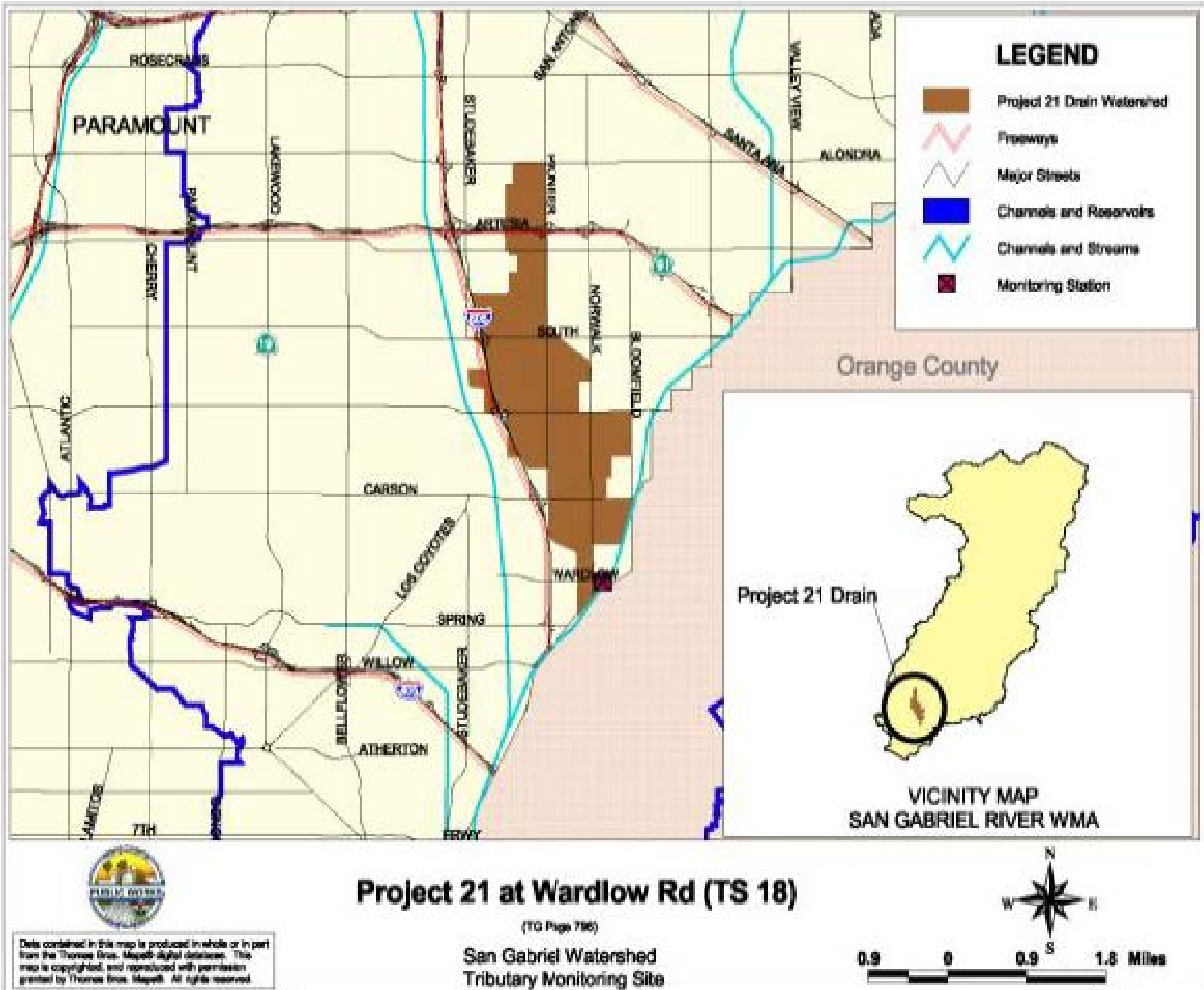


Figure 2-7: SD21 monitoring site location

Table 2-9: TS15 Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	8	1	13	0.022	CTR Freshwater Aquatic Life Protection - Acute
Total Coliform	8	8	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	8	8	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	8	8	100	104	LA Basin Plan - Marine Waters
Total Copper	10	9	90	14	CTR Freshwater Aquatic Life Protection – Acute
Total Mercury	4	1	25	0.051	CTR Human Health Consumption

Table 2-10: TS15 Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Total Coliform	4	4	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	4	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	4	100	104	LA Basin Plan - Marine Waters

Table 2-11: TS17 Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	4	1	25	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	4	3	75	6.5-8.5	LA Basin Plan
Total Coliform	4	2	50	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	2	50	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	2	50	104	LA Basin Plan - Marine Waters
Total Mercury	810	12	1320	0.022051	CTR Human Health Consumption

Table 2-12: TS17 Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
pH	4	3	75	6.5-8.5	LA Basin Plan
Total Coliform	4	4	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	4	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	2	50	104	LA Basin Plan - Marine Waters

2.2.3 LA County Sanitation District Monitoring

The County Sanitation Districts of Los Angeles County (LACSD) are a confederation of 23 independent special districts serving the water pollution control management needs of about 5.7 million people in Los Angeles County. The Sanitation Districts' service area covers approximately 820 square miles and encompasses 78 cities and unincorporated territory within the County. With regard to wastewater treatment, the Sanitation Districts construct, operate and maintain facilities to collect, treat and dispose of wastewater and industrial wastes.

Seventeen of the 23 districts are signatory to an agreement which provides for sewerage service to the majority of residential, commercial and industrial users (IUs) within the County, but mostly located outside of the City of Los Angeles service area. This treatment system, known as the Joint Outfall System (JOS), currently consists of the Joint Water Pollution Control Plant (JWPCP) located in the City of Carson and six upstream water reclamation plants (WRPs); the Whittier Narrows WRP near the City of South El Monte, the Los Coyotes WRP in the City of Cerritos, the San Jose Creek WRP adjacent to the City of Industry, the Long Beach WRP in the City of Long Beach, the Pomona WRP in the City of Pomona and the La Cañada WRP in La Cañada Flintridge. All JOS facilities except the La Cañada WRP are regulated under the NPDES program; all six WRPs are subject to California Waste Discharge or Water Reclamation Requirements. See Chapter 1 Introduction for more detail on the WRP discharges within the Lower SGR Watershed.

The LACSD monitors its effluent at multiple locations within the Lower SGR Watershed. Data from 2004 to 2012 was analyzed and exceedances of the following constituents were found: PAHs in San Gabriel River Reach 2 and San Jose Creek Reach 1, Nickel in Coyote Creek, Chloride in San Jose Creek Reach 1, Sullfates in San Jose Creek Reach 1, and Dissolved Oxygen in San Gabriel River Reach 1 and San Jose Creek Reach 1.

2.2.4 Council for Watershed Health San Gabriel River Regional Monitoring Program

Since 2005, the San Gabriel River Regional Monitoring Program (SGRRMP), a group of local, state, and federal stakeholders led by the Council for Watershed Health, has conducted watershed scale dry weather (May through July) monitoring at targeted and random sites throughout the San Gabriel River watershed. From 2005-2009, the SGRRMP collected and analyzed aquatic chemistry, toxicity bioassessment, and physical habitat data from 69 randomly selected sites within the San Gabriel River watershed representing the upper river watershed, the lower river watershed, and mainstream channel below Whittier Narrows. The SGRRMP also relied on LACFCD tributary monitoring in the San Gabriel River and Coyote Creek watersheds for assessing water quality conditions. A map of randomly selected sites used for biological assessment, along with their biological condition scores is shown in Figure 2-29.

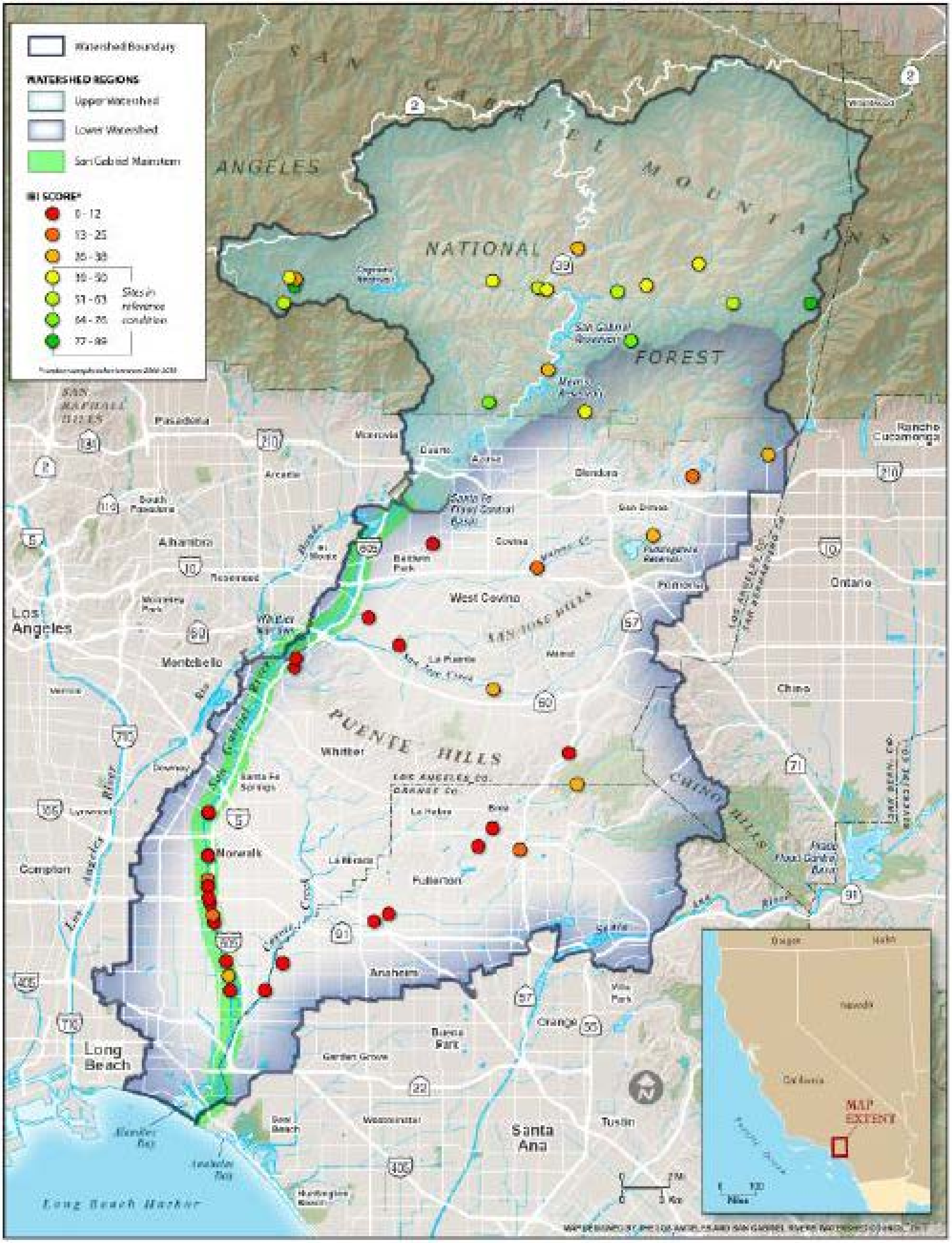


Figure 2-8: SGRRWMP stream monitoring locations used for water quality and biological conditions assessment

The following is a summary of significant observations found after the first five years of monitoring under this program[18]:

- "There were few exceedances of dry weather Basin Plan standards for any water quality parameters measured during the 5-year period."
- "Nutrients were greatest on the mainstem, while most metals were greatest in lower tributaries. An exception to this was dissolved zinc, which was much greater on the mainstem compared to other sub-regions."
- "While nutrients and metals were elevated in the lower tributaries and mainstem, they rarely exceeded water quality objectives and did not strongly correlate with the biotic condition."
- "Nitrate and ammonia were well below toxicity thresholds/standard and there were no exceedances of the hardness-adjusted California toxics rule for any dissolved metal."
- "Organophosphorous and pyrethroid pesticides were nearly always below method detection limits (i.e. Non-detect)."
- "A total of 61 water samples tested for acute and chronic toxicity using water fleas"…"All of the toxic endpoints measured during the five years were in the lower or upper watershed, with no toxicity measured on the San Gabriel River mainstem."
- 317 water samples collected at the confluence of 5 major tributaries with the San Gabriel River during the summers of 2007, 2008, and 2009 were analyzed for E. coli. "47% of these samples exceeded standards with the greatest rate of exceedances occurring at San Jose Creek (range 89 to 100%) and the fewest at Coyote Creek (10 to 29%)."[19]
- "San Jose Creek conveys the largest [relative] loads of most constituents during wet weather, particularly total suspended solids (TSS)."[29]

The Lower SGR Watershed will use these results, and continue to track future SGRRMP results to help target watershed control measures identified in the WMP.

2.2.5 ORANGE COUNTY COYOTE CREEK SOURCE CONTROL PLAN

The Orange County NPDES Municipal Stormwater Permit (Order No. R8-2009-0030) requires Permittees with discharges tributary to Coyote Creek to develop and implement a constituent-specific source control plan to include a monitoring program to control the discharge of copper, lead and zinc into Coyote Creek and other tributaries in Orange County that discharge into the San Gabriel River.

The Coyote Creek Source Control Plan outlines the monitoring and source control strategy for jurisdictions within Orange County draining to Coyote Creek. This Plan identifies monitoring locations to be used in determining source control strategies and compliance with TMDL targets for Coyote Creek within the Orange County jurisdiction. According to this plan, stormwater discharges from Los Angeles County are contributed through North Fork Coyote Creek, and at the confluence with the San Gabriel River. All monitoring locations identified in this plan that are downstream of North Fork Coyote Creek

[18] Morris, K. et al.

[19] Only approximately 10% of the Lower SGR Watershed contributes discharge to San Jose Creek

are located on the Orange County side of the confluence with the Creek, and are meant to be representative of Orange County drainage. Therefore, data collected from these locations cannot be used to characterize Los Angeles County MS4 discharges at this time. The Watershed Group will continue to remain apprised of monitoring results collected through the Orange County Source Control effort, and revise this WMP should data suggest that the Los Angeles County MS4 may be contributing to exceedances of water quality objectives.

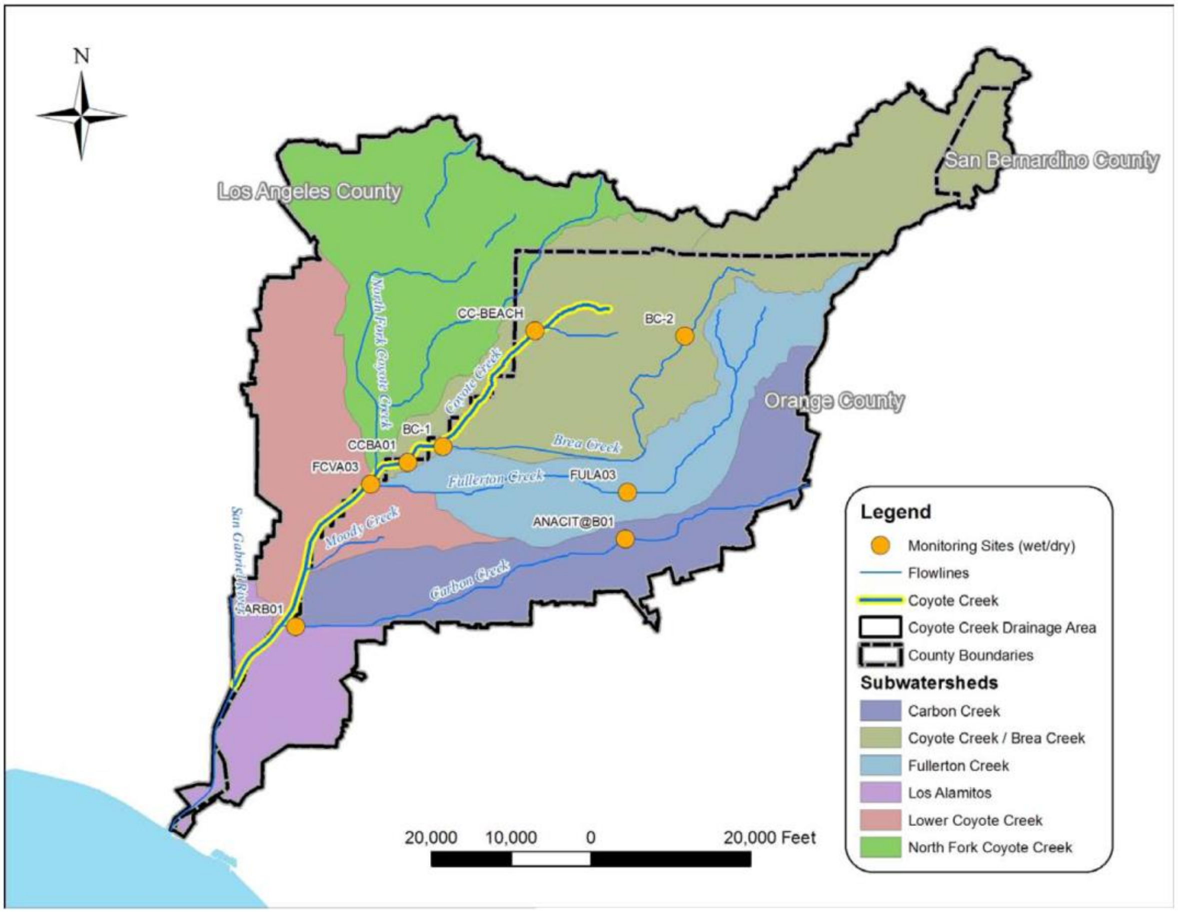


Figure 2-9: County of Orange, OC Watersheds Program Source Control Plan Monitoring Locations along Coyote Creek (*Coyote Creek Watershed Water Quality Monitoring Plan, Figure 2-1*)

2.3 Source Assessment

This section identifies the potential sources of pollutants within the Lower LSGR Watershed for the waterbody-pollutants classified in section 2.2. Information was gathered from several water quality monitoring programs and special studies related to pollutant sources and conditions that contribute to the highest water quality priorities to identify known and suspected stormwater and non-stormwater pollutant sources to and from the MS4.

The pollutants addressed in this section are bacteria, nutrients, metals and sediment. In order to generally describe the potential sources in the Lower LSGR Watershed for these pollutants, pollutant sources have been divided into the following categories: NPDES discharges, road infrastructure, atmospheric deposition, and wastewater from sanitary sewer and SSOs.

2.3.1 NPDES Sources

Pollutant sources may be categorized as either point sources or non-point sources. Point source discharges are regulated through National Pollutant Discharge Elimination System (NPDES) permits. Point sources include those associated with the MS4 (stormwater and urban runoff) and other NPDES discharges. Stormwater runoff in the watershed is regulated through four types of permits including MS4 permits, a statewide stormwater permit for Caltrans; a statewide Construction General Permit (CGP); and a statewide Industrial General Permit (IGP). The NPDES IGP regulates stormwater discharges and authorized non-stormwater discharges from ten specific categories of industrial facilities, including manufacturing facilities, oil and gas mining facilities, landfills, and transportation facilities. The NPDES CGP regulates stormwater discharges from construction sites that result in land disturbances equal to or greater than one acre. Point source discharges from IGP, CGP, residential, commercial and transportation activities can be a significant source of pollutant loads.

Non-point sources by definition include pollutants that reach waters from a number of land uses and are not regulated through NPDES permits. Non-point sources include existing contaminated sediments within the watershed and direct air deposition to the waterbody surface.

The following provides additional discussion regarding the presence of pollutants in stormwater runoff within the watershed.

Bacteria

Specific sources of bacteria are associated with categories such as, anthropogenic, non-anthropogenic, and environmental sources, which may include:

- Sanitary sewer overflows (SSOs), leaks and spills; illicit connections of sanitary lines to the storm drain system.
- Animal wastes – the bacteria indicators used to assess water quality are not specific to human sewage; therefore, natural influences of fecal matter from animals and birds can also be a source of elevated levels of bacteria.

- Organic debris from gardens, landscaping, parks, food waste and illegal dumping from recreational vehicle holding tanks among others, can be a source of elevated levels of total coliform bacteria[1].
- Environmental – soils, decaying vegetation
- Illegal connections and illicit discharges (IC/IDs) to the MS4 are also very likely sources of bacteria in stormwater discharges. The following table includes data based on annual reports submitted to the LA County DPW (previous principal permittee), for illicit connections and illicit discharges. Current data on the constituents for the IC/IDs recorded during this period is not available.

Table 2-13 Illicit Connections/Illicit Discharges 2001-2012

Agency	Illicit Discharges	Illicit Connections
Artesia	21	0
Bellflower	135	0
Cerritos	100	0
Diamond Bar	149	1
Downey	467	6
Hawaiian Gardens	41	0
La Mirada	121	0
Lakewood	162	0
Long Beach	-	-
Norwalk	219	1
Pico Rivera	-	-
Santa Fe Springs	82	2
Whittier	7	1
Total	1,504	11

NUTRIENTS

Possible sources of nutrients include runoff from residential and commercial areas due to landscaping activities and use of fertilizer for lawns and gardens, this includes organic debris. Activities such as washing cars, parking lots and driveways can contribute to nutrients pollutants in the MS4 since most of the detergents used contain phosphorus. Other sources of nutrients include food wastes, domestic animal waste; and human waste from areas inhabited by the homeless. These pollutants build up and are then washed into the waterways through the storm drain system when it rains. These kinds of loads are typically highest during the first major storm flush and even after extended periods of dry weather when pollutants have accumulated. Other major categories of nutrients sources include:

Golf courses are a major source of nutrients since fertilization activities and watering rates are generally much greater than the residential and commercial areas. The excess nutrients accumulated in the soils can be transported to waterways through excess irrigation or stormwater runoff. There are approximately 23 golf courses within the watershed area.

METALS

Heavy metals including copper, lead, and zinc are Category 1 pollutants in the Lower SGR Watershed. Although naturally occurring, concentrations of these metals are a concern in many watersheds because of potential industrial and urban discharges. These types of sources include Industrial General

Permit (IGP) covered facilities, Construction General Permit (CGP) covered facilities, and other types of urban activities.

Industrial General Permit Activities

The types of facilities covered under the IGP have the potential for metal loads, in particular metal plating, transportation, scrap yards and recycling and manufacturing facilities.

According to the Storm Water Multiple Application and Report Tracking System (SMARTS) database, there are approximately 360 current active industrial permits within the watershed; and from 2002-2012 there have been approximately 471 combined, active/terminated, industrial permits. Approximately 204 violations were recorded on the SMARTS database for inspections conducted from 2002-2012. No further data is available to determine the kind of violations or the kind of pollutants these facilities contributed to.

Table 2-14 Active IGP Facilities as of May 1, 2014

Agency	Total
Artesia	3
Bellflower	1
Cerritos	8
Diamond Bar	0
Downey	22
Hawaiian Gardens	0
La Mirada	22
Lakewood	1
Long Beach	78
Norwalk	15
Pico Rivera	12
Santa Fe Springs	176
Whittier	22
Total	360

Construction General Permit Activities

Discharges covered under the CGP also have the potential to contribute metals loading from construction sites. Sediment delivered from construction sites can contain metals from construction materials and heavy equipment. Additionally, metals can leach out of building materials and construction waste exposed to stormwater[20].

Pollutants sources from construction activities are not considered a major concern since the watershed is mainly built-out. However, according to the SMARTS database, there are approximately 127 current active constructions permits within the watershed; and from 2002-2012 there have been approximately 470 combined, active/inactive, construction permits. Approximately 36 violations were recorded on the SMARTS database for inspections conducted from 2002-2012. No further data is available to determine the kind of violations or the kind of pollutants these facilities contributed to.

[20] Raskin, L., M.J. Singer, and A. DePaoli. 2004. Final Report to the State Water Resources Control Board Agreement number 01-269-250. University of California, Davis, CA.

Table 2-15 Active CGP Facilities as of May 1, 2014

Agency	Total
Artesia	1
Bellflower	5
Cerritos	5
Diamond Bar	10
Downey	7
Hawaiian Gardens	2
La Mirada	4
Lakewood	3
Long Beach	4
Norwalk	8
Pico Rivera	9
Santa Fe Springs	10
Whittier	18
Total	86

LAND USE ACTIVITIES

These include general wear and tear of automotive parts which can be a significant source of metals. For example, brake wear can release copper, lead, and zinc into the environment and this contributes to concentrations of metals in urban runoff. Motor oil and automotive coolants spills are another potential land use source of metals. Pesticides, algaecides, wood preservatives, galvanized metals, and paints used across the watershed can also contain these metals. In the watershed, sources for these heavy metals have been identified as automotive repair, maintenance, fueling, cleaning and painting locations, metal fabrication facilities, and transportation activities and facilities.

The fertilizers used for lawn and landscape maintenance are also a source of metals and organic chemicals. Fertilizers, herbicides, and pesticides contain metals such as cadmium, copper, mercury, zinc, lead, iron, and manganese, which are also distributed when applying fertilizers and pesticides.

2.3.2 ROAD INFRASTRUCTURE SOURCES

Runoff from highways and roads carries a significant load of pollutants. Pollutants originate from cars, roadway degradation, and surrounding landscape. Typical contaminants associated with these include sediment, heavy metals, oils and grease, debris, fertilizers, and pesticides, among others[21]. The use and wear of cars is one of the most prevalent sources of roadway pollutants. A study found that cars are the leading source of metal loads in stormwater, producing over 50 percent of copper, cadmium, and zinc loads[22]. Vehicle brake pads constitute the single largest source of copper[23]. Simultaneously, tires, and engine parts are also a significant source of metals pollutants; almost 50 percent of tire wear accounts

[21] Caltrans (California Department of Transportation). 2003. *Discharge characterization study report*. California Department of Transportation, Sacramento, CA.

[22] Schueler, T., and H.K. Holland. 2000. *The Practice of Watershed Protection*. Center for Watershed Protection, Ellicott City.

[23] TDC Environmental 2004, *Copper Sources in Urban and Shoreline Activities*. San Francisco, CA.

for over 50 percent of the total cadmium and zinc loads[24]. Roadways can also be a source of nutrients because nutrients are found in fertilizers that are commonly applied.

Table 2-16: Typical Sources of Pollutants from Road Infrastructure

Source	Cadmium	Chromium	Copper	Iron	Nickel	Lead	Zinc	PAHs	Nutrients	Synthetic Organic Chemicals
Gasoline	●		●			●	●			
Exhaust					●	●		●		●
Motor oil and grease				●	●	●	●	●		
Antifreeze	●	●	●	●		●	●	●		
Undercoating						●	●			
Brake Linings			●	●	●	●	●			
Tires	●		●			●	●	●		
Asphalt	●		●		●		●	●		
Concrete			●		●		●			
Diesel Oil	●	●				●	●			●
Engine wear				●	●	●	●			
Fertilizers, pesticides, and herbicides	●		●	●	●		●		●	●

2.3.3 ATMOSPHERIC DEPOSITION

Atmospheric deposition is the direct and indirect transfer of pollutants from the air to surface waters. Pollutants in the atmosphere deposit onto solid surfaces and can then be washed off by rain, becoming part of the stormwater runoff that reaches the MS4. Atmospheric deposition of pollutants can be a large source of contamination to surface waters. Typical pollutants associated with atmospheric deposition are metals, PAHs, PCBs, and, to a lesser extent, nutrients. These pollutants enter the atmosphere from point sources (i.e., industrial facility emitting metals into the air). A comparison of trace metals contributions from aerial deposition, sewage treatment plans, industrial activities, and power plants is shown in Table 2-17.

Table 2-17 Comparison of source annual loadings to Santa Monica Bay (metric tons/year)

		Non-Aerial Sources		
Metal	Aerial Deposition	Sewage Treatment Plants	Industrial	Power Plants
Chromium	0.5	0.6	0.02	0.14
Copper	2.8	16	0.03	0.01
Lead	2.3	<0.01	0.02	<0.01
Nickel	0.45	5.1	0.13	0.01
Zinc	12.1	21	0.16	2.4

[24] Davis A.P., M. Shokouhian, and S. Ni. 2001. Loading estimates of lead, copper, cadmium, and zinc in urban runoff from specific sources. *Chemosphere.*

In addition to the pollutants listed above, nutrients are also atmospherically deposited. The annual loading of nitrogen through atmospheric deposition in the neighboring Los Angeles River watershed is 5,559 tons per year, with 845 tons per year in the neighboring Ballona Creek watershed.[25]

2.3.4 SANITARY SEWERS AND SEPTIC SYSTEMS

Sanitary sewer systems and septic systems are potential sources of contaminants. Aging systems in need of repair or replacement, severe weather, improper system operation and maintenance (O&M), clogs, and root growth can contribute to sanitary sewer leaks and overflows. When sanitary sewers overflow or leak, they can release raw sewage into the environment, which can contain pollutants such as suspended solids, pathogenic organisms, toxic pollutants, oil and grease but in particular, high concentrations of bacteria and nutrients.[19]

According to the SSO database in the California Integrated Water Quality System (CIWQS) a total of 198 SSOs have been recorded within the watershed since 2006. Table 2-18 includes information on the total reported SSO discharges.

Table 2-18 SSO Total and Volume

Total SSOs	Total Volume (gal)
418	206,344

[25] Lu, R., K. Schiff, S. Solzenbach, and D. Keith. 2004. *Nitrogen Deposition on Coastal Watersheds in the Los Angeles Region*. Southern California Coastal Water Research Project Annual Report. 2003-2004. pp. 73– 81.

2.3.5 SUMMARY

Typical sources of these pollutants are summarized in Table 2-19.

Table 2-19 Typical Sources of Pollutants

Potential Source	Pollutants: Bacteria	Nutrients	Metals	TSS/ Turbidity	Key References
NPDES Sources					
Residential land areas	●	●		●	1, 2, 3, 4, 5, 6, 7, 8, 9
Agricultural activities (i.e., animal operations, land applications)	●	●		●	7,8,9
Metallurgical industries/activities			●		7, 10
Construction activities			●	●	7, 9
Industrial/municipal activities	●		●		6, 11
POTW discharges			●		12
Landscaping, fertilizers		●			7, 9
Homeless encampments	●				13
Pet waste	●	●			9,
Wildlife	●				7, 1
Native geology		●	●		7, 1
Land surface erosion			●	●	7
Detergents		●			9
Car washing				●	7, 9
Road Infrastructure					
Transportation sources (i.e., copper brake pads, tire wear)			●		7, 9, 14, 15
Pavement erosion			●	●	7, 16
Atmospheric Deposition					
Industrial activities			●		7, 10
Construction activities			●		7, 9
Roofing			●		7
Resuspension of historic emissions in road dusts and soil particles			●		17
Land surface erosion		●			18
Sanitary Sewer and sanitary sewer overflows (SSOs)					
Sewer Leaks, SSOs, illicit discharges, septic systems	●	●		●	7, 5, 19
POTW discharges		●	●		12

1. LARWQCB (Los Angeles Regional Water Quality Control Board). 2002 & 2006. Total Maximum Daily Load to Reduce Bacterial Indicator Densities at Santa Monica Bay Beaches During Wet Weather. California Regional Water Quality Control Board, Los Angeles Region, Los Angeles, CA.
2. City of San Diego. 2009. *Aerial Deposition Study, Phase III*. Source Evaluation of TMDL Metals in the Chollas Creek Watershed. Final Report. San Diego, CA.
3. Gregorio, D., and S.L. Moore, 2004. *Discharge into state water quality protection areas in southern California*. http://www.sccwrp.org/Homepage/RecentPublications.aspx
4. San Diego County. 2011. 2009-2010 *Urban Runoff Monitoring Annual Report*. January 2011.
5. SDRWQCB (San Diego Regional Water Quality Control Board). 2010. *Revised TMDL for Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region.* Resolution No. R9-2010-0001.
6. Lattin, G.L., C.J. Moore, A.F. Zelkers, S.L. Moore, S.B. Weisberg. 2004. A Comparison of Neustonic Plastic and Zooplankton at Different Depths near the Southern California Shore. *Marine Pollution Bulletin*

7: County of Los Angeles. 2010. *Multi-pollutant TMDL Implementation Plan for the Unincorporated County Area of Los Angeles River Watershed*. County of Los Angeles, Los Angeles, CA

8: City of San Diego. 2011. *Mission Bay and La Jolla Watershed Urban Runoff Management Program*. Fiscal Year 2010 Annual Report.

9: USEPA (U.S. Environmental Protection Agency). 2011. *Sanitary sewer overflows and peak flows*.

10: San Diego County. 2011. *2010 Air Toxics "Hot Spots" Program Report for San Diego County*. San Diego County, San Diego, CA

11: Gregorio, D., and S.L. Moore, 2004. *Discharge into state water quality protection areas in southern California*. http://www.sccwrp.org/Homepage/RecentPublications.aspx

12: Sabin, L.D., K.C. Schiff, J. Hee Lim, and K.D. Stolzenback. 2004. *Atmospheric dry deposition of trace metals in the Los Angeles coastal region*. Southern California Coastal Research Project, Costa Mesa, CA.

13: City of San Diego. 2009. *Tecolote Creek Microbial Source Tracking Study*. Phase II. Final. June 30, 2009. San Diego, CA.

14: Schueler, T., and H.K. Holland. 2000. *The Practice of Watershed Protection*. Center for Watershed Protection, Ellicott City, MD.

15: Stein, E.D., L.L. Tiefenthaler, and K. Schiff. 2006. Watershed-based Sources of Polycyclic Aromatic Hydrocarbons in Urban Stormwater. *Environmental Toxicology and Chemistry* 25(2):373–385

16: Caltrans (California Department of Transportation). 2003. *A Review of the Contaminants and Toxicity Associated with Particles in Stormwater runoff*. August 2003.

17: Sabin, L. and K. Schiff. 2007. *Metal Dry Deposition Rates along a Coastal Transect in Southern California*. Technical Report #509. Southern California Coastal Research Project, Costa Mesa, CA

18: Sutula, M., K. Kamer, and J. Cable. 2004. *Sediment as a nonpoint source of nutrients to Malibu Lagoon, California*. Southern California Coastal Research Project. Technical Report.

19: SWRCB (State Water Resources Control Board). 2011. NPDES Permits (including Stormwater). Excel spreadsheet download. Accessed December 6, 2011.

2.4 PRIORITIZATION

Section VI.C.5.a.iv of the MS4 Permit outlines factors that should be considered when developing the sequence of addressing pollutants of concern within the Lower SGR Watershed. Based on the source assessment analysis, Water Quality Priorities (WQPs) within the watershed have been determined based on the following:

- Highest WQPs: TMDLs
    - TMDL pollutants with past due interim or final limits
    - TMDL pollutants with interim and final limits that fall within the MS4 Permit term, or the time period: September 6, 2012 – October 25, 2017
    - Pollutants that are in the same class as a TMDL pollutant
- High WQPs: other receiving water considerations
    - Pollutants on the 303(d) List for which MS4 discharges are a suspected source based on findings from the source assessment
    - Pollutants that exceed receiving water limitations and the findings from the source assessment indicate the MS4 as a source (these pollutants will be evaluated based on monitoring data collected as part of the CIMP).
- All Category 1 pollutants with TMDL compliance deadlines that are past due, or that fall within the MS4 Permit term are prioritized as a Highest WQP. In addition, pollutants that fall within the same class (as defined in Section 2.1) as a TMDL pollutant with a compliance deadline that is past due or falls within the MS4 Permit term are prioritized as a Highest WQP. All other pollutants that are associated with the MS4 (based on the Source Assessment in Section 2.3) are prioritized as a High WQP. Table 2-20 summarizes the WQPs for the watershed based on the criteria described above.

Table 2-20: Priority Pollutants

Category	Class	Pollutant	Waterbody	Associated with MS4	Priority
1	Metals	Copper	San Gabriel Reach 1, Coyote Creek	Yes	Highest
		Lead	San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1	Yes	Highest
		Zinc	Coyote Creek	Yes	Highest
		Selenium	San Jose Creek Reach 1	UTD[a]	Highest
2	Nutrients	Ammonia	San Jose Creek Reach 1 and Coyote Creek	Yes	High
	Metals	Copper	San Gabriel River Reach 2, North Fork Coyote Creek, San Jose Creek Reach 1	Yes	Highest
		Lead	Coyote Creek	Yes	Highest
		Mercury	North Fork Coyote Creek	UTD	Highest
		Nickel	Coyote Creek	UTD	Highest
		Selenium	North Fork Coyote Creek	UTD	Highest
		Zinc	San Gabriel River Reach 2, San Jose Creek Reach 1, Coyote Creek	Yes	Highest
	Bacteria	Coliform & Enterococcus	San Gabriel River Reach 1, San Gabriel River Reach 2, San Jose Creek Reach 1, North Fork Coyote Creek and Coyote Creek	Yes	High
	Pesticides	Diazinon	Coyote Creek	Yes	High
	SVOC	PAHs	San Gabriel River Reach 2, San Jose Creek Reach1	Yes	High
	Water Quality Indicators / General	Chloride	San Jose Creek Reach 1	UTD	High
		Cyanide	Coyote Creek, San Gabriel Reach 2	UTD	High
		pH	San Gabriel Reach 1, Coyote Creek, and San Jose Reach 1	UTD	High
		Total Dissolved Solids	San Jose Creek Reach 1	Yes	High
		Toxicity	Coyote Creek, San Jose Creek Reach 1	Yes	High
3	Metals	Copper	North Fork Coyote Creek	Yes	Highest
		Selenium	San Gabriel River Reach 1	UTD	Highest
	Water Quality Indicators / General	Chloride	San Gabriel River Reach 2, San Jose Creek Reach 1, Coyote Creek	UTD	High
		Cyanide	North Fork Coyote Creek, San Jose Creek Reach 1	UTD	High
		Dissolved Oxygen	San Gabriel River Reach 1 & 2, Coyote Creek, San Jose Creek Reach 1	UTD	High
		MBAS	Coyote Creek, San Gabriel River Reach 2	UTD	High
		Sulfates	San Gabriel River Reach 2, San Jose Creek Reach 1	UTD	High
		Total Dissolved Solids	San Gabriel River Reach 2	Yes	High
		pH	North Fork Coyote Creek	UTD	High
		Alpha-Endusulfan	Coyote Creek	UTD	High
	Pesticides	Lindane	San Gabriel River Reach 2	UTD	High

[a] UTD – Unable to Determine at this time

REFERENCES

1. California State Water Resources Control Board. Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List. September 2004.
2. Environmental Protection Agency. Nickel Compounds, January 2000. Web. October 2013. <http://www.epa.gov/ttnatw01/hlthef/nickel.html>.
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5. Los Angeles Department of Public Works. Stormwater Monitoring Reports, 2002-2012. Web. October 2013. <http://dpw.lacounty.gov/wmd/NPDES/report_directory.cfm>.
6. Morris, K., Johnson, S., and Steele, N. San Gabriel River 2010 State of the Watershed Report, 2012. Council for Watershed Health. Los Angeles, CA.

3 SELECTION OF WATERSHED CONTROL MEASURES

This chapter identifies Watershed Control Measures (WCMs) to implement through the Participating Agencies' jurisdictional stormwater management programs, and collectively on a watershed scale. The WCMs are structural and/or nonstructural controls designed with the following objectives:

- Prevent or eliminate nonstormwater discharges to the MS4 that are a source of pollutants from the MS4 to receiving waters.
- Implement pollutant controls necessary to achieve all applicable interim and final water quality-based effluent limitations and/or receiving water limitations pursuant to corresponding compliance schedules.
- Ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations.

The goal is to create an efficient program that focuses individual and collective resources on water quality priorities (WQPs). The WCMs are categorized as

- Minimum Control Measures (MCMs),
- Nonstormwater Discharge (NSWD) Measures and
- Targeted Control Measures (TCMs), which are designed to achieve applicable water quality-based effluent limitations and receiving water limitations.

Each WCM category may be further categorized as either structural or nonstructural (nonstructural includes operation and maintenance procedures and pollution prevention measures) as well as either existing or proposed. Combined with Chapter 4 (RAA) and Chapter 5 (Compliance Schedules), the WMP includes the nature, scope and timing of implementation for each WCM and provides interim milestones for the WCMs to achieve TMDL compliance. Also included are the responsibilities of each Permittee.

3.1 STRATEGY FOR SELECTION AND IMPLEMENTATION OF WATERSHED CONTROL MEASURES

Pursuant to Part VI.C.1.a of the MS4 Permit (Part VII.C.1.a - LB Permit), the Watershed Group has developed customized strategies, control measures and BMPs to implement the requirements of the MS4 Permit. Addressing WQPs will be based on a multi-faceted strategy initially focused on source control, including total suspend solids (TSS) reduction and runoff reduction. If pollutants are not generated or released, they will not be available for transport to the receiving waters. In addition, if soils can be stabilized, sediment controlled, and dry-weather runoff and initial flushes of stormwater runoff eliminated or greatly reduced, the major transportation mechanisms will be eliminated or greatly reduced, and fewer pollutants will reach the receiving waters.

The Watershed Group is particularly focused on source control because major sources of many of the highest WQPs, such as copper, lead and zinc, are released into the atmosphere, resulting in widespread

aerial deposition onto impervious surfaces in the Watershed. In addition, these pollutants are discharged directly onto streets, highways, parking lots, and driveways from motor vehicle components such as brakes, wheel weights, and tires. The Participating Agencies have concluded that the most cost-effective and long-lasting way to address WQPs is to develop and support state-wide or regional measures that will encourage or require, if necessary, product or material substitution at the manufacturing stage. This can be a complex and time-consuming process, but the payoff in water quality improvement can be tremendous.

For example, the recent efforts of the California Stormwater Quality Association (CASQA) and Sustainable Conservation that led to the passage of the SB 346 legislation is a milestone that will significantly reduce the level of copper in metropolitan area waters throughout the state. SB 346 requires incremental reduction in the amount of copper in vehicle brake pads, which constitute the single largest source of copper in metropolitan environments. Based on available information, which was largely developed through a lengthy collaboration among brake pad manufacturers, government agencies, and environmental groups in the Brake Pad Partnership, a preliminary estimate of copper runoff reduction due to this piece of legislation was developed[1]. The estimate examined three scenarios and determined a 45- 60% reduction in copper in runoff could be attributed to reduction of its use in brake pads. Already in effect, new edge codes required on brake pads sold in California will provide information on copper content and a notice that on and after January 1, 2014 any motor vehicle brake friction materials sold in California must contain no more than 0.1 percent by weight of the following materials: cadmium and its compounds, chromium (VI) salts, lead and its compounds, mercury and its compounds, and asbestiform fibers.

In addition, the Department of Toxic Substances Control (DTSC) adopted new Safer Consumer Product Regulations that became effective October 1, 2013. These regulations contain a process for identifying and prioritizing Chemicals of Concern in Priority Products containing these constituents, as well as a process for eliminating or reducing the adverse impacts of Chemicals of Concern in Priority Products. It will apply to most consumer products placed into the stream of commerce in California. It specifically applies to adverse environmental impacts, including adverse water quality impacts, and it contains a petition process for identification and prioritization of chemicals and projects. CASQA, supported by Watershed Group, has started the process of conducting research and building a file of critical information to support the designation of zinc in tires as a future priority product/constituent combination.

As explained later in this chapter, many of the new requirements of the MS4 Permit also involve enhanced source control measures that will be implemented such as enhanced inspections programs and outfall screening measures. The *Targeted Control Measures* section of this chapter supplements these efforts with targeted source control measures such as incentives for irrigation control and upgraded street sweeping equipment, designed with the objective of achieving interim and final water quality-based effluent limitations and/or receiving water limitations.

[1] Based on the Los Cerritos Channel Watershed Group commissioned study, "Estimate of Urban Runoff Copper Reduction in Los Angeles County from the Brake Pad Copper Reductions Mandated by SB 346."

In concert with these initial source control efforts, which constitute 10% of the load reduction in the RAA (higher reductions may be realized), structural controls will also be implemented. The MS4 Permit mandates implementation of structural LID BMPs for certain classes of new developments and roadway projects. In addition, the *Targeted Control Measures* section of this chapter describes supplemental targeted structural BMPs. These structural controls are used to meet the load reduction requirements and structural BMP capacities for each participating agency as noted in Chapter 4 (the RAA) following the schedules provided for each agency in Chapter 5 (Compliance Schedules).

3.2 Minimum Control Measures

The Minimum Control Measures (MCMs) are baseline WCMs required for all Permittees. The MCMs are defined in the MS4 Permit (excluding modifications set forth in an approved WMP) and are generally implemented individually by each Permittee. The objectives of the MCMs are to 1) result in a significant reduction in pollutants discharged into receiving waters and 2) satisfy the requirements of 40 CFR §122.26(d)(2)(iv). The MCMs are separate from Targeted Control Measures, which are developed by the Watershed Group and included in the WMP to specifically address WQPs.

The MS4 Permit allows the modification of several MCMs programs, so long as the modified actions are set forth in the approved WMP and are consistent with 40 CFR §122.26(d)(2)(iv). The modifications are based on an assessment to identify opportunities for focusing resources on WQPs. The term "modifications" refers only to instances where language from the MS4 Permit MCM provisions is removed and/or replaced. Any control measures that are strictly enhancements of the existing programs (i.e. do not conflict with the MS4 Permit MCM provisions) are included in the separate category of Targeted WCMs.

The following sections include a summary of the assessment of each MCM program as well as a determination as to whether each Participating Agency will implement the MCM provisions 1) as explicitly stated in the corresponding section of the MS4 Permit or 2) with modifications to focus resources on WQPs. Independent of the determinations made, the Agencies may consider additional MCM modifications through the Adaptive Management Process. Implementation of the MCMs will follow the approval of this WMP by the Regional Board Executive Officer following MS4 Permit §VI.D.1.b (LB Permit - §VII.D.1.ii).

3.2.1 Los Angeles County Flood Control District Minimum Control Measures

The LACFCD will implement the MCMs as defined from §VI.D.1 to §VI.D.4 of the MS4 Permit.

3.2.2 Assessment of Minimum Control Measures (Cities Only)

Pursuant to MS4 Permit §VI.C.5.b.iv.(1).(a) (LB Permit - §VII.C.5.h.i), the following section is an assessment of the MS4 Permit MCMs, intended to identify opportunities for focusing resources on WQPs.

3.2.2.1 Development Construction Program

Assessment

Although controlling sediment is not a WQP, the reduction of sediment through an effective Development Construction Program will address WQPs. This is because sediment mobilizes other pollutants, including many of the WQP pollutants. As such the Development Construction Program is an integral component of each City's jurisdictional stormwater management program.

Compared to the prior MS4 Permit, the current Permit expands the provisions for the Development Construction Program. This expansion includes additional or enhanced requirements for plan review, site tracking, inspection frequencies, inspection standards, BMP implementation and employee training. If implemented effectively, these enhancements will aid in the control of sediment within the Watershed, and consequently, will address WQPs. As such, no modifications to the provisions of the Development Construction Program have been identified.

Determination

The Cities will implement the MCMs as defined in §VI.D.8 of the MS4 Permit (§VII.D.K of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.2 Industrial/Commercial Facilities Program

Assessment

The MS4 Permit provisions for the Industrial/Commercial Facilities Program provide opportunities for customization to address WQPs. Specifically, §VI.D.6.e.i.4 (§VII.D.G.5.i.4 - LB Permit) states that industrial inspection frequencies may be modified through the WMP development process. The Cities propose modifying the inspection frequencies of both industrial and commercial facilities based on a facility prioritization scheme that considers WQPs. For example, facilities that are deemed to have a high potential to discharge metals (a WQP pollutant) may be prioritized as "High" and inspected more frequently while facilities that have a small likelihood to adversely impact WQPs may be prioritized as "Low" and inspected less frequently.

Determination

Sections VI.D.6.d and VI.D.6.e of the MS4 Permit (Sections VII.D.G.4 and VII.D.G.5 of the LB Permit) will be replaced with the language in Table 3-3, which is located in the following *New Fourth Term Permit MCMs* section of this chapter and is identified as MCM-ICF-3.

In order to provide clarity to the Cities, one combined guidance document has been prepared for the Program, with the prioritization and revised inspection frequencies included – see Appendix A-3-1. The document is also intended to assist the Cities in the development and implementation of a jurisdictional program.

3.2.2.3 Illicit Connection and Illicit Discharges Elimination Program

Assessment

The purpose of the Illicit Connection and Illicit Discharges Elimination (ICID) Program is to detect, investigate and eliminate IC/IDs to the MS4. In order to address WQPs, a potential modification to MS4 Permit provisions would be the inclusion of a proactive approach for the detection of illicit discharges. However such an approach will be addressed through nonstormwater outfall based screening monitoring as outlined in the MRP. Also, such activities do not conflict with the MS4 Permit provisions for an IC/ID Program, and as such would be classified as a Targeted Control Measure. As such there is no need to modify the base provisions of the program.

Determination

The Cities will implement the MCMs as defined in §VI.D.10 of the MS4 Permit (§VII.D.M of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.4 Planning and Land Development Program

Assessment

Following MS4 Permit §VI.C.5.b.iv.1.a (LB Permit - §VII.C.5.h.i.), the Planning and Land Development Program was not assessed for potential modifications.

Determination

The Cities will implement the MCMs as defined in §VI.D.7 of the MS4 Permit (§VII.D.J of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.5 Public Agency Activities Program

Assessment

The Public Agency Activities Program is divided into several sub-programs. Many of the MS4 Permit provisions within the sub-programs consist of baseline BMPs that do not suggest modification. The sub-programs that do suggest a prioritized approach – such as street sweeping and catch basin cleaning frequencies – already provide this opportunity (frequencies are based on a City's assessment of trash and debris generation). The Public Facility Inventory sub-program also provides a prioritization opportunity, based on the tracking data obtained for each facility. However, since these facilities are not subject to regular "public agency" inspections as in the Industrial/Commercial Facilities Program, there is little utility in incorporating such a prioritization. The provisions of the public construction activities sub-program are considered an integral component of the jurisdictional stormwater program, for the reasons explained in the assessment of the Development Construction Program provisions. In summary there is no need to modify the MS4 Permit provisions of the program.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.9 of the MS4 Permit (§VII.D.L of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.6 PUBLIC INFORMATION AND PARTICIPATION PROGRAM

ASSESSMENT

The MS4 Permit allows a City to implement the requirements of the Public Information and Participation Program (PIPP) 1) by participating in a County-wide effort, 2) by participating in a Watershed Group effort, 3) individually within its jurisdiction or 4) through a combination of these approaches. The Cities will implement the PIPP following a combination of approaches. Consequently some clarifications of the MS4 Permit provisions are necessary.

In terms of modifications to address WQPs, the MS4 Permit provisions for the PIPP are not particularly prescriptive, thus allowing the Cities the flexibility to focus efforts on WQPs through the development of the program. As such, there is no need to modify the MS4 permit provisions of the program.

DETERMINATION

The table below provides clarification on elements of the MS4 Permit provisions for the PIPP:

Permit section	Clarification
§VI.D.5.c.(i) - MS4 Permit §VII.D.F.3.i - LB Permit Public Participation	Each City will participate in a County-wide sponsored PIPP to provide a means for public reporting of clogged catch basin inlets and illicit discharges/dumping, faded or missing catch basin labels, and general stormwater and nonstormwater pollution prevention information.
§VI.D.5.d - MS4 Permit §VII.D.F.4- LB Permit Residential Outreach Program	Each City will work in conjunction with a County-wide sponsored PIPP to implement the Residential Outreach Program. Elements of the program that will not be administered or implemented as a county-wide effort (currently the provision to provide educational materials to K-12 school children) will be addressed individually by each City or jointly on a watershed level. Through the adaptive management process, PIPP participation may develop into a watershed group or individual effort, or some combination of these approaches.

In order to provide clarity to the Cities, one combined guidance document has been prepared for the Program, with the approach for each provision (i.e. joint or individual effort) included – see Appendix A-3-1. The document is also intended to assist the Cities in the development and implementation of a jurisdictional program.

3.2.2.7 PROGRESSIVE ENFORCEMENT AND INTERAGENCY COORDINATION

ASSESSMENT

Following MS4 Permit §VI.C.5.b.iv.1.a (LB Permit - §VII.C.5.h.i), the Progressive Enforcement and Interagency Coordination Program was not assessed for potential modifications.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.2 of the MS4 Permit (§VII.D.2 of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.3 THIRD TERM PERMIT MCMS

Until the WMP is approved by the Executive Officer of the Regional Board, the MCM provisions of the prior third term MS4 permit continue to be implemented by the participating agencies. Some of the MCMs of the current MS4 Permit are relatively unchanged carry-overs from the prior third term permit. The remaining MCMs are either enhancements of the third term MCMs or entirely new provisions. These new and enhanced fourth term MCMs are described in the following section.

3.2.4 NEW FOURTH TERM PERMIT MCMS (CITIES ONLY)

Part VI.D of the MS4 Permit and Part VII.D of the LB Permit (the MCM provisions) introduces many new provisions and program elements to be developed and incorporated within each participating agency's jurisdictional stormwater program. This section briefly describes the new and enhanced MCMs required for the Cities (City MCMs), excluding those required for the LACFCD in §VI.D.4. An MCM is considered new if it was not required by the prior MS4 Permit and is considered enhanced if it is an enhancement of a related provision of the prior MS4 Permit.

The details of each provision may be found in the relevant sections of the MS4 Permit, which are included. Unless an alternate date is provided in the MS4 Permit or in this section, the adoption date for the City MCMs coincides with the approval of the WMP by the Regional Board's Executive Officer.

3.2.4.1 STRUCTURAL CONTROLS

The new and enhanced MCMs consist primarily of nonstructural control measures, with the marked exception of the Planning and Land Development provisions, described as follows.

LID and Hydromodification

MS4 Permit §VI.D.7 (LB Permit §VII.D.J)

The LID and hydromodification provisions of the Planning and Land Development program are a significant enhancement from the prior MS4 Permit. The implementation of structural LID BMPs at new developments throughout the watershed will appreciably decrease the effective impervious area, reducing flow and, consequently, pollutant loads. The program is unique in that it will increase in effectiveness over time as more and more existing developments are redeveloped and bound to the LID/hydromodification requirements.

Trash Excluder Installation

MS4 Permit §VI.D.9.h.vii.(1) (LB Permit §VII.D.L.8. vii.(1))

In areas that are not subject to a trash TMDL, the Public Agency Activities Program includes a requirement to install excluders (or equivalent devices) on or in Priority A (MS4 Permit §VI.D.9.h.iii.(1)), LB Permit §VII.D.L.8. iii.(1)) area catch basins or outfalls to prevent the discharge of trash to the MS4. For LA MS4 Permittees, the deadline is no later than four years after the effective date of the Permit. This provision may be supplanted by the statewide trash amendments, which in their current draft iteration include the installation of full-capture devices in the priority land use areas of high density residential, industrial, commercial, mixed urban and public transportation stations as a compliance route.

3.2.4.2 Nonstructural Controls

Table 3-2 lists the new and enhanced nonstructural City MCMs as well as the new and enhanced NSWD measures. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's Comprehensive Load Reduction Plan (CLRP) for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The pages following Table 3-2 describe each of the listed controls.

Table 3-1 Pollutant Category versus Water Quality Classification

Waterbody-pollutant classification	Type of pollutant								
	Bacteria	Metals	Organics	Sediment	Pesticides	Nutrients	Oil and grease	Dissolved minerals	Trash
Category 1		✗						✗	
Category 2	✗	✗	✗	✗	✗	✗		✗	
Category 3			✗					✗	

Table 3-2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency												
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Planning and Land Development																		
1	MCM-PLD-1	Amend development regulations to facilitate LID implementation	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
2	MCM-PLD-2	Post-construction BMP tracking, inspections and enforcement	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Existing Development																		
3	MCM-ICF-1	Increase in facility types inspected and number of inspections conducted	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
4	MCM-ICF-2	Business assistance program and BMP notification	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
5	MCM-ICF-3 (TCM-ICF-1)	Prioritize facilities/inspections based on water quality priorities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Construction																		
6	MCM-DC-1	Enhanced plan review program	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
7	MCM-DC-2	Enhanced inspection standards and BMP requirements	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

Table 3-2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency												
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
8	MCM-DC-3	Increased inspection frequencies	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
9	MCM-TRA-1	Enhanced staff training program	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Illicit Discharge Detection/Elimination																		
10	MCM-ICID-1	Enhanced IC/ID enforcement and written procedures	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
11	NSWD-1	Outfall screening and source investigations	◈	◈	◈	◈	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
12	MCM-TRA-1	Enhanced staff/contractor training	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Dry weather runoff reduction																		
13	NSWD-1	Outfall screening and source investigations	◈	◈	◈	◈	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
14	NSWD-2	Enhanced conditions for NSWDs, including irrigation reduction	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Public Information and Participation																		

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Table 3-2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency												
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
15	MCM-PIP-1	Stormwater resources on City website	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Public Agency Activities																		
16	MCM-PAA-1	Enhanced BMP requirements for fixed facility/field activities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
17	MCM-PAA-2	Reprioritization of catch basins and clean-out frequencies	◆	◆	◇	◆	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
18	MCM-PAA-3	Integrated Pest Management Program	◈	◈	◈	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
19	MCM-PAA-4	Enhanced measures to control infiltration from sanitary sewers	◇	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
20	MCM-PAA-5	Inspection and maintenance of Permittee owned treatment controls	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
21	MCM-TRA-1	Enhanced inspector/staff training	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

✗ – To be implemented by agency within current MS4 Permit term. MCM – Minimum Control Measure. NSWD – Nonstormwater discharge measure.

◆ Primary pollutant reduction ◈ Secondary pollutant reduction ◇ Pollutant not addressed

BMP effectiveness ratings based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012.

ENHANCED STAFF/CONTRACTOR TRAINING PROGRAMS — MCM-TRA-1

MS4 Permit §VI.D.7.d.iv.(b), §VI.D.8.l, §VI.D.9.k, §VI.D.10.f (LB Permit §VII.D.J.5.iv.(b), §VII.D.K.xiv, §VII.D.L.11, §VII.D.M.6)

Measures introduced:

- Prescriptive staff training requirements to the Development Construction, Illicit Connections and Illicit Discharges Elimination and Public Agency Activities Programs. For example, relevant staff involved with the Construction Program must be knowledgeable in procedures consistent with the State Water Board sponsored Qualified SWPPP Practitioner/Developer (QSP/QSD) program.
- Inspections of structural BMPs under the Planning and Land Development Program must be conducted by trained personnel.
- Outside contractors are bound to the same training standards as in-house staff

These new and enhanced provisions will increase the overall effectiveness of the JSWMPs.

AMEND DEVELOPMENT REGULATIONS TO FACILITATE LID IMPLEMENTATION — MCM-PLD-1

MS4 Permit §VI.C.4.c.i, §VI.D.7.d.i (LB Permit §VII.C.4.c.i, §VII.D.J.5.i)

The participating agencies have developed and adopted LID ordinances and Green Street Policies. These measures will facilitate LID implementation.

POST-CONSTRUCTION BMP TRACKING, INSPECTIONS AND ENFORCEMENT — MCM-PLD-2

MS4 Permit: §VI.D.7.d.iv (LB Permit §VII.D.J.5.iv)

The Cities must track post-construction BMPs, conduct BMP verification and maintenance inspections and follow the Progressive Enforcement Policy in cases of non-compliance. This will improve the effectiveness of the Planning and Land Development program.

INCREASE IN FACILITY TYPES INSPECTED AND NUMBER OF INSPECTIONS CONDUCTED — MCM-IFC-1

MS4 Permit: §VI.D.6.d, §VI.D.6.e (LB Permit §VII.D.G.4, §VII.D.G.5), also affected by NPDES No. CAS000001, the State Water Resources Control Board's (SWRCB) Industrial General Permit (IGP)

Measures introduced:

- Inspect nurseries and nursery centers
- Perform follow-up *No Exposure Verification* inspections for at least 25% of industries that have filed a *No Exposure Certification (NEC)*
- Inspect light industrial facilities. Under the SWRCB's IGP adopted in April 1, 2014, light industries previously excluded from coverage under the IGP must now obtain coverage. Light industry is defined as SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39 and 4221-4225. This includes facilities ubiquitous

in industrial zones such as warehouses and machine shops. Although many of these facilities will likely qualify for the NEC, the type and number of facilities requiring inspection under the MS4 Permit will still increase.

These new and enhanced measures will increase the effectiveness of the Industrial/Commercial Facilities Program.

BUSINESS ASSISTANCE PROGRAM AND BMP NOTIFICATION

MCM-IFC-2

MS4 Permit: §VI.D.6.c (LB Permit §VII.D.G.3)

Measures introduced:

- Notify industrial/commercial owner/operators of applicable BMP requirements.
- Implement a Business Assistance Program to provide technical information to businesses to facilitate their efforts to reduce the discharge of pollutants in stormwater. The business assistance program described in the prior LA MS4 Permit was an optional provision.

These new and enhanced measures will increase the effectiveness of the Industrial/Commercial Facilities Program.

PRIORITIZE FACILITIES/INSPECTIONS BASED ON WATER QUALITY PRIORITIES

MCM-IFC-3 (TCM-ICF-1)

MS4 Permit: Modified MCM (replaces §VI.D.6.d, §VI.D.6.e), LB Permit: (replaces §VII.D.G.4, §VII.D.G.5)

A program has been developed to prioritize industrial/commercial facilities based on their potential to adversely impact WQPs. The resulting prioritization scheme determines the inspection frequency, replacing the uniform inspection frequency provided in the MS4 Permit. This allows Cities to concentrate efforts on WQPs. Sections VI.D.6.d and VI.D.6.e of the MS4 Permit (Sections VII.D.G.4 and VII.D.G.5 of the LB Permit) will be replaced with the language presented in Table 3-3.

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT
REPLACES §VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT

MS4 PERMIT VI.D.6.d (LB Permit VII.D.G.4) Prioritize Critical Industrial/Commercial Sources

MS4 Permit VI.D.6.d.i (LB Permit VII.D.G.4.i) Prioritization Method

Prioritizing facilities by potential water quality impact provides an opportunity to optimize the effectiveness of the Industrial/Commercial Facilities Program and to focus efforts on water quality priorities. The inventory fields in Part VI.D.6.b.ii (VII.D.G.2.i) provide information that allows for such a facility prioritization. Based on these fields, Figure ICF-1 establishes a method for each City to prioritize all industrial/commercial facilities into three tiers – High, Medium and Low. A City may follow an alternative prioritization method provided it is based on water quality impact and results in a similar three-tiered scheme.

Prioritization factors

Factor	Description
A	Status of exposure of materials and industrial/commercial activities to stormwater
B	Identification of whether the facility is tributary to a waterbody segment with impairments[2] for pollutants that are also generated by the facility
C	Other factors determined by the City, such as size of facility, presence of exposed soil or history of stormwater violations

Utilizing these factors, follow steps 1, 2 and 3 below:

1. Collect necessary information to evaluate factors

Factor	Initial method	Subsequent method
A	Satellite imagery	Results of stormwater inspection
B	Cross reference Table 4 or Table 5* with tributary TMDL/ 303(d) pollutants	Cross reference inspection results with tributary TMDL/ 303(d) pollutants
C	Varies	

* See pages 9 and 10 of Appendix A-3-1 ICF (guidance for the Industrial/Commercial Facilities Program)

2. Evaluate factors

Factor	Result	Score
A	Low or no exposure	0
	Moderate exposure	½
	Significant exposure	1
B	No*	0
	Yes**	1
C	Low	0
	Medium	½
	High	1

** No pollutant generation/impairment matches
*** ≥ 1 pollutant generation/impairment matches

3. Prioritize facilities

		C Score		
		0	**½**	**1**
A×B Score	**0**	Low	Medium	High
	½	Medium	High	High
	1	High	High	High

This method serves only as a guide to prioritization. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C.

Figure ICF-1: Industrial/Commercial Facility Prioritization Scheme

Step 3 in Figure ICF-1 may also be expressed by the relationships $A \cdot B + C \geq 1 \rightarrow$ High, $1 > A \cdot B + C > 0 \rightarrow$ Medium and $A \cdot B + C = 0 \rightarrow$ Low. The purpose of multiplying A and B is to scale the impact of the presence of the

[2] CWA §303(d) listed or subject to a TMDL

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT
REPLACES §VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT

pollutants at a facility (B) by the likelihood that they will be discharged to the MS4 (A). Factor C quantifies water quality concerns that are independent of A or B and as such is incorporated through addition. The purpose of this numerical approach is to provide consistency to the prioritization process. It is intended solely as a guide. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C as listed in Figure ICF-1.

MS4 Permit VI.D.6.d.i.(1), (LB Permit VII.D.G.4.(1)), Prioritization Condition
The following condition will be met during the prioritization process: ***The total number of low priority facilities is less than or equal to 3 times the number of high priority facilities***. This condition is applied to maintain a minimum inspection frequency as explained in Section VI.D.6.e.i.

MS4 Permit VI.D.6.d.i.(2), (LB Permit VII.D.G.4.(2)), Prioritization Frequency
The default priority for a facility is Medium. Facilities will be reprioritized as necessary following the results of routine inspections. The City may also use any readily available information that clarifies potential water quality impacts (e.g., satellite imagery) in order to prioritize a facility before the initial inspection. Reprioritization may also be conducted at any time as new water quality based information on a facility becomes available. During reprioritization, the ratio of low priority to high priority facilities will remain at 3:1 or lower. Figure ICF-2 is a flowchart of the prioritization process.

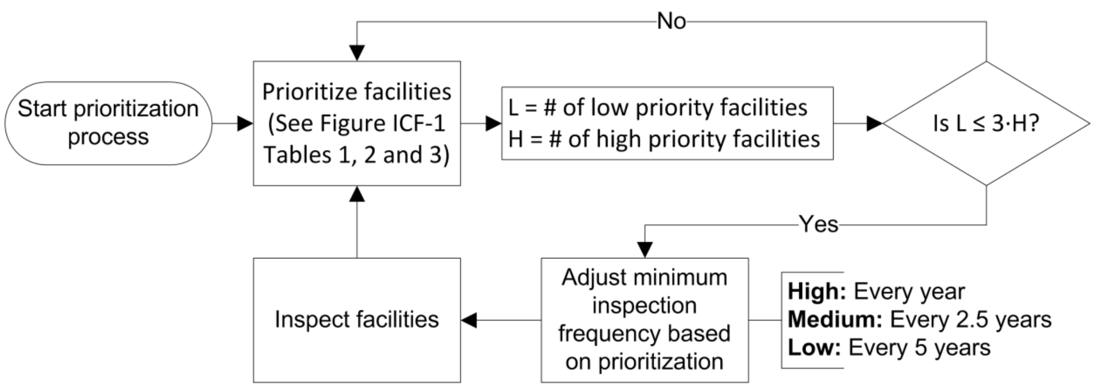

Figure ICF-2

MS4 Permit VI.D.6.e (LB Permit VII.D.G.5) Inspect Critical Industrial/Commercial Sources

MS4 Permit VI.D.6.e.i (LB Permit VII.D.G.5.i) Frequency of Industrial/Commercial Inspections
Following the facility prioritization method in Part VI.D.6.d.i, each City will inspect high priority facilities annually, medium priority facilities semi-quinquennially (once every 2.5 years) and low priority facilities quinquennially (once every five years). The frequencies may be altered by the exclusions defined in Part VI.D.6.e.i.(1). The condition in Part VI.D.6.d.i.(1) ensures at least the same average number of inspections conducted per year as the semi-quinquennial frequency defined in the MS4 Permit.

Each City will conduct the first compliance inspection for all industrial/commercial facilities within one year of the approval of their Watershed Management Program by the Executive Officer. A minimum interval of six months between the first and the second mandatory compliance inspection is required.

MS4 Permit VI.D.6.e.i.(1) (LB Permit VII.D.G.5.i(1)) Exclusions to the Frequency of Industrial Inspections

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT *REPLACES §VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT*
MS4 Permit VI.D.6.e.i.(1).(a) (LB Permit VII.D.G.5.i(1).(a)) Exclusion of Facilities Previously Inspected by the Regional Water Board Each City will review the State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS) database at defined intervals to determine if an industrial facility has recently been inspected by the Regional Water Board. The first interval will occur approximately 2 years after the effective date of the Order. The City does not need to inspect the facility if it is determined that the Regional Water Board conducted an inspection of the facility within the prior 24 month period. The second interval will occur approximately 4 years after the effective date of the Order. Likewise, the City does not need to inspect the facility if it is determined that the Regional Water Board conducted an inspection of the facility within the prior 24 month period. **MS4 Permit VI.D.6.e.i.(1).(b) (LB Permit VII.D.G.5.i(1).(b)) No Exposure Verification** As a component of the first mandatory inspection, each City will identify those facilities that have filed a No Exposure Certification with the State Water Board. Approximately 3 to 4 years after the effective date of the Order, each City will evaluate its inventory of industrial facilities and perform a second mandatory compliance inspection at a minimum of 25% of the facilities identified to have filed a No Exposure Certification. The purpose of this inspection is to verify the continuity of the no exposure status. **MS4 Permit VI.D.6.e.ii (LB Permit VII.D.G.5.ii) Scope of Industrial/Commercial Inspections** **MS4 Permit VI.D.6.e.ii.(1) (LB Permit VII.D.G.5.ii.(1) Scope of Commercial Inspections** Each City will inspect all commercial facilities to confirm that stormwater and nonstormwater BMPs are being effectively implemented in compliance with municipal ordinances. At each facility, inspectors will verify that the operator is implementing effective source control BMPs for each corresponding activity. Each City will require implementation of additional BMPs where stormwater from the MS4 discharges to a significant ecological area (SEA), a water body subject to TMDL provisions in Part VI.E, or a CWA §303(d) listed impaired water body. Likewise, for those BMPs that are not adequately protective of water quality standards, a City may require additional site-specific controls. **MS4 Permit VI.D.6.e.ii.(2) (LB Permit VII.D.G.5.ii.(2) Scope of Industrial Inspections** Each City will confirm that each industrial facility: a) Has a current Waste Discharge Identification (WDID) number for coverage under the Industrial General Permit, and that a Stormwater Pollution Prevention Plan (SWPPP) is available on-site; or b) Has applied for, and has received a current No Exposure Certification for facilities subject to this requirement; c) Is effectively implementing BMPs in compliance with municipal ordinances. Facilities must implement the source control BMPs identified in Table 10, unless the pollutant generating activity does not occur. The Cities will require implementation of additional BMPs where stormwater from the MS4 discharges to a water body subject to TMDL Provisions in Part VI.E, or a CWA §303(d) listed impaired water body. Likewise, if the specified BMPs are not adequately protective of water quality standards, a City may require additional site-specific controls. For critical sources that discharge to MS4s that discharge to SEAs, each City will require operators to implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards. d) Applicable industrial facilities identified as not having either a current WDID or No Exposure Certification will be notified that they must obtain coverage under the Industrial General Permit and will be referred to the Regional Water Board per the Progressive Enforcement Policy procedures identified in Part VI.D.2 of the MS4 Permit (Part VII.D.2 of the LB Permit).

Enhanced plan review program

MCM-DC-1

MS4 Permit: §VI.D.8.h, §VI.D.8.i (LB Permit: §VII.D.K.x, §VII.D.K.xi)

In general the MS4 Permit introduces provisions that conform to the SWRCB's Construction General Permit. For construction sites one acre or greater, measures include the following:

- Construction activity operators must submit Erosion and Sediment Control Plans (ESCPs) prior to grading permit issuance, developed and certified by a QSD to SWPPP standards.
- Operators must propose minimum BMPs that meet technical standards. The cities must provide these standards.
- Develop procedures and checklists to review and approve relevant construction plans.

These new and enhanced measures will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

Enhanced inspection standards/BMP requirements at construction sites

MCM-DC-2

MS4 Permit: §VI.D.8.d, §VI.D.8.i, §VI.D.8.j (LB Permit: §VII.D.K.vi, §VII.D.K.xi, §VII.D.K.xii)

Measures introduced:

- Ensure BMPs from the ESCPs are properly installed and maintained.
- Ensure the minimum BMPs for sites less than one acre are installed and maintained.
- Develop and implement standard operating procedures for City stormwater inspections of construction sites.
- Require activity-specific BMPs for paving projects.

These new and enhanced measures will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

Increased inspection frequencies

MCM-DC-3

MS4 Permit: §VI.D.8.j (LB Permit: §VII.D.K.xii)

The inspection frequency for construction sites one acre or more has significantly increased. The prior LA MS4 Permit required a minimum of one inspection during the rainy season. The current MS4 Permit requires monthly inspections year-round, as well as mandatory inspections based on the phase of construction. This enhanced measure will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

Enhanced IC/ID enforcement and written program procedures

MCM-ICID-1

MS4 Permit: §VI.D.2, §VI.D.10; LB Permit: §VII.D.2 , §VII.D.M

Measures introduced:

- Develop and implement a Progressive Enforcement Policy that applies to the IC/ID Elimination, Development Construction, Planning and Land Development and Industrial/Commercial Facilities Programs. The Progressive Enforcement Policy is an augmentation of the policy listed in the prior LA MS4 Permit, which was restricted to the Industrial/Commercial Facilities Program.
- Maintain written procedures for receiving complaints, conducting investigations and responding to spills.

These new and enhanced measures will increase the effectiveness of the IC/ID Elimination program, as well as the related enforcement components of the Development Construction, Planning and Land Development and Industrial/Commercial Facilities Programs.

STORMWATER RESOURCES ON CITY WEBSITE — *MCM-PIP-1*

MS4 Permit: §VI.D.5.d.i.(4) (LB Permit: §VII.D.F.4.i.(4))

Measures introduced:

- The MS4 Permit introduces a requirement to maintain a stormwater webpage or provide links to stormwater websites via the City's website. The website (in-house or linked) will include:
    - Educational material and
    - Opportunities for the public to participate in stormwater pollution prevention and clean-up activities.

ENHANCED BMP REQUIREMENTS FOR FIXED FACILITY/FIELD ACTIVITIES — *MCM-PAA-1*

MS4 Permit: §VI.D.9.e (LB Permit: §VII.D.L.5)

Measures introduced:

- Implement effective source control BMPs for 65 specific pollutant-generating activities such as mudjacking, shoulder grading and spall repair.
- Contractually require hired contractors to implement and maintain the activity specific BMPs. Conduct oversight of contractor activities to ensure the BMPs are implemented and maintained.

These new and enhanced measures will increase the effectiveness of the Public Agency Activities program.

REPRIORITIZATION OF CATCH BASINS AND CLEAN-OUT FREQUENCIES — *MCM-PAA-2*

MS4 Permit: §VI.D.9.h.iii (LB Permit: §VII.D.L.8.iii)

In areas not subject to a trash TMDL, measures introduced include the following:

- Determine priority areas and update the map of catch basins with GPS coordinates and priority.

- Include the rationale or data to support the priority designations.

These new and enhanced measures will increase the effectiveness of the Public Agency Activities program.

INTEGRATED PEST MANAGEMENT PROGRAM — *MCM-PAA-3*

MS4 Permit: §VI.D.9.g (LB Permit: §VII.D.L.7)

The MS4 Permit introduces entirely new, prescriptive requirements to implement an Integrated Pest Management (IPM) Program for public agency activities and at public facilities. These requirements include adopting and verifiably implementing policies, procedures and/or ordinances that support the IPM program. Intertwined with the IPM provisions are additional requirements to control and minimize the use of fertilizers. These new and expansive measures will increase the effectiveness of the Public Agency Activities program and address WQPs.

ENHANCED MEASURES TO CONTROL INFILTRATION FROM SANITARY SEWERS — *MCM-PAA-4*

MS4 Permit: §VI.D.9.ix (LB Permit: §VII.D.L.ix)

The MS4 Permit introduces specific requirements to control infiltration from the sanitary sewer into the MS4. The measures include adequate plan checking, preventative maintenance, spill response, enforcement, interagency coordination and staff/contractor education. The requirements may be fulfilled through implementation of a Sewer System Management Plan in accordance with the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

INSPECTION AND MAINTENANCE OF PERMITTEE OWNED TREATMENT CONTROLS — *MCM-PAA-5*

MS4 Permit: §VI.D.9.x (LB Permit: §VII.D.L.x)

The MS4 Permit introduces requirements to implement an inspection and maintenance program for all Permittee owned treatment control BMPs, including post-construction treatment control BMPs. This measure will increase the effectiveness of the Public Agency Activities program.

3.3 NONSTORMWATER DISCHARGE MEASURES

The Participating Agencies will require dischargers that drain to their respective MS4s to implement the Nonstormwater Discharge (NSWD) Measures as defined in §III.A of the MS4 Permit (§IV.B of the LB Permit). If the Participating Agencies identify nonstormwater discharges from the MS4 as a source of pollutants that cause or contribute to exceedances of receiving water limitations, the WCMs will be modified and implemented – subject to the adaptive management process – to effectively eliminate the source of pollutants consistent with MS4 Permit §III.A and §VI.D.10 (LB Permit §IV.B and §VII.D.M). In these instances, potential WCMs may include prohibiting the nonstormwater discharge to the MS4, requiring the responsible party to 1) incorporate additional BMPs to reduce pollutants in the nonstormwater discharge or conveyed by the nonstormwater discharge or 2) divert to a sanitary sewer for treatment, or strategies to require the nonstormwater discharge to be separately regulated under a general NPDES permit.

It is important to note that the nonstormwater Outfall Based Screening and Monitoring Program (MRP §IX) introduces additional NSWD measures through the intensive procedures required for the identification of NSWDs from MS4 outfalls.

3.3.1 NEW FOURTH TERM PERMIT NONSTORMWATER DISCHARGE MEASURES

Parts III.A and VI.B (MRP IX) of the MS4 Permit (Parts IV.B and VII.B (MRP IX) of the Long Beach Permit introduce new provisions and program elements that address NSWDs. This section briefly describes these new and enhanced NSWD measures. A NSWD measure is considered new if it was not required by the prior MS4 Permit and is considered enhanced if it is an enhancement of a related provision of the prior MS4 Permit.

Table 3-2 from the previous section lists the new and enhanced nonstructural NSWD measures as well as the City MCMs. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The following pages describe each of the listed controls. The details of each provision may be found in the relevant sections of the MS4 Permit, which are included. Unless an alternate date is provided in the MS4 Permit or in this section, the adoption date for the NSWD measures coincides with the approval of the WMP by the Regional Board's Executive Officer.

NSWD-1 OUTFALL SCREENING AND SOURCE INVESTIGATIONS

NSWD-1

MS4 Permit: §VI.B (MRP §IX) (LB Permit: MRP §IX)

The outfall screening and source investigation provisions of the MS4 Permit constitute an entirely new, expansive addition to each City's JSWMP. Implementing these new provisions will significantly support the control of unauthorized nonstormwater discharges.

ENHANCED CONDITIONS FOR EXEMPT NONSTORMWATER DISCHARGES

NSWD-2

MS4 Permit: §III.A (LB Permit: §IV.B)

The NSWD prohibitions of the MS4 Permit, which include specific measures to reduce irrigation runoff, are a significant enhancement from the prior LA MS4 Permit. Measures introduced include the following:

- Require the implementation of BMPs following established BMP manuals for discharges from non-emergency fire fighting activities and drinking water supplier distribution systems. Require specific BMPs for lake dewatering, landscape irrigation, pool and fountain discharges and non-commercial car washing.
- Require notification, monitoring (i.e. sampling) and reporting for drinking water supplier discharges and lake dewatering greater than 100,000 gallons.
- Require advance notification for any discharge of 100,000 gallons or more into the MS4.
- Minimize discharge of landscape irrigation through implementation of an ordinance specifying water efficient landscaping standards.
- Promote water conservation programs to minimize the discharge of landscape irrigation water into the MS4. This includes the following, where applicable:
    - Coordinate with local water purveyor(s) to promote:
        - Landscape water efficiency requirements for existing landscaping,
        - Drought tolerant, native vegetation, and
        - Less toxic options for pest control and landscape management.
    - Develop and implement a coordinated outreach and education program to minimize the discharge of irrigation water and pollutants associated with irrigation water.
- If monitoring results indicate that a conditionally exempt NSWD is a source of pollutants that causes or contributes to exceedances of applicable receiving water limitations and/or water quality-based effluent limitations, the Permittee must either:
    - Effectively prohibit the nonstormwater discharge to the MS4, or
    - Impose additional conditions, subject to approval by the Regional Water Board Executive Officer, or
    - Require diversion of the NSWD to the sanitary sewer, or
    - Require treatment of the NSWD prior to discharge to the receiving water.

Implementing these enhanced provisions will significantly support the control of unauthorized nonstormwater discharges.

3.4 TARGETED CONTROL MEASURES

Targeted Control Measures (TCMs) are additional control measures beyond the baseline MCMs and NSWD measures of the MS4 Permit that are intended to target the Watershed Group's WQPs. TCMs may be divided into two categories: nonstructural and structural. The selection of structural and nonstructural control measures to address WQPs within the Watershed Group is a vital component of the WMP planning process.

The Participating Agencies have already proposed and implemented a number of structural and nonstructural control measures in the watershed that collectively may contribute to considerable pollutant load reductions. These existing and planned BMPs provide a head start in the planning process to address WQPs within the Watershed Group. There are many different types of structural and nonstructural control measures that provide varying benefits from their implementation. The following sections describe Planned TCMs to be implemented, Potential TCMs that may be implemented (implementation is conditional upon factors such as site constraints, governing body approval, etc.) as well types of structural BMPs available to the Watershed Group.

3.4.1 NONSTRUCTURAL TARGETED CONTROL MEASURES

3.4.1.1 CONTROL MEASURES IDENTIFIED IN TMDLS/IMPLEMENTATION PLANS

There are no control measures identified in the San Gabriel River Metals TMDL. Planned and potential control measures to address the Metals TMDL are incorporated within the WCMs identified in this Chapter.

As recognized by the footnote in Attachment K of the Permit, the Participating Agencies have entered into an Amended Consent Decree with the United States and the State of California, including the Regional Board. The footnote specifically states: "The requirements of this Order to implement the obligations of [the Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL] do not apply to a Permittee to the extent that it is determined that the Permittee has been released from that obligation pursuant to the Amended Consent Decree entered in *United States v. Montrose Chemical Corp.*, Case No. 90-3122 AAH (JRx)." The submission of this WMP and its associated CIMP and any action or implementation taken pursuant to it shall not constitute a waiver of any such release of obligations established by that Amended Consent Decree.

3.4.1.2 TOTAL SUSPENDED SOLIDS REDUCTION

As explained in the introduction to this chapter, emphasis is placed on source control as a cost-effective measure to reduce pollutant loads. In this WMP, the chief approach is controlling Total Suspended Solids (TSS) at the source, as explained in the following section. Combining this approach with true source control, low impact development, green streets, and the MCMs constitutes a strong and effective initial implementation of the WMP, providing time for funding measures to be put in place to pay for the design, construction, and operation of stormwater capture and low flow diversion facilities and to develop working relationships with water and wastewater agencies.

BACKGROUND

TSS is the governing pollutant for metals. This is consistent with that found within the USEPA approved San Gabriel River Metals TMDL which represents metals (copper, lead, and zinc) through their associations with sediment. Reducing TSS in the receiving waters is anticipated to result in a significant reduction of metals in the receiving waters since both pollutant groups adhere to sediment; therefore initial implementation will focus on TSS reduction. Initial emphasis on TSS reduction should reduce the volume of water that ultimately needs to be captured and infiltrated or used to achieve standards for the Category 1 pollutants being addressed by the WMP – namely metals. This would make implementation of the WMP more cost-efficient.

Documentation is not available for the LSGR watershed; however it is available for the adjacent Los Cerritos Channel (LCC) Watershed, of which many LSGR cities drain to in part. For that watershed, Table 3-4 below provides a summary of TSS concentrations at the Stearns Street monitoring site over a 13-year period based on 74 wet-weather observations and 25 dry-weather observations.

Table 3-4: TSS statistics measured at LCC TMDL Monitoring Site

Statistic	Wet Weather (mg/L)	Dry Weather (mg/L)
No. of observations	74	25
Minimum	17	2
Maximum	1700	128
1st Quartile	96	7.5
Median	155	13
3rd Quartile	260	41
Mean	227	27
Standard deviation (n-1)	256	30

Although the RAA is only assuming a 5% pollutant load reduction through implementation of the TSS Reduction Strategy, the Watershed Group is targeting greater reductions. In an analysis performed by the Los Cerritos Channel WMP Group, it was determined that the expected reduction in the mean concentration of TSS at Stearns Street from 227 mg/l to 150 mg/l, which would be a 34% reduction in the mean concentration of TSS. The reduced value is consistent with those found in other watersheds with similar land uses. A quantification of the program's potential effectiveness is included in Section 4.3.1.

TSS REDUCTION STRATEGY

The core of the TSS Reduction Strategy is the Group's soil stabilization/sediment control. Two key components of this strategy are implementation of enhanced erosion and sediment control at construction sites, in accordance with each city's Development Construction Program, and stabilization of exposed soil not associated with construction sites. Initial assessments conducted by the LCC Watershed Group have indicated that vacant lots, Caltrans rights-of-way and transmission line rights-of-way are the primary areas of exposed soil not associated with construction sites. Specific control measures for these areas are explained in the following section.

3.4.1.3 List of Nonstructural TCMs

Table 3-5 lists planned and potential nonstructural TCMs for each participating agency. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The pages following Table 3-5 describe each of the listed controls.

The responses for each agency under Table 3-5 are defined as follows:

✗ *Planned TCM*. Under the presumption that 1) the TCM will likely not require approval of the governing body and 2) the governing body approves adequate staff/budget (if necessary), the TCM will be implemented.

P *Potential TCM*. The TCM is under consideration by the agency, however implementation is contingent upon yet to be determined factors. These factors include approval by the governing body, additional time needed to inform the governing body and/or relevant staff and approval of service contracts. As such implementation cannot be assured at this time. If the Potential TCM is not adopted by the agency within the first two years of the implementation of the WMP, it will be reconsidered through the adaptive management process.

C *Completed TCM*. The TCM is preexisting (has been in effect for several years or more).

It is important to note that Caltrans and the LACFCD are operating regional stormwater programs and consequently incorporating localized institutional TCMs may not be feasible. As such their exclusion from such TCMs is justified.

The schedule of implementation for the TCMs is provided in Chapter 5.

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Planning and Land Development																			
1	TCM-PLD-1	Train staff/councils to facilitate LID and Green Streets implementation	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
2	TCM-PLD-2	Ordinance requiring LID BMPs for projects below MS4 Permit thresholds	◈	◆	◈	◆	◆					✗	N/A				✗				P
		Existing Development																			
3	TCM-ICF-1 (MCM-ICF-3)	Prioritize facilities/inspections based on water quality priorities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
4	TCM-TSS-1	Exposed soil ordinance	◈	◆	◈	◆	◇		P			C	N/A				P	P	P		✗
5	TCM-TSS-2	Erosion repair and slope stabilization on private property	◈	◆	◈	◆	◇		P				N/A				P	P	P		✗
6	TCM-TSS-3	Private parking lot sweeping ordinance	◆	◆	◈	◆	◇					✗	N/A				P				P
7	TCM-TSS-4	Sweeping of private roads and parking lots	◆	◆	◈	◆	◇					✗	N/A				P				P
8	TCM-TSS-5	Negotiations with regulated utilities for erosion control within R.O.W.	◈	◆	◈	◆	◇	**Watershed Group**													

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
9	TCM-RET-1	Encourage retrofitting of downspouts (downspout disconnect)	◈	◈	◈	◈	◆					✗	N/A				P		✗		P
		Dry weather runoff reduction																			
10	TCM-NSWD-1	Incentives for irrigation reduction practices	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
		Public Information and Participation																			
11	TCM-PIP-1	Refocused outreach to target audiences and water quality priorities	◆	◆	◆	◆	◆	**Watershed Group**													
		Public Agency Activities																			
12	TCM-PAA-1	Upgraded sweeping equipment (e.g. regenerative)	◆	◆	◈	◆	◇	C	✗	C	C	✗	N/A	C	C	C	P	C	C	C	✗
13	TCM-PAA-2	Adopt Sewer System Management Plan (SSMP)	◇	◆	◇	◇	◇	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
14	TCM-PAA-3	Adopt (nonstructural) statewide trash amendments	◈	◈	◈	◇	◇	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
15	TCM-PAA-4	Increased street sweeping frequency or routes	◆	◆	◈	◆	◇		P			P	N/A								P
16	TCM-TSS-6	Erosion repair and slope stabilization on public property and right of way	◈	◆	◈	◆	◇					✗	N/A				✗				✗

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Reporting/Adaptive Management																			
17	TCM-MRP-1	Enhanced tracking through use of online GIS MS4 Permit database	◈	◈	◈	◈	◈		P	✗	P	✗		✗	✗		P	✗	P	✗	✗
		Jurisdictional SW Management																			
18	TCM-SWM-1	Prepare guidance documents to aid in implementation of MS4 Permit MCMs	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Initiatives																			
19	TCM-INI-1	Copper reduction through implementation of SB 346	◆	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
20	TCM-INI-2	Lead reduction through implementation of SB 757	◆	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
21	TCM-INI-3	Support zinc reduction in tires through safer consumer product regulations	◆	◆	◇	◇	◇	**Watershed Group**													
22	TCM-INI-4	Apply for grant funding for stormwater quality/capture projects	◈	◆	◈	◆	◆					✗	✗				✗	✗	✗	✗	✗

✗ – Planned TCM. **P** – Potential TCM. **C** – Completed/implemented TCM.

◆ Primary pollutant reduction ◈ Secondary pollutant reduction ◇ Pollutant not addressed

BMP effectiveness ratings based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012.

ENHANCED TRACKING THROUGH USE OF ONLINE GIS MS4 PERMIT DATABASE

TCM-MRP-1

Measures:

- Enter the enhanced tracking requirements of the fourth term MS4 Permit on an online GIS database management system dedicated to Phase I MS4 Permit compliance. Program elements addressed include all the MCMs (Development Construction, Planning and Land Development, Industrial/Commercial Facilities, Public Agency Activities, Public Information and Participation and Illicit Connection/Discharge Elimination) and the Monitoring and Reporting Program.
- Use the consolidated tracking data to:
    - Improve the effectiveness of the JSWMP (e.g. examine geospatial trends in IC/IDs, which could be used to strategically distribute public education materials) and WMP.
    - Assess the JSWMP and improve the annual reporting process.
    - Guide the adaptive management process through this assessment.

Many of the cities are implementing the measures through the use of *MS4Front*, a propriety online GIS MS4 Permit database management system.

TRAIN STAFF TO FACILITATE LID AND GREEN STREETS IMPLEMENTATION

TCM-PLD-1

Measures:

- Conduct training for relevant staff in LID and Green Streets implementation prior to the onset of the programs. The elements of the training follow the provisions listed in MS4 Permit §VI.D.7.
- Educate governing bodies in LID and Green Streets implementation (optional).

Several cities have already accomplished these measures, which facilitate LID implementation and address WQPs.

ORDINANCE REQUIRES LID BMPS FOR PROJECTS BELOW MS4 PERMIT THRESHOLDS

TCM-PLD-2

Measures:

- Adopt an ordinance requiring LID BMPs for smaller development projects that are below the thresholds for inclusion under the Planning and Land Development MCM Program.

Downey, South Gate and Signal Hill have already accomplished this measure, which facilitates LID and addresses WQPs.

PRIORITIZE FACILITIES/INSPECTIONS BASED ON WATER QUALITY PRIORITIES

TCM-ICF-1 (MCM-ICF-3)

MS4 Permit: Modified MCM (replaces §VI.D.6.d, §VI.D.6.e)

A program has been developed to prioritize industrial/commercial facilities based on their potential to adversely impact WQPs. The resulting prioritization scheme determines the inspection frequency,

replacing the uniform inspection frequency provided in the MS4 Permit. This allows Cities to concentrate efforts on WQPs.

The complete program is detailed in the Minimum Control Measures section of this chapter – see MCM-ICF-3.

EXPOSED SOIL ORDINANCE

TCM-TSS-1

This TCM is an element of the TSS Reduction Strategy.

- Adopt ordinances that require landscaping, erosion control, and sediment control on vacant lots and other significant sources of exposed dirt.
- These efforts are distinct from construction activity control measures, which are addressed under the Development Construction MCM program.

The City of Whittier has successfully adopted and implemented such an ordinance. The ordinance also requires drought tolerant landscaping/xeriscaping. The ordinance language may be used as a template to develop similar ordinances for the other participating agencies, and as such is included in Appendix A-3-3.

EROSION REPAIR AND SLOPE STABILIZATION ON PRIVATE PROPERTY

TCM-TSS-2

This TCM is an element of the TSS Reduction Strategy. Measures include:

- If adopted, enforce the ordinances from TCM-TSS-1.
- Proactively enforce the existing stormwater ordinance regarding TSS-laden stormwater discharges (or potential discharges) from significant sources of exposed dirt and follow the Progressive Enforcement Policy. This may include observing site conditions prior to rain events and visual monitoring of stormwater discharges.

The City of Whittier has successfully implemented an ordinance in conformance with TCM-TSS-1. Pictures of some of the landscaped lots are included.

Wardman St and Philadelphia St, NW corner (1)

Wardman St and Philadelphia St, NW corner (2)

Greenleaf Ave and Philadelphia St, east side

Bailey St and Comstock Ave, NW corner

PRIVATE PARKING LOT SWEEPING ORDINANCE

TCM-TSS-3

This TCM is an element of the TSS Reduction Strategy.

- Adopt an ordinance that requires sweeping of private parking lots. An example ordinance from the City of Signal Hill is included in Appendix A-3-3.

SWEEPING OF PRIVATE ROADS AND PARKING LOTS

TCM-TSS-4

This TCM is an element of the TSS Reduction Strategy.

- If adopted, enforce the ordinance from TCM-TSS-3.
- Proactively enforce the existing stormwater ordinance regarding TSS-laden stormwater discharges (or potential discharges) for private roads and parking lots and follow the Progressive Enforcement Policy. This may include observing site conditions prior to rain events and visual monitoring of stormwater discharges.

NEGOTIATIONS WITH REGULATED UTILITIES FOR EROSION CONTROL WITHIN R.O.W.

TCM-TSS-5

This TCM is an element of the TSS Reduction Strategy.

- As a Watershed Group, pursue agreements between cities and utilities regarding erosion and sediment control in rights-of-way.

Since Caltrans is a participant in the Watershed Group, the cities will work with Caltrans to ensure that its rights-of-way are stabilized in a timely manner. However, since the public and private utilities whose rights-of-way must be stabilized are not members of the Watershed Group, negotiations with the utilities on how best to keep sediment from their rights-of-way out of the storm drain system will be necessary.

EROSION REPAIR AND SLOPE STABILIZATION ON PUBLIC PROPERTY

TCM-TSS-6

This TCM is an element of the TSS Reduction Strategy.

- Implement landscaping, erosion control, and sediment control on significant sources of exposed dirt on public property.

Encourage retrofitting of downspouts (downspout disconnect) — *TCM-RET-1*

Measures:

- Encourage owners/operators of existing developments to disconnect existing downspouts from the MS4.

Incentives for irrigation reduction practices — *TCM-NSWD-1*

Measures:

- Provide incentives such as rebates for irrigation reduction (i.e. runoff reduction) practices such as xeriscaping and turf conversion.

All cities are currently involved in this effort through the Metropolitan Water District's water conservation rebate program.

Refocused outreach to target audiences and water quality priorities — *TCM-PIP-1*

Measures:

- Within the Public Information and Education Program, elements such as material use/development and advertisements will address WQPs. The development of this effort will be ongoing throughout the MS4 Permit term, and may be regarded as a Watershed Group effort.

Upgraded sweeping equipment (e.g. regenerative) — *TCM-PAA-1*

Measures:

- Upgrade street sweeping equipment to regenerative or other high-efficiency new technology.

Most of the Cities contract street sweeping to private companies. These companies have already phased in regenerative sweepers. The City of Whittier has been phasing in regenerative sweepers and expects to be 100% regenerative by the end of the MS4 Permit term. The City of Long Beach operates vacuum sweepers over regenerative due to maintenance concerns. However the City is considering contracting this service in the near future. If this occurs, the vacuum sweepers will likely be replaced with regenerative sweepers provided by the contractor.

ADOPT SEWER SYSTEM MANAGEMENT PLAN MEASURES: *TCM-PAA-2*

All agencies are enrolled in the statewide Waste Discharge Requirements for Sanitary Sewer Systems, which required the development and implementation of a Sewer System Management Plan (SSMP in mid 2009. The goal of the SSMP is to reduce and prevent sanitary sewer overflows (SSOs), as well as mitigate any SSOs that do occur. This goal also addresses WQPs. Elements of the SSMP include:

- Sanitary sewer system operation and maintenance program
- Design and performance provisions
- Overflow emergency response plan
- FOG Control Program
- System Evaluation and Capacity Assurance Plan

Following these SSMP elements will address WQPs.

ADOPT (NONSTRUCTURAL) STATEWIDE TRASH AMENDMENTS *TCM-PAA-3*

Measures:

- Any mandatory nonstructural control measures required by the statewide Trash Amendments (currently in draft form) will result in trash load reductions. Since pollutants such as organics can adhere to plastic trash, secondary reductions for non-trash pollutants may be expected.

INCREASED STREET SWEEPING FREQUENCY OR ROUTES *TCM-PAA-4*

Measures:

- Increase the street sweeping frequency, jurisdiction-wide or in high trash-generating areas and/or include additional routes (e.g. center medians and intersections).

PREPARE GUIDANCE DOCUMENTS TO AID IMPLEMENTATION OF MS4 PERMIT MCMS *TCM-SWM-1*

This WMP includes in Appendix A-3-1 guidance documents and template forms to aid the Agencies in implementation of the MS4 Permit MCMs. These documents were developed to address two issues: 1) the MS4 Permit introduces many new and enhanced MCM provisions that do not have preexisting guidance documentation and 2) the model Stormwater Quality Management Program (SQMP) – which was required in the prior LA MS4 Permit and served as a guide to permit implementation – is now obsolete. Unlike the SQMP, the Agencies are not bound to the guidance and forms provided. They are provided as a resource to improve the effectiveness of the JSWMPs.

COPPER REDUCTION THROUGH IMPLEMENTATION OF SB 346 *TCM-INI-1*

This initiative TCM has been completed recently. The impact of the TCM over time has been incorporated into the RAA.

LEAD REDUCTION THROUGH IMPLEMENTATION OF SB 757 **TCM-INI-2**

This initiative TCM has been completed recently.

SUPPORT ZINC REDUCTION IN TIRES THROUGH SAFER CONSUMER PRODUCT REGULATIONS **TCM-INI-3**

Measures:

- As a Watershed Group, plan to work with others to use the Department of Toxic Substances Control's Safer Consumer Product Regulations to reduce the zinc in tires, which one of the greatest sources of zinc in urban areas.

APPLY FOR GRANT FUNDING FOR STORMWATER CAPTURE PROJECTS **TCM-INI-4**

Measures:

- Initiate Individual or multi-jurisdictional efforts to apply for grant funding for stormwater quality/capture projects.

In April 2014, The Gateway Water Management Authority received grant funding of $1.3 million for LID projects in the Cities of Downey, Norwalk, Pico Rivera, Santa Fe Springs and Whittier (as well as Lynwood, Paramount, Signal Hill and South Gate).

3.4.2 STRUCTURAL TARGETED CONTROL MEASURES

Structural TCMs are Structural BMPs, in addition to MCMs, designed with the objective to achieve interim and final water quality-based effluent limitations and/or receiving water limitations. Structural TCMs are an important component of the Watershed Group's load reduction strategy. These BMPs are constructed to capture runoff and filter, infiltrate, or treat it. If properly maintained, these BMPs can have high pollutant removal efficiencies (see the *Performance Evaluation of Structural BMPs* element of this section); however, they tend to be more expensive than nonstructural BMPs. The two prevailing approaches for implementing Structural BMPs are regional and distributed approaches. Both serve important purposes and should be considered in combination to determine the best possible implementation strategy to meet the Watershed Group's water quality goals.

DISTRIBUTED BMPS

Distributed Structural BMPs are generally built at the site-scale. They are intended to treat stormwater runoff at the source and usually capture runoff from a single parcel or site.

Figure 3-1: Distributed BMP Schematic

REGIONAL BMPS

Regional BMPs refer to large structural BMPs that receive flows from neighborhoods or large areas and may serve dual purposes for flood control or groundwater recharge[3].

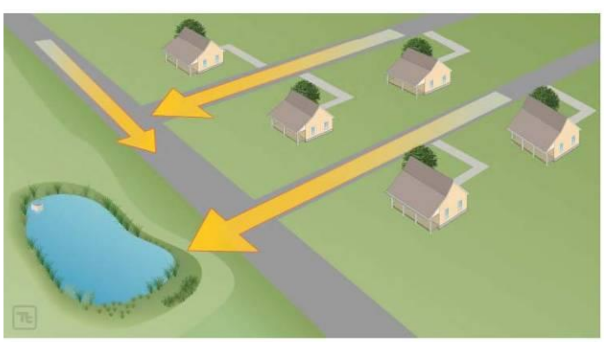

Figure 3-2: Regional BMP Schematic

[3] San Diego River Watershed Comprehensive Load Reduction Plan (2012)

3.4.2.1 STRUCTURAL BMP SUBCATEGORIES

Structural BMPs fall under a variety of subcategories that correspond to their function and water quality benefit. Some of the most common of these subcategories are described below. These subcategories will be used throughout the WMP to describe existing, planned, and potential regional and distributed BMPs.

INFILTRATION BMPS

Infiltration BMPs allow for stormwater to percolate through the native soils and recharge the underlying groundwater table, subsequently decreasing the volume of water discharged to the downstream waterbodies. These BMPs must be constructed in areas where the native soils have percolation rates and groundwater levels sufficient for infiltration.

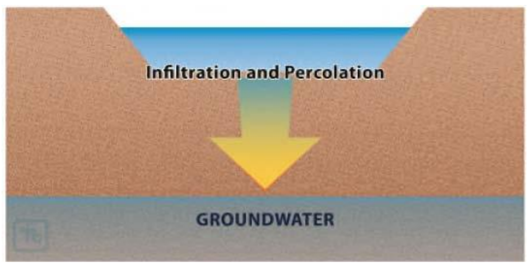

Figure 3-3: Infiltration BMP Schematic

INFILTRATION BASIN

An infiltration basin consists of an earthen basin with a flat bottom. An infiltration basin retains stormwater runoff in the basin and allows the retained runoff to percolate into the underlying soils. The bottom of an infiltration basin is typically vegetated with dryland grasses or irrigated turf grass.

INFILTRATION TRENCH

An infiltration trench is a long, narrow, rock-filled trench with no outlet other than for overflow. Runoff is stored in the void space between stones and infiltrates through the bottom and sides of the trench. Infiltration trenches provide the majority of their pollutant removal benefits through volume reduction. Pretreatment is important for limiting amounts of coarse sediment entering the trench which can clog and render the trench ineffective.

BIORETENTION WITH NO UNDERDRAIN

Bioretention facilities with no underdrain are landscaped shallow depressions that capture and infiltrate stormwater runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. The facilities normally consist of a ponding area, mulch layer, engineered media, and vegetation. As stormwater passes down through the media, pollutants are filtered, adsorbed, and biodegraded by the soil and vegetation.

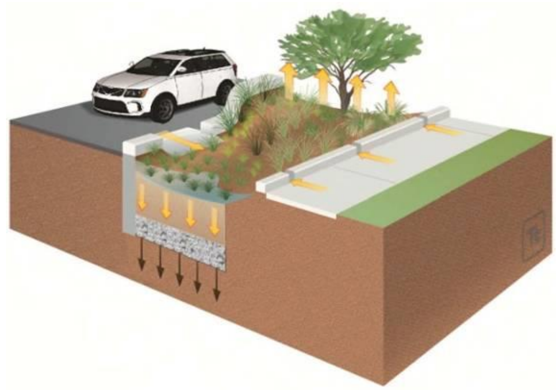

Figure 3-4: Bioretention without underdrain schematic

Drywell

Drywells are similar to infiltration trenches in their design and function; however, drywells generally have a greater depth to footprint area ratio and can be installed at relatively deep depths. A drywell is a subsurface storage facility designed to temporarily store and infiltrate runoff. A drywell may be either a small excavated pit filled with aggregate or a prefabricated storage chamber or pipe segment.

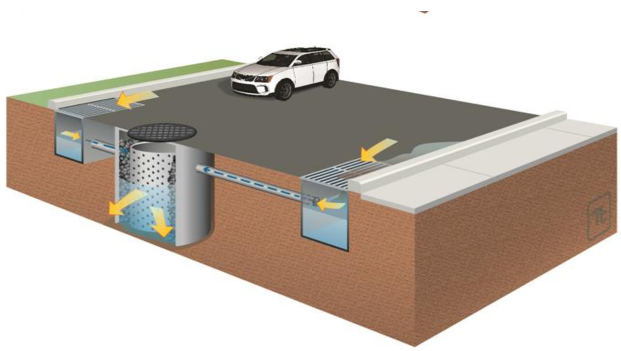

Figure 3-5: Drywell schematic

Porous pavement

Porous pavement (concrete, asphalt, and pavers) contain small voids that allow water to pass through to a gravel base. They come in a variety of forms; they may be a modular paving system (concrete pavers, grass-pave, or gravel-pave) or poured in place pavement (porous concrete, permeable asphalt). Porous pavements treat stormwater and remove sediments and metals within the pavement pore space and gravel base. While conventional pavement results in increased rates and volumes of surface runoff, properly constructed and maintained porous pavements allow stormwater to percolate through the pavement and enter the soil below. This facilitates groundwater recharge while providing the structural and functional features needed for the roadway, parking lot, or sidewalk. The paving surface, subgrade, and installation requirements of porous pavements are more complex than those for conventional asphalt or concrete surfaces.

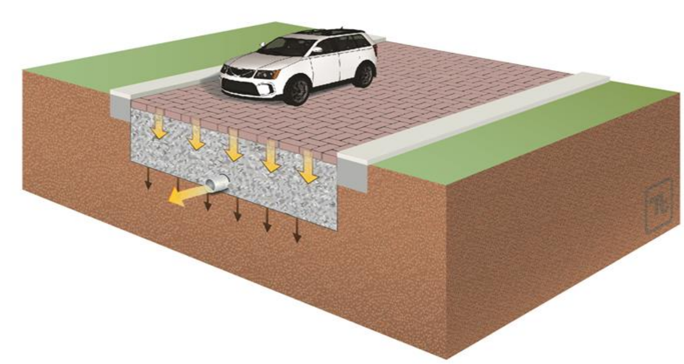

Figure 3-6: Porous pavement schematic

Biotreatment BMPs

Biotreatment BMPs treat stormwater through a variety of physical, chemical, and biological processes prior to being discharged to the MS4 system. These BMPs should be considered where Infiltration BMPs are infeasible.

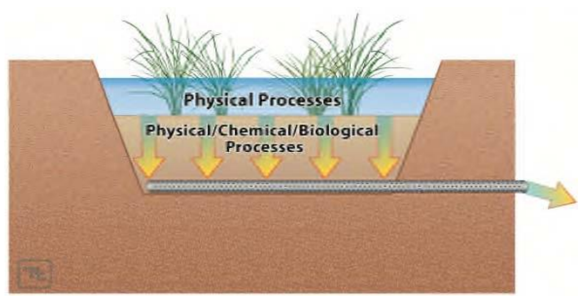

Figure 3-7: Biotreatment BMP schematic

Bioretention with Underdrains

Bioretention stormwater treatment facilities are landscaped shallow depressions that capture and filter stormwater runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. The facilities normally consist of a ponding area, mulch layer, engineered media, and vegetation. As stormwater passes down through the media, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and vegetation. Bioretention with underdrain systems are utilized for areas containing native soils with low permeability or steep slopes, where the underdrain system routes the treated runoff to the storm drain system.

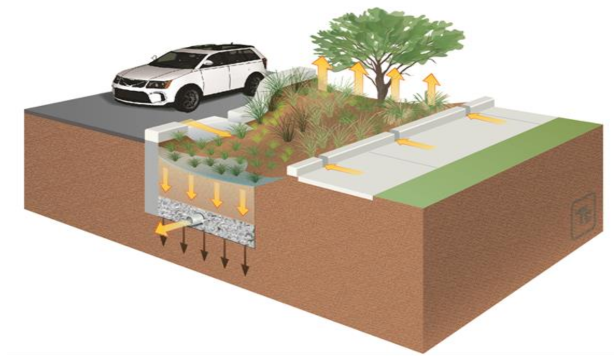

Figure 3-8: Bioretention with Underdrains schematic

Vegetated Swales

Vegetated swales are open, shallow channels with low-lying vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. Vegetated swales provide pollutant removal through settling and filtration in the vegetation (usually grasses) lining the channels. In addition, although it is not their primary purpose, vegetated swales also provide the opportunity for volume reduction through subsequent infiltration and evapotranspiration and reduce the flow velocity. Where soil conditions allow, volume reduction in vegetated swales can be enhanced by adding a gravel drainage layer underneath the swale allowing additional flows to be retained and infiltrated. Where slopes are shallow and soil conditions limit or prohibit infiltration, an underdrain system or low flow channel for dry weather flows may be required to minimize ponding and convey treated and/or dry weather flows to an acceptable discharge point. An effective vegetated swale achieves uniform sheet flow through a densely vegetated area for a period of several minutes (depending on design standard used).

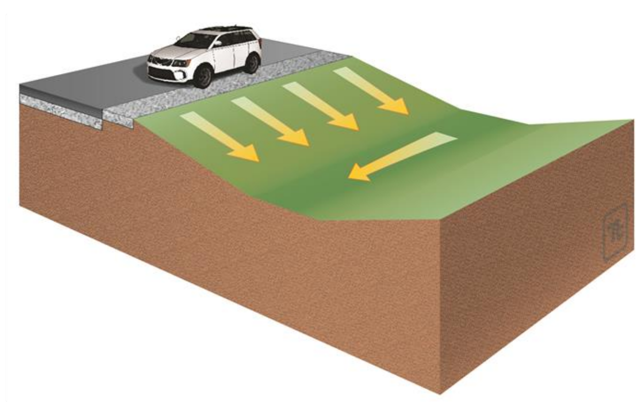

Figure 3-9: Vegetated swale schematic

Wet Detention Basin

Wet detention basins are constructed, naturalistic ponds with a permanent or seasonal pool of water (also called a “wet pool” or “dead storage”). Aquascape facilities, such as artificial lakes, are a special

form of wet pool facility that can incorporate innovative design elements to allow them to function as a stormwater treatment facility in addition to an aesthetic water feature. Wet ponds require base flows to exceed or match losses through evaporation and/or infiltration, and they must be designed with the outlet positioned and/or operated in such a way as to maintain a permanent pool. Wet ponds can be designed to provide extended detention of incoming flows using the volume above the permanent pool surface.

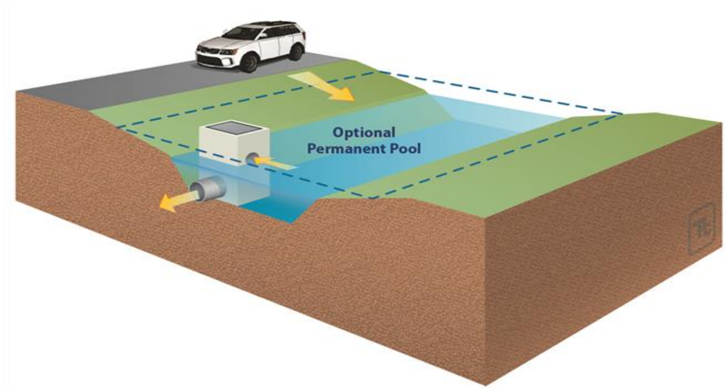

Figure 3-10: Wet detention basin schematic

DRY EXTENDED DETENTION BASIN

Dry extended detention basins are basins whose outlets have been designed to detain the stormwater runoff to allow particulates and associated pollutants to settle out. Dry extended detention basins do not have a permanent pool; they are designed to drain completely between storm events. They can also be used to provide hydromodification and/or flood control by modifying the outlet control structure and providing additional detention storage. The slopes, bottom, and forebay of Dry extended detention basins are typically vegetated.

Figure 3-11: Dry extended detention basin schematic

Pre Treatment BMPs

Pre-treatment BMPs are typically not used as primary treatment; however, they are highly recommended for preliminary treatment in order to prolong the life and prevent clogging of the downstream system in a treatment train.

Media Filters

Media filters are usually designed as multi-chambered stormwater practices; the first is a settling chamber, and the second is a filter bed filled with sand or another filtering media. As stormwater flows into the first chamber, large particles settle out, and then finer particles and other pollutants are removed as stormwater flows through the filtering medium. They can also be used as pre-treatment, with their location prior to any infiltration or biotreatment BMP.

Catch Basin Inserts

Catch basins inserts typically include a grate or curb inlet and a sump to capture sediment, debris, and pollutants. Filter fabric can also be included to provide additional filtering of particles. The effectiveness of catch basins, their ability to remove sediments and other pollutants, depends on its design and maintenance. Some inserts are designed to drop directly into existing catch basins, while others may require retrofit construction. Similar to media filters, catch basin filters can also be used as a pre-treatment BMP for infiltration and biotreatment BMPs.

Figure 3-12: Pre-treatment BMP schematic

Rainfall Harvest

Rainfall Harvest BMPs capture rainwater to be reused in lieu of discharging directly to the MS4.

Above Ground Cisterns

Cisterns are large above ground tanks that store stormwater collected from impervious surfaces for domestic consumption. Above ground cisterns are used to capture runoff. Mesh screens are typically used to filter large debris before the stormwater enters the cistern. The collected stormwater could potentially be used for landscape irrigation and some interior uses, such as toilets and washing machines. The collection and consumption of the stormwater results in pollution control, volume reduction, and peak flow reduction from the site.

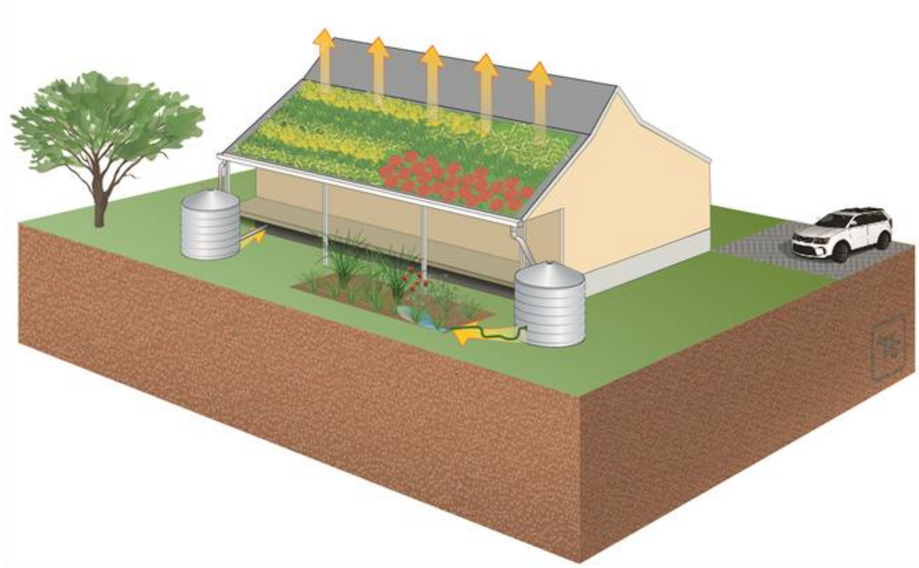

Figure 3-13: Above ground cisterns schematic

UNDERGROUND DETENTION

Underground detention systems function similarly to above ground cisterns in that they collect and use stormwater from impervious surfaces. These systems are concealed underground and can allow for larger stormwater storage and capture additional impervious surfaces not easily captured in an above ground system (e.g. parking lots and sidewalks).

Figure 3-14: Underground detention schematic

Diversion Systems

Low Flow Diversion

Flow diversion systems collect and divert runoff. Flow diversion structures can primarily be used in two ways. First, flow diversion structures may be used to direct dry weather flows to a treatment facility, preventing the runoff from reaching a receiving water body. This is typically done with low flow runoff, which occurs during periods of dry weather. Second, flow diversion structures can also be modified by incorporating them into other BMPs. For example, diverted flow can be fed into a regional BMP. Properly designed stormwater diversion systems are very effective for preventing stormwater from being contaminated and for routing contaminated flows to a proper treatment facility.

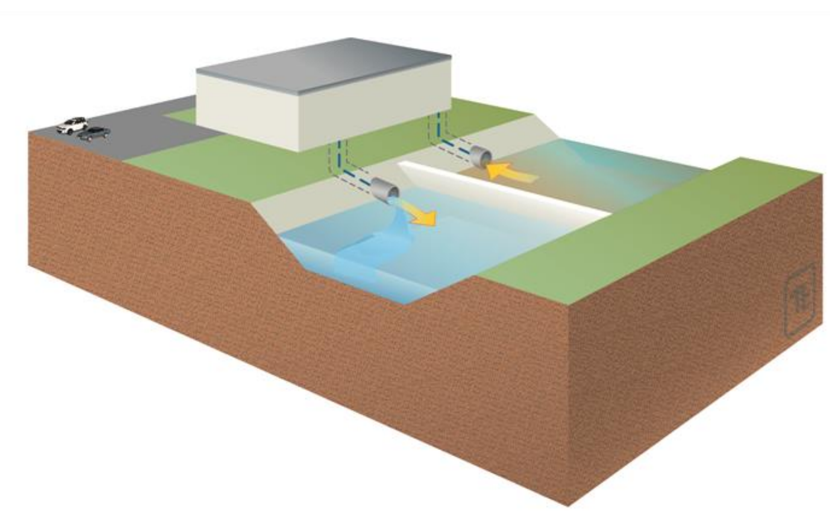

Figure 3-15: Low flow diversion schematic

3.4.2.2 PERFORMANCE EVALUATION OF STRUCTURAL BMPS

It is important to take the performance of stormwater BMPs into consideration during the planning and implementation process. This section provides an analysis of specific BMPs to determine the pollutant removal effectiveness of those BMPs. The International Stormwater BMP Database[4] (BMP Database) project website was used to analyze different BMP types for their effectiveness in removing specific pollutants. The website features a database of over 530 BMP studies, performance analysis results, BMP performance tools, monitoring guidance and other study-related publications. Performance studies relevant to BMPs matching the criteria for an effective regional or distributed application were analyzed to include the following:

- Bioretention
- Bioswale
- Detention Basin
- Grass Strip
- Porous Pavement
- Retention Pond
- Wetland Basin
- Wetland Channel

The average influent and effluent concentrations for the 95th percentile confidence interval were analyzed for pollutants of concern for the Lower Los Angeles River (LSGR) watershed available through the BMP Database. The following pollutants were analyzed:

- Arsenic (Dissolved)
- Arsenic (Total)
- Cadmium (Dissolved)
- Cadmium (Total)
- Chromium (Dissolved)
- Chromium (Total)
- Copper (Dissolved)
- Copper (Total)
- E. coli
- Enterococcus
- Fecal Coliform
- Lead (Dissolved)
- Lead (Total)
- Nickel (Dissolved)
- Nickel (Total)
- TSS
- Zinc (Dissolved)

[4] Geosyntec Consultants, Wright Water Engineers. International Stormwater Best Management Practices (BMP) Database Pollutant Category Summary Statistical Addendum: TSS, Bacteria, Nutrients, and Metals. July 2012.

- Zinc (Total)

The majority of the BMPs analyzed by the BMP Database project are located in major transportation corridors. Land use categories such as residential, commercial, and industrial are not heavily represented in the analysis. The BMP effectiveness may also vary with regional conditions. Many BMPs were monitored in areas where a higher intensity and volume of rainfall than LA County is observed. Additionally, some of the BMPs monitored were designed in the 1990s, 1980s, or earlier. These are expected to have been designed with less stringent guidelines resulting in a more conservative analysis. Although the conditions noted above may result in a slight variance in BMP effectiveness, the pollutant removal efficiencies are considered to be applicable.

It is important to note that the majority of pollutant load reduction is achieved using infiltration BMPs which result in an overall volume reduction. The analysis emphasizes reduction in concentrations of constituents, rather than volume or load reduction. Flow reduction analyses were not performed due to the dependence on rainfall intensity, soil types, and other site-specific conditions. The RAA has determined the volume reduction needed to meet compliance goals.

RESULTS

The analysis can be used to evaluate BMPs and support assumptions made in the RAA regarding effluent concentrations from specific BMPs. The required pollutant reductions determined through the RAA will be used to prioritize the BMPs to maximize effectiveness. The results of the BMP Database analysis are presented in a comparison format to easily visualize the pollutant removal efficiencies of each BMP type.

Each pollutant analyzed is a pollutant of concern for the LSGR WMP watersheds, with the exception of Total Suspended Solids (TSS). The reason for its inclusion is that studies have shown that there is a direct correlation between sediment concentration and various pollutants for which the watersheds are impaired. The data compiled from the BMP Database was used to determine the percent removal of each BMP for each pollutant. Each BMP was ranked in terms of pollutant removal efficiency for each pollutant type (see the *BMP Pollutant Removal Effectiveness Comparison Charts* Below). Data for specific pollutants was not available for each BMP; therefore, only available data is presented.

The next analysis included taking the data and grouping the removal efficiencies under each BMP type. The pollutants were then ranked in terms of pollutant removal efficiency for each BMP type (see the *BMP Type Comparison Charts for Pollutant Removal* below). Data for specific pollutants was not available for each BMP; therefore, only available data is presented.

BMP Pollutant Removal Effectiveness Comparison Charts

Bioretention

TSS	78%
Total Zinc	75%
E. coli	71%
Enterococcus	61%
Total Copper	55%
Total Lead	33%
Total Cadmium	5%

Bioswale

Total Nickel	66%
Dissolved Nickel	59%
Dissolved Zinc	54%
Total Chromium	49%
Total Lead	49%
Dissolved Cadmium	43%
Total Copper	40%
Total Cadmium	38%
TSS	37%
Total Zinc	37%
Total Arsenic	30%
Dissolved Copper	27%
Dissolved Lead	22%
Dissolved Chromium	10%
Dissolved Arsenic	0%
E. coli	-5%
Fecal Coliform	-6%

Detention Basin

E. coli	67%
TSS	64%
Total Zinc	58%
Total Lead	49%
Total Copper	47%
Total Chromium	41%
Total Nickel	41%
Dissolved Copper	37%
Fecal Coliform	30%
Dissolved Zinc	29%
Total Cadmium	21%
Total Arsenic	19%
Dissolved Lead	16%
Dissolved Chromium	14%
Dissolved Nickel	10%
Dissolved Arsenic	0%
Dissolved Cadmium	-233%

Grass Strip

Total Lead	78%
Total Zinc	76%
Total Copper	70%
Total Cadmium	65%
Dissolved Zinc	61%
Dissolved Lead	59%
TSS	56%
Dissolved Copper	54%
Total Chromium	50%
Dissolved Cadmium	31%
Fecal Coliform	28%
Dissolved Nickel	22%
Dissolved Chromium	21%
Total Arsenic	10%
Dissolved Arsenic	-5%

Porous Pavement

TSS	80%
Total Zinc	74%
Total Lead	57%
Total Nickel	53%
Dissolved Zinc	52%
Dissolved Nickel	51%
Total Copper	40%
Dissolved Cadmium	33%
Total Cadmium	11%
Total Arsenic	0%
Dissolved Lead	0%
Total Chromium	-4%
Dissolved Copper	-7%
Dissolved Chromium	-464%

Retention Pond

E. coli	95%
TSS	81%
Enterococcus	75%
Total Lead	67%
Total Chromium	67%
Fecal Coliform	63%
Total Zinc	60%
Dissolved Zinc	57%
Total Cadmium	53%
Total Nickel	51%
Total Copper	48%
Dissolved Cadmium	41%
Total Arsenic	38%
Dissolved Lead	37%
Dissolved Copper	35%
Dissolved Chromium	15%
Dissolved Nickel	-26%

Wetland Basin

Enterococcus	75%
TSS	56%
Total Zinc	54%
Fecal Coliform	53%
Total Cadmium	42%
Total Lead	40%
Total Copper	36%
E. coli	19%

Wetland Channel

Dissolved Lead	84%
Total Zinc	32%
TSS	29%
Total Nickel	22%
Dissolved Zinc	18%
Total Chromium	18%
Total Lead	15%
Total Cadmium	2%
Total Copper	-6%

BMP Type Comparison Charts for Pollutant Removal

Influent/Effluent Summary Statistics for Dissolved Arsenic (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	0.6	0.6	0%
Detention Basin	1.04	1.04	0%
Grass Strip	0.61	0.64	-5%
Media Filter	0.53	0.62	-17%

Influent/Effluent Summary Statistics for Total Arsenic (µg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	1.36	0.85	38%
Bioswale	1.68	1.17	30%
Detention Basin	2.21	1.78	19%
Grass Strip	1.04	0.94	10%
Porous Pavement	2.5	2.5	0%

Influent/Effluent Summary Statistics for Dissolved Cadmium (ug/L)

BMP Type	In	Out	Percent Removal
Bioswale	0.21	0.12	43%
Retention Pond	0.17	0.1	41%
Porous Pavement	0.06	0.04	33%
Grass Strip	0.13	0.09	31%
Detention Basin	0.15	0.5	-233%

Influent/Effluent Summary Statistics for Total Cadmium (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	0.52	0.18	65%
Retention Pond	0.49	0.23	53%
Wetland Basin	0.31	0.18	42%
Bioswale	0.5	0.31	38%
Detention Basin	0.39	0.31	21%
Porous Pavement	0.28	0.25	11%
Bioretention	0.99	0.94	5%
Wetland Channel	0.5	0.49	2%

Influent/Effluent Summary Statistics for Dissolved Chromium (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	2.13	1.68	21%
Retention Pond	1.18	1	15%
Detention Basin	1.25	1.08	14%
Bioswale	1.53	1.38	10%
Porous Pavement	0.5	2.82	-464%

Influent/Effluent Summary Statistics for Total Chromium (µg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	4.09	1.36	67%
Grass Strip	5.49	2.73	50%
Bioswale	4.53	2.32	49%
Detention Basin	5.02	2.97	41%
Wetland Channel	1.72	1.41	18%
Porous Pavement	3.6	3.73	-4%

Influent/Effluent Summary Statistics for Dissolved Copper (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	11.66	5.4	54%
Detention Basin	5.56	3.52	37%
Retention Pond	6.57	4.24	35%
Bioswale	11.01	8.02	27%
Porous Pavement	5.37	5.75	-7%

Influent/Effluent Summary Statistics for Total Copper (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	24.52	7.3	70%
Bioretention	17	7.67	55%
Retention Pond	9.57	4.99	48%
Detention Basin	10.62	5.67	47%
Porous Pavement	13.07	7.83	40%
Bioswale	10.86	6.54	40%
Wetland Basin	5.61	3.57	36%
Wetland Channel	4.52	4.81	-6%

Influent/Effluent Summary Statistics for E. coli (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	2800	150	95%
Bioretention	150	44	71%
Detention Basin	1300	429	67%
Wetland Basin	785	632	19%
Bioswale	3990	4190	-5%

Influent/Effluent Summary Statistics for Enterococcus (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	615	153	75%
Retention Wetland Ba	615	153	75%
Bioretention	605	234	61%

Influent/Effluent Summary Statistics for Fecal Coliform (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	1920	707	63%
Wetland Basin	13000	6140	53%
Detention Basin	1480	1030	30%
Grass Strip	32000	23200	28%
Bioswale	4720	5000	-6%

Influent/Effluent Summary Statistics for Dissolved Lead (µg/L)

BMP Type	In	Out	Percent Removal
Wetland Channel	3.26	0.52	84%
Grass Strip	0.64	0.26	59%
Retention Pond	0.76	0.48	37%
Bioswale	1.39	1.08	22%
Detention Basin	0.79	0.66	16%
Porous Pavement	0.5	0.5	0%

Influent/Effluent Summary Statistics for Total Lead (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	8.83	1.96	78%
Retention Pond	8.48	2.76	67%
Porous Pavement	4.3	1.83	57%
Detention Basin	6.08	3.1	49%
Bioswale	3.93	2.02	49%
Wetland Basin	2.03	1.21	40%
Bioretention	3.76	2.53	33%
Wetland Channel	2.94	2.49	15%

Influent/Effluent Summary Statistics for Dissolved Nickel (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	4.93	2.04	59%
Porous Pavement	0.88	0.43	51%
Grass Strip	2.68	2.09	22%
Detention Basin	2.82	2.55	10%
Retention Pond	1.68	2.11	-26%

Influent/Effluent Summary Statistics for Total Nickel (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	9.26	3.16	66%
Porous Pavement	3.64	1.71	53%
Retention Pond	4.46	2.19	51%
Grass Strip	5.41	2.92	46%
Detention Basin	5.64	3.35	41%
Wetland Channel	2.8	2.18	22%

Influent/Effluent Summary Statistics for TSS (mg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	70.7	13.5	81%
Porous Pavement	65.3	13.2	80%
Bioretention	37.5	8.3	78%
Detention Basin	66.8	24.2	64%
Grass Strip	43.1	19.1	56%
Wetland Basin	20.4	9.06	56%
Bioswale	21.7	13.6	37%
Wetland Channel	20	14.3	29%

Influent/Effluent Summary Statistics for Dissolved Zinc (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	36.1	14	61%
Retention Pond	22.5	9.6	57%
Bioswale	52.7	24.5	54%
Porous Pavement	13.5	6.5	52%
Detention Basin	15.6	11.08	29%
Wetland Channel	11.6	9.5	18%

Influent/Effluent Summary Statistics for Total Zinc (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	103.3	24.3	76%
Bioretention	73.8	18.3	75%
Porous Pavement	57.6	15	74%
Retention Pond	53.6	21.2	60%
Detention Basin	70	29.7	58%
Wetland Basin	48	22	54%
Bioswale	36.2	22.9	37%
Wetland Channel	23	15.6	32%

Results Analysis Summary

The statistical analysis presented has many applications, including supporting BMP prioritization and the RAA analysis. As future applications are undertaken, the results can be analyzed in more detail. For this analysis, the following observations were discovered:

- Overall, the retention pond returned the best results in terms of pollutant removal efficiency for several pollutants, with more than 60% removal for E. coli, TSS, Enterococcus, total lead, fecal coliform, and total zinc.
- Among the constituents analyzed, the percent removals were often the highest for metals, lead and zinc in particular.
- The poorest performance was often observed for nutrients and bacteria, with concentrations increasing for some BMP types. Leaching of nutrients from soils/planting media and resuspension of captured pollutants may be a cause of the increases observed in these BMPs[5].

It is important to note that the majority of pollutant removal associated with stormwater BMPs will be due to infiltration and overall volume reduction. Although this is the case, a small component may be associated with inflow to outflow pollution concentration reduction and the analysis focuses on this percent reduction. Percent reduction is easily understandable and convenient for reporting; therefore, the method seems to be appropriate for this analysis. Refer to the article "Voodoo Hydrology" in the July 2006 article of Stormwater Magazine[6] for further information on caveats to this method. Although the analysis does not cover volume reduction, the RAA analysis has estimated the pollutant reduction necessary to meet compliance.

3.4.2.3 Existing Targeted Structural BMPs

The existing structural BMPs in place within the Watershed Group area have been included in the RAA model. Figure 3-16 indicates the locations of these existing BMPs. Refer to Chapter 4 for more details.

3.4.2.4 Control Measures identified in TMDLs, Implementation Plans and State Amendments

There are no control measures identified in the San Gabriel River Metals TMDL. Planned and potential control measures to address the Metals TMDL are incorporated within the WCMs identified in this Chapter.

The State Water Resources Control Board is expected to adopt the statewide trash amendments in late 2014. The current draft amendments include as a compliance route the installation of full-capture devices in the priority land use areas of high density residential, industrial, commercial, mixed urban and public transportation stations. These structural control measures are expected to result in significant reductions in trash loading. Also, since pollutants such as organics can adhere to plastic trash, secondary reductions for non-trash pollutants may be expected.

[5] Stormwater: BMP Effectiveness for Nutrients, Bacteria, Solids, Metals, and Runoff Volume (2012). Retrieved online at: http://www.stormh2o.com/

[6] http://www.stormh2o.com/SW/Editorial/Voodoo_Hydrology_37.aspx

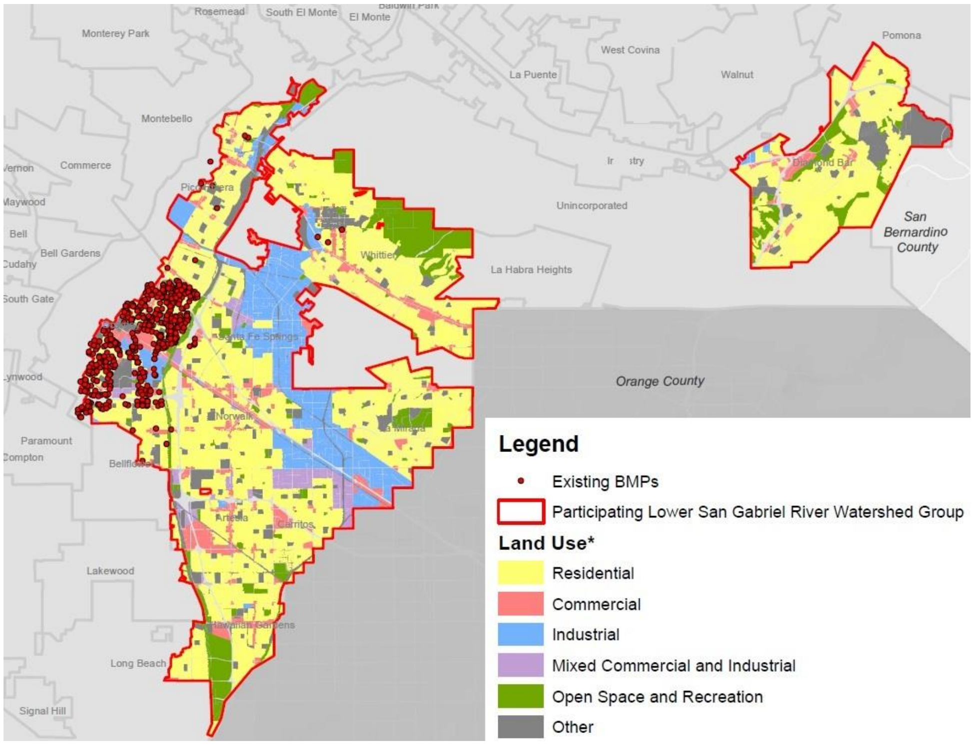

Figure 3-16: Locations of Existing Structural BMPs

3.4.2.5 PLANNED TARGETED CONTROL MEASURES

The projects listed below have been planned to some extent by the Participating Agencies. A literature review was conducted of existing TMDL Implementation Plans, the existing IRWMP, and other planning documents to collect data. The extent of planning of these projects ranges from a roundtable discussion to being in preliminary phases of design.

GATEWAY MULTI-AGENCY, MULTI-WATERSHED PROJECT TO INCORPORATE LOW IMPACT DEVELOPMENT (LID) BMPS INTO MAJOR TRANSPORTATION CORRIDORS IN THE GATEWAY REGION OF LOS ANGELES (GATEWAY PROP 84 PROJECT - **GRANT APPLICATION APPROVED**)

This project is a planned regional project within multiple cities to include the cities of Downey, Norwalk, Santa Fe Springs, and Whittier. The Gateway Water Management Authority (GWMA) applied for funds through the Prop 84 Grant Round 2 program to put towards this project, which was approved in May 2014. The project is in the preliminary design phase and the information provided is subject to change.

The project seeks to prevent stormwater contamination of surface waters in three watersheds, to include the San Gabriel River. This will be accomplished by installing LID BMPs to treat stormwater runoff, and its associated pollutants. Table 3-6 lists the BMPs to be implemented within the Cities and Figures 3-18 to 3-22 show the project locations within each city.

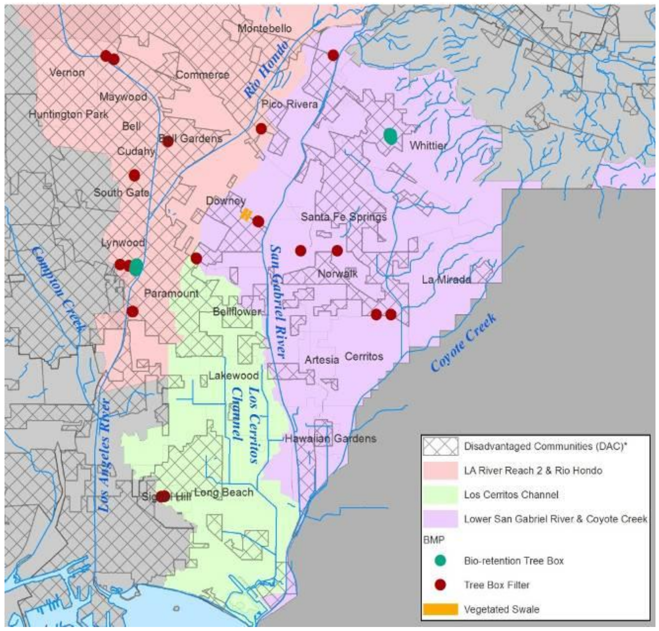

Figure 3-17: BMP Locations within the Gateway Prop 84 Project

Table 3-6: Proposed BMPs within the Gateway Prop 84 Project

City	LID BMPs	Location	Anticipated treatment[7]
Downey	(2) Tree box filters	(1) NEC Pangborn Ave & Firestone Blvd, (1) NWC Pangborn Ave & Firestone Blvd	29,032 cf
	(1) Bioswale	(1) Firestone Blvd. at Stonewood Mall	11,741 cf
Norwalk	(2) Tree box filters	(1) Imperial Highway & Volunteer Ave, (1) Firestone Blvd & Imperial Highway	14,516 cf
Pico Rivera	(1) Tree box filter	(1) Beverly Boulevard and Tobias Avenue	7, 258 cf
Santa Fe Springs	(2) Tree box filters	(1) Alondra Blvd and Shoemaker Ave, (1) Alondra Blvd and Marquardt Ave	14,516 cf
Whittier	(10) Bioretention Tree Wells	Locations to be determined	5,870 cf

[7] Treatment volume calculations based on a 24-hour, 0.75 in storm, 6x6 tree box filter units and a 1200 LF swale.

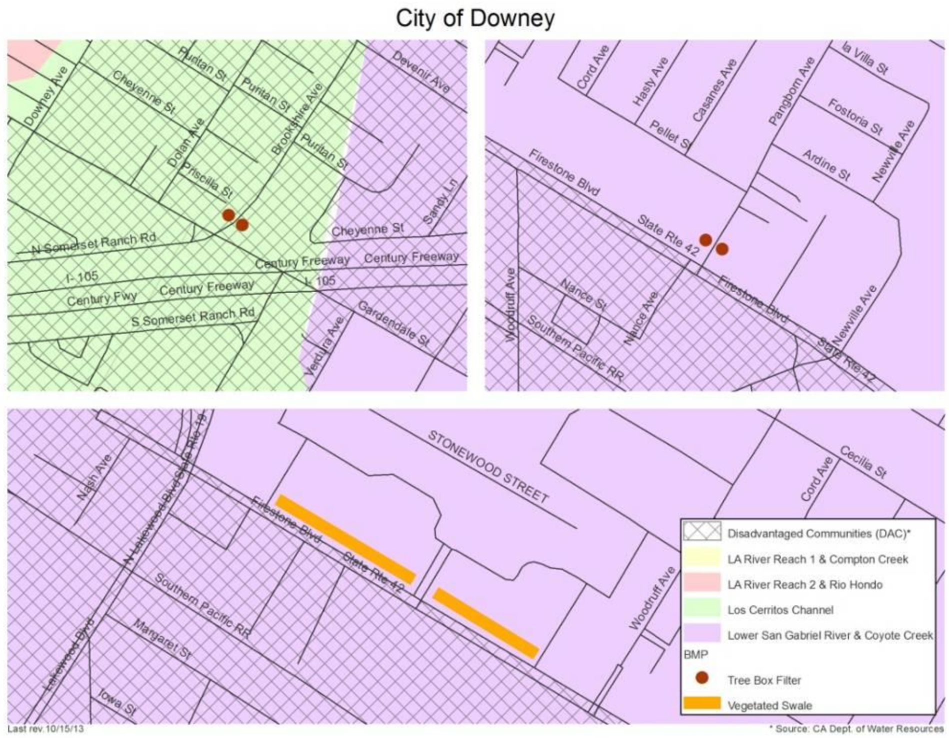

Figure 3-18: Gateway Prop 84 Project BMP locations proposed for the city of Downey

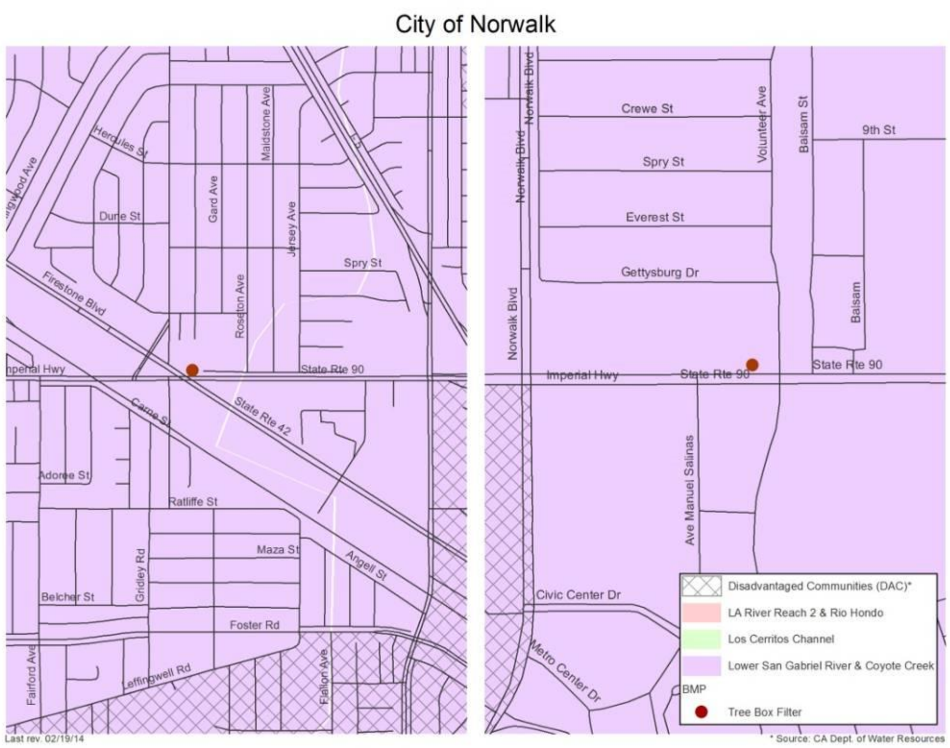

Figure 3-19: Gateway Prop 84 Project BMP locations proposed for the city of Norwalk

City of Pico Rivera

Figure 3-20: Gateway Prop 84 Project BMP locations proposed for the city of Pico Rivera

City of Santa Fe Springs

Figure 3-21: Gateway Prop 84 Project BMP locations proposed for the city of Santa Fe Springs

City of Whittier

Figure 3-22: Gateway Prop 84 Project BMP locations proposed for the city of Whittier

IRWMP Projects

The following project descriptions are from the Gateway Integrated Regional Watershed Management Plan (IRWMP). These projects have been discussed in detail with the Gateway Water Management Authority (GWMA) and are likely to be implemented once the required funding is acquired. Further details about each project can be found in the Gateway IRWMP documents.

Bellflower NPDES Permit and TMDL Compliance Stormwater Improvements

This project will consist of installing catch basin automatic retractable screens (ARS), vegetated swales, bioretention systems, infiltration basins, porous pavement, and covered trash receptacles at various locations within the city of Bellflower.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

Construct Bioswales/Landscaping in various locations in Long Beach

This project will be located in the city of Long Beach and is planned to construct and/or reconstruct new and existing medians to capture and treat stormwater runoff.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

The Los Cerritos, San Gabriel River and Alamitos Bay Low Flow Diversion System

This project will serve the cities of Long Beach, Bellflower, Norwalk, and Cerritos. The project plans to investigate sites along three waterbodies, to include the Lower San Gabriel River, to determine the feasibility of constructing Low Flow Diversion (LFD) Devices in locations that have high levels of metals and bacteria. This work will include the design and construction of four (4) LFDs that will be identified in the feasibility report.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

Pump Station Vortex Separation System (VSS) Devices

This project will serve the cities of Long Beach, Bellflower, Norwalk, Cerritos and proposes to investigate sites upstream of the storm drain pump station along the Lower San Gabriel River to determine the feasibility of constructing Pre Filter Vortex Separation System Structural BMPs to capture trash, metals, and sediment possibly containing bacteria in five (5) locations. This project would provide a large amount of treatment in the San Gabriel River.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

3.4.2.6 Potential Sites for Future Targeted Control Measures

A preliminary assessment has been performed for the Lower San Gabriel River Watershed to determine potential areas to locate regional BMPs. This was done with a preliminary GIS approach by screening areas within 660 feet (1/8 mile) of a waterbody and currently designated as open space as well as other potentially useful zoning designations. The overall size of each site was used to calculate the maximum amount of volume which could be stored at the site and the maximum amount of area that could be diverted to the site assuming the entire site were redeveloped to incorporate infiltration.

The equations used were derived from the Orange County Technical Guidance Document (OC TGD)[8] and can be found below:

$$\mathbf{DCV = CdA_{TRIBUTARY} \times \left(\frac{43560}{12}\right)}$$

Driving Equation No. 1

$$D_{MAX} = K_{DESIGN}T \times \left(\frac{1}{12}\right)$$

Assume K_{DESIGN} = 0.3 in/hr

0.3 in/hr is the lowest infiltration rate where infiltration is deemed feasible per the MS4 Permit.

$$D_{MAX} = 0.3 \times 48 \times \frac{1}{12} = 1.2 \text{ feet}$$

$$A_{BMP} = \frac{DCV}{D_{MAX}}$$

$$\mathbf{A_{TRIBUTARY} = \frac{A_{BMP} \times 1.2}{Cd \times \left(\frac{43560}{12}\right)}}$$

Driving Equation No. 2

$$C = (0.75 \times IMP) + 0.15 = 0.9$$

Assume 100% imperviousness

Assume d=1.1

1.1 inches is the highest depth on the LA County 85th Percentile Isohyetal Map for the LSGR watershed.

$$\mathbf{A_{TRIBUTARY} = \frac{A_{BMP} \times 1.2}{0.9 \times 1.1 \times \left(\frac{43560}{12}\right)}}$$

Final Equation No. 1

$$\mathbf{DCV = A_{BMP} \times 1.2}$$

Final Equation No. 2

A_{BMP} has been assumed to be the total site area to determine the maximum tributary area that can be diverted to the site and the maximum volume the site can treat.

Where:

DCV:	Design Capture Volume	$A_{TRIBUTARY}$:	Area Tributary to BMP	T:	Drawdown Time
C:	Runoff Coefficient	D_{MAX}:	Maximum Effective Depth	A_{BMP}:	Footprint Area of BMP
d:	Rainfall Depth	K_{DESIGN}:	Design Infiltration Rate	IMP:	Percent Impervious

[8] Orange County. *Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs).* May 19, 2011.

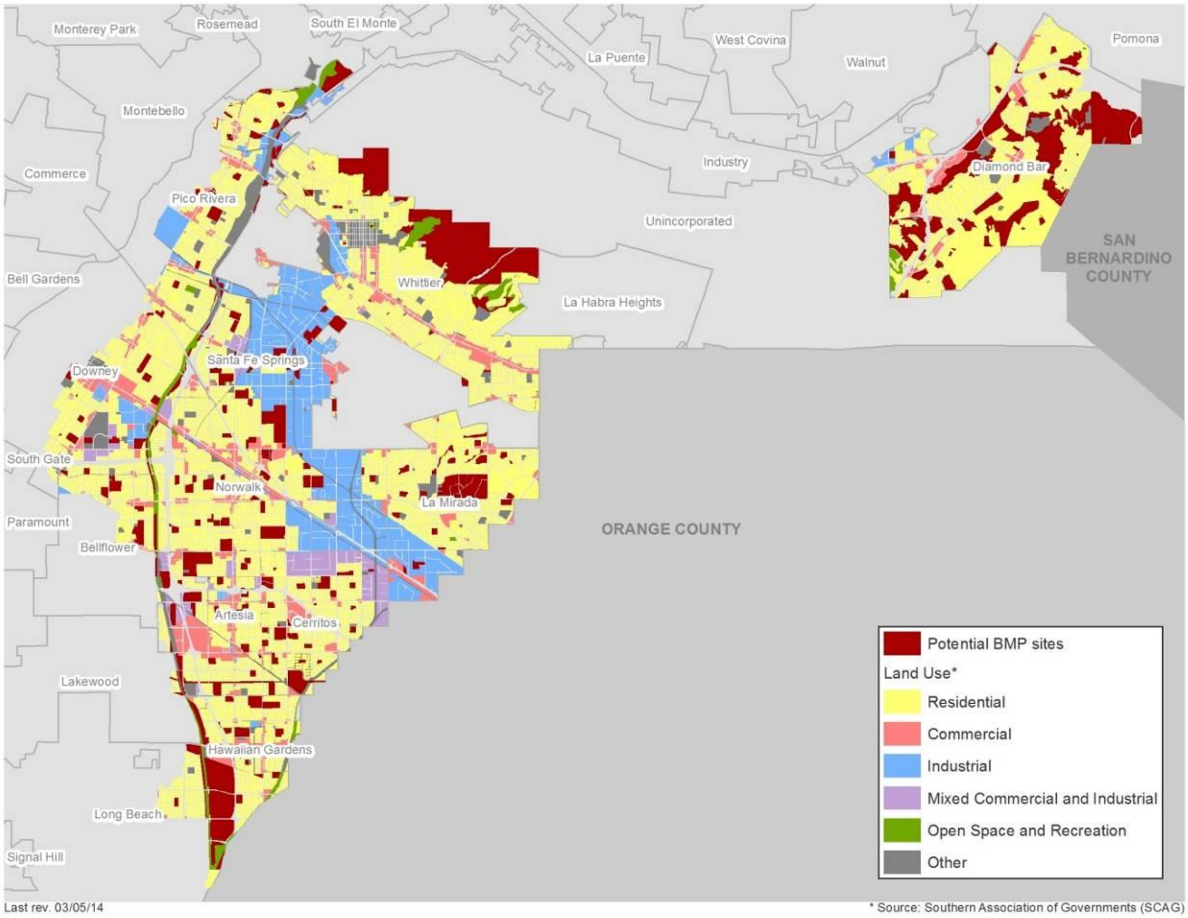

Figure 3-23: Potential Sites for Future Structural BMPs

Figure 3-23 indicates the locations of sites potentially available for future regional BMPs. Additionally, Table 3-7 and Table 3-8 indicate the locations of sites potentially available for future regional BMPs within the Coyote Creek Watershed and the San Gabriel River Watershed, respectively. These locations can serve as a starting point during the implementation phase of the WMP. They have been grouped by jurisdiction and listed in order by land use. The land use with the highest accessibility is listed first. Within each land use designation, the sites have been listed from largest to smallest. Note that with regional BMPs there are opportunities for multiple agencies to benefit from the same site. The land uses are ranked as follows:

Open Space and Recreation: Sites designated for open space, parks, and recreational activities were ranked with the highest potential for future regional BMPs. The reasoning being that these types of areas have the highest likeliness to be publically owned and not require land acquisition, generally have a high percentage of landscaped area available, and have a high opportunity for multiple benefits.

Educational Use: Sites designated for educational use were ranked with the second highest potential for future regional BMPs. The reasoning being that these types of areas although not city-

owned could have an easier land acquisition process than privately owned land, generally have a high percentage of landscaped area available, and have a high opportunity for multiple benefits.

Government Institution: Sites designated for educational use were ranked with the third highest potential for future regional BMPs. This is due to the institution being government owned presenting a higher chance of collaboration than a privately owned facility. Although this may be the case, many government institutions may not be willing to take on maintenance responsibilities which would result in the necessity of land acquisition or maintenance agreements.

Golf Courses/ Country Clubs: Sites designated for golf courses or country clubs were ranked with the fourth highest potential for future regional BMPs. The reasoning being that these types of areas generally have a high percentage of landscaped area available and have a high opportunity for multiple benefits. Although this may be the case, land acquisition for these sites is expected to be a difficult accomplishment.

Commercial Use: Sites designated for commercial areas were ranked with the fifth highest potential for future regional BMPs. The reasoning being that these types of areas generally have a high percentage of parking area available which could potentially be retrofitted for infiltration opportunities. Although this may be the case, land acquisition for these sites is expected to be a difficult accomplishment.

The available sites will be further assessed to determine the best location for a regional BMP. Note that the sites presented do not represent the only sites available for the Watershed Group. The ultimate site selection process should take into account the following characteristics:

Location in relation to RAA results: The RAA provides an estimation of runoff reduction to be provided in each area in order to meet the water quality objectives. The sites should be selected taking this into consideration.

GIS Data: GIS data should be further analyzed to screen projects based on criteria such as land use, topography, hydrologic features, streets and roads, existing storm drain infrastructure, and storm drain invert depth.

Project benefits: It is preferred that a project contains multiple benefits in order to increase the overall benefit and support for the project. Benefits to take into consideration include, but are not limited to, the following:

- Water quality benefits
- Water supply benefits
- Recreational use
- Multi-agency benefits
- Publically owned
- Storage availability
- Funding available

- Project readiness
- Flood control benefits
- Proximity to pollutant sources or impaired waters
- Adjacent to existing storm drain

PROJECT CONSTRAINTS: Not every project will be feasible; therefore, it is important to take into consideration any constraints that may result in project infeasibility. These constraints include, but are not limited to, the following:

- High groundwater
- Low infiltration rates
- Existing soil contamination/proximity to existing soil contamination
- Brownfields[9]
- Existing groundwater contamination/proximity to existing groundwater contamination
- Potential for soil instability (liquefaction zones, hillside areas)
- Existing private ownership (requires land acquisition)
- Cost Effectiveness
- Historical landmarks

[9] With certain legal exclusions and additions, the term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant (*Environmental Protection Agency*).

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area (ATRIBUTARY, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Artesia	Open Space and Recreation	Artesia Park	18750 Clarkdale Ave.	33.8598	-118.0781	13.7	200	16.5
		Padelford Park	11870 169th Street	33.8769	-118.0788	1.3	19	1.6
	Educational Use	Middle School	Excluded for privacy			18.1	263	21.7
		Elementary School	Excluded for privacy			9.2	134	11.1
		Elementary School	Excluded for privacy			7.0	102	8.4
		Elementary School	Excluded for privacy			5.4	79	6.5
	Commercial Use	Lot	Excluded for privacy			1.0	14	1.1
Cerritos	Open Space and Recreation	Cerritos Park East	13234 E. 166th St.	33.8787	-118.0498	26.9	390	32.2
		Heritage Park	19211 Studebaker Rd.	33.8632	-118.0616	12.5	181	14.9
		Gridley Park	18600 Bloomfield Ave.	33.8499	-118.09	10.4	151	12.4
		Jose A. Gonsalves Park	Gridley Rd. and Yearling	33.8814	-118.0414	9.5	138	11.4
		Frontier Park	13611 E. 166th St.	33.8776	-118.0599	6.2	90	7.4
		El Rancho Verde Park	16910 Maria Ave.	33.8501	-118.0525	5.8	84	6.9
		Jacob Park	7815 Denni St.	33.8499	-118.0744	5.2	75	6.2
		Sunshine Park	19310 Vickie Ave	33.8557	-118.0528	4.1	60	4.9
		Friendship Park	13650 Acoro St.	33.8716	-118.0405	3.8	56	4.6
		Pat Nixon Park	12340 South St.	33.8577	-118.0683	2.8	40	3.3
		Brookhaven Park	13101 Brookhaven St.	33.8661	-118.0508	2.6	38	3.1
		Satellite Park (Residential Mixed Density)	12412 Mountain Creek Rd.	33.8828	-118.0678	1.9	28	2.3
		Saddleback Park	13037 Acoro St.	33.8723	-118.0539	1.5	22	1.8
		Cerritos Regional Park	19700 Bloomfield Ave.	33.8486	-118.0581	79.7	1160	95.7
		Loma Park	17503 Stark Ave.	33.8718	-118.068	0.8	12	1.0
	Government Institution	Cerritos Sculpture Garden and City Hall	18125 Bloomfield Ave.	33.8663	-118.0666	1.4	21	1.7

[10] These numbers were generated using the Los Angeles County GIS Data Portal website (http://egis3.lacounty.gov/dataportal/) and the LA County Department of Public Works Spatial Information Library website (http://dpw.lacounty.gov/general/spatiallibrary/index.cfm?agree=agree). All areas may not be usable space for BMP retrofits.

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Cerritos	Educational Use	High School	Excluded for privacy			29.0	422	34.8
		Middle School	Excluded for privacy			21.5	313	25.8
		Adult School	Excluded for privacy			18.4	267	22.1
		Middle School	Excluded for privacy			15.6	226	18.7
		High School	Excluded for privacy			12.5	182	15.0
		High School	Excluded for privacy			10.6	155	12.8
		Elementary School	Excluded for privacy			9.6	139	11.5
		Elementary School	Excluded for privacy			8.7	126	10.4
		Middle School	Excluded for privacy			8.6	125	10.3
		Elementary School	Excluded for privacy			8.5	124	10.2
		Elementary School	Excluded for privacy			8.5	123	10.2
		Elementary School	Excluded for privacy			7.9	115	9.5
		Elementary School	Excluded for privacy			7.9	115	9.5
		Elementary School	Excluded for privacy			7.9	114	9.4
		Elementary School	Excluded for privacy			7.3	106	8.8
		Elementary School	Excluded for privacy			6.6	97	8.0
		Elementary School	Excluded for privacy			4.1	59	4.9
Diamond Bar	Open Space and Recreation	County park	-	33.9820	-117.8188	149.5	2174	179.4
		open space	896 Terrace Ln W	34.0011	-117.8215	123.6	1798	148.3
		Pantera Park and Diamond Bar City Parkland	738 Pantera Dr.	34.0077	-117.7895	108.4	1577	130.1
		Maple Hill Park	1355 Maple Hill Rd.	33.9962	-117.8265	5.5	79	6.5
		Paul C. Grow Park	23281 E. Forest Canyon Rd.	33.9949	-117.8111	3.5	51	4.2
		Summit Ridge Park	1425 Summitridge Dr.	34.0000	-117.7958	1.1	15	1.3
	Educational Use	High School	Excluded for privacy			32.5	473	39.0
		Elementary School	Excluded for privacy			2.5	37	3.0
		Elementary School	Excluded for privacy			8.7	127	10.5
		Elementary School	Excluded for privacy			8.2	120	9.9
		Elementary School	Excluded for privacy			8.0	116	9.6

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
		Elementary School	Excluded for privacy			7.2	104	8.6
Hawaiian Gardens	Educational Use	Middle School	Excluded for privacy			15.9	231	19.1
		Elementary School	Excluded for privacy			8.0	116	9.6
		Elementary School	Excluded for privacy			6.0	87	7.2
La Mirada	Open Space and Recreation	La Mirada Regional Park	Alicanted Rd. & Adelfa Dr.	33.9083	-118.006	81.1	1179	97.3
		La Mirada Creek Park	12021 Santa Gertrudes Ave.	33.9211	-117.998	15.6	227	18.7
		Behringer Park	15900 Alicante Dr.	33.9017	-117.9883	11.1	161	13.3
		La Mirada Pool	13701 Adelfa Dr.	33.9053	-118.0089	9.7	141	11.7
		Neff Park	14300 San Cristobal Dr.	33.8981	-118.0259	9.0	130	10.7
		park	15635 Yellowbrook Ln.	33.9151	-117.9986	1.9	28	2.3
		Anna J. Martin Park	16135 Avenida San Martin	33.9134	-117.9863	1.9	27	2.3
	Educational Use	University	Excluded for privacy			53.8	782	64.5
		High School	Excluded for privacy			31.5	458	37.8
		Middle School	Excluded for privacy			18.4	267	22.0
		Elementary School	Excluded for privacy			11.8	171	14.1
		Elementary School	Excluded for privacy			8.3	121	10.0
		Middle School	Excluded for privacy			7.6	110	9.1
		Middle School	Excluded for privacy			7.3	106	8.7
		Elementary School	Excluded for privacy			7.2	105	8.7
		School	Excluded for privacy			7.0	102	8.4
		Elementary School	Excluded for privacy			6.9	101	8.3
		Elementary School	Excluded for privacy			6.5	95	7.8
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			127.4	1853	152.9
	Commercial Use	Lot	Excluded for privacy			1.5	22	1.8
Lakewood	Open Space and Recreation	Palms Park	12305 207th St.	33.8433	-118.0703	19.1	278	22.9
		Bloomfield Park	21420 Pioneer Blvd.	33.8355	-118.0807	13.7	200	16.5
	Educational Use	Elementary School	Excluded for privacy			5.8	84	6.9
		High School	Excluded for privacy			30.5	443	36.6

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area (ATRIBUTARY, Acres)	Max Design Capture Volume (DCV, Ac-ft)
		Elementary School	Excluded for privacy			11.9	173	14.3
Long Beach	Open Space and Recreation	El Dorado East Regional Park	7550 E. Spring St.	33.8229	-118.087	651.1	9470	781.3
	Government Institution	LACSD lot	-	33.798	-118.0884	7.3	107	8.8
	Educational Use	Academy	Excluded for privacy			10.3	149	12.3
	Commercial Use	Church	Excluded for privacy			4.4	63	5.2
Norwalk	Open Space and Recreation	John Zimmerman Park	13031 Shoemaker Ave.	33.9122	-118.0569	13.2	192	15.9
		Hermosillo Park	11959 162nd St.	33.885	-118.0772	8.7	126	10.4
		Norwalk Park	1300 Clarkdale Park	33.9097	-118.0719	6.8	100	8.2
		Holifield Park[11]	15021 Bloomfield Ave.	33.8932	-118.0665	22.7	331	27.3
	Government Institution	Norwalk City Hall	12700 Norwalk Blvd.	33.9158	-118.0712	9.5	139	11.4
	Educational Use	High School and Elementary School	Excluded for privacy			28.5	414	34.1
		High School	Excluded for privacy			27.1	395	32.6
		Junior High School	Excluded for privacy			8.1	117	9.7
		Middle School	Excluded for privacy			14.4	209	17.2
		Middle School	Excluded for privacy			10.5	153	12.6
		Elementary School	Excluded for privacy			9.7	140	11.6
		Elementary School	Excluded for privacy			8.2	119	9.8
		Elementary School	Excluded for privacy			6.1	88	7.3
		Elementary School	Excluded for privacy			5.6	82	6.7
	Golf Courses/ Country Clubs	Golf Center	Excluded for privacy			11.5	167	13.7

[11] Holifield Park may have soil and groundwater contamination. Proof of this contamination has not yet been provided; therefore, it was not removed from the list, but ranked accordingly.

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Santa Fe Springs	Commercial Use	lot	Excluded for privacy			5.3	77	6.4
	Educational Use	High School	Excluded for privacy			12.6	183	15.1
		Elementary School	Excluded for privacy			12.3	178	14.7
Whittier	Open Space and Recreation	Arroyo Pescadero Park (Puente Hills Preserve)	7531 Colima Rd.	33.9843	-118.0088	1247.6	18146	1,497.1
		Parnell Park	15390 Lambert Rd.	33.9364	-118.0021	11.2	163	13.5
		Michigan Park	8228 Michigan Ave.	33.9642	-118.0215	10.0	145	12.0
		York Field Park	9110 Santa Fe Springs Rd.	33.9574	-118.0509	8.8	128	10.6
		Founders Memorial Park	6755 Newlin Ave.	33.9868	-118.0468	5.9	86	7.1
		Leffingwell Ranch Park	10537 Saint Gertrudes	33.9396	-117.9945	4.1	59	4.9
		John Greenleaf Whittier Park	7211 Whittier Ave.	33.9763	-118.0438	2.0	30	2.4
		Central Park	13212 Park St.	33.9813	-118.0344	1.7	25	2.0
		Kennedy Park	8530 Painter Ave.	33.9599	-118.0352	1.5	22	1.8
		Anaconda Park	14575 Anaconda St.	33.9507	-118.0131	1.0	15	1.2
		Laurel Park	8825 Jacmar Ave.	33.9562	-118.0288	0.8	12	1.0
	Educational Use	High School	Excluded for privacy			34.5	501	41.3
	Golf Courses/ Country Clubs	Country Club	Excluded for privacy			140.1	2038	168.1

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Bellflower	Open Space and Recreation	T. Mayne Thompson Park	14001 Bellflower Blvd.	33.905	-118.1265	11.3	164	13.5
		Caruthers Park North	East of 16804 View Park Ave.	33.8822	-118.1089	6.1	88	7.3
		Byron Zinn Park	13600 Carfax Ave.	33.9070	-118.1101	3.2	46	3.8
		utility corridor	19706 Studebaker Rd.	33.8901	-118.1094	35.5	516	42.5
		Caruthers Park	10500 Flora Vista St.	33.8788	-118.1101	20.0	291	24.0
		Vacant lot	10525 Trabuco	38.8875	-118.1105	1.0	15	1.2
	Educational Use	Middle School and High School	Excluded for privacy			40.1	584	48.2
		High School	Excluded for privacy			24.6	357	29.5
		Elementary School	Excluded for privacy			7.4	107	8.8
		Elementary School	Excluded for privacy			5.5	79	6.6
		Elementary School	Excluded for privacy			3.7	54	4.5
Cerritos	Open Space and Recreation	Liberty Park	19211 Studebaker Rd.	33.8550	-118.1013	17.6	256	21.2
		Reservoir Hill Park	16733 Studebaker Rd.	33.8788	-118.1007	4.6	67	5.6
		Westgate Park	18830 San Gabriel Ave.	33.8594	-118.1039	4.5	66	5.5
	Educational Use	College	Excluded for privacy			118.6	1725	142.3
		High School	Excluded for privacy			35.2	511	42.2
		High School and Junior High School	Excluded for privacy			21.5	313	25.8
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			31.2	454	37.5
Diamond Bar	Open Space and Recreation	Sycamore Canyon Park	22930 E. Golden Springs Dr	34.0058	-117.8088	47.0	683	56.4
		Diamond Bar Pony Baseball Fields	22601 Sunset Crossing Rd.	34.0315	-117.8205	12.7	185	15.2

[12] These numbers were generated using the Los Angeles County GIS Data Portal website (http://egis3.lacounty.gov/dataportal/) and the LA County Department of Public Works Spatial Information Library website (http://dpw.lacounty.gov/general/spatiallibrary/index.cfm?agree=agree). All areas may not be usable space for BMP retrofits.

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Diamond Bar	Open Space and Recreation	Carlton J. Peterson Park	24142 E. Sylvan Glen Rd.	34.0288	-117.7945	8.4	122	10.1
		Ronald Reagan Park	2201 Peaceful Hills Rd.	33.9823	-117.853	5.8	85	7.0
	Educational Use	Middle School	Excluded for privacy			25.5	371	30.6
		Middle School	Excluded for privacy			13.3	194	16.0
		Elementary School	Excluded for privacy			11.2	163	13.5
		Elementary School	Excluded for privacy			6.7	97	8.0
		Elementary School	Excluded for privacy			6.6	96	7.9
		Elementary School	Excluded for privacy			6.1	88	7.3
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			170.6	2482	204.7
	Commercial Use	Church	Excluded for privacy			3.8	56	4.6
Downey	Open Space and Recreation	Wilderness Park	10999 Little Lake Rd.	33.9359	-118.1013	20.6	300	24.7
		Rio San Gabriel Park	9612 Ardine St.	33.9312	-118.1092	15.7	228	18.8
		Independence Park	12334 Bellflower Blvd.	33.9196	-118.1231	11.7	171	14.1
		Dennis The Menace Park	9125 Arrington Ave.	33.9558	-118.1115	6.5	94	7.8
		utility corridor	9073 Gardendale St.	33.9157	-118.1122	3.5	51	4.2
		Brookshire Childrens Park	10050 Imperial Hwy.	33.9212	-118.1424	1.2	18	1.5
	Educational Use	High School	Excluded for privacy			19.4	282	23.3
		Middle School	Excluded for privacy			17.9	261	21.5
		Adult School	Excluded for privacy			15.5	226	18.6
		Middle School	Excluded for privacy			14.3	207	17.1
		Elementary School	Excluded for privacy			11.5	167	13.8
		High School	Excluded for privacy			8.2	119	9.8
		Elementary School	Excluded for privacy			7.6	110	9.1
		Elementary School	Excluded for privacy			6.4	92	7.6
		Elementary School	Excluded for privacy			5.4	78	6.4
Lakewood	Open Space	Rynerson Park	20711 Studebaker Rd.	33.8416	-118.0952	58.5	851	70.2

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Lakewood	and Recreation							
	Open Space and Recreation	Boyar Park	4936 Stevely Ave.	33.8468	-118.1003	4.1	59	4.9
		Open Space Trail	5104 Stevely Ave.	33.8503	-118.101	3.5	51	4.2
Long Beach	Open Space and Recreation	utility corridor	3506 Stevely Ave.	33.8211	-118.0924	20.9	304	25.1
		Camp Fire Long Beach Area Council	7070 Carson St.	33.8315	-118.0966	6.1	89	7.4
	Educational Use	High School	Excluded for privacy			18.7	272	22.5
		Elementary School	Excluded for privacy			6.5	94	7.8
Norwalk	Open Space and Recreation	Arthur Gerdes Park	14700 Gridley Rd.	33.897	-118.0899	8.1	117	9.7
		New River Park	13432 Halcourt Ave.	33.9083	-118.1017	4.5	66	5.5
		Orr Park	12130 S. Jersey Ave.	33.921	-118.0845	3.5	51	4.2
		Glazier Park	10801 Fairton St.	33.8951	-118.1039	1.9	28	2.3
	Educational Use	High School	Excluded for privacy			19.2	280	23.1
		Middle School	Excluded for privacy			14.1	205	16.9
		Elementary School	Excluded for privacy			8.5	123	10.2
		Elementary School	Excluded for privacy			3.2	46	3.8
		Elementary School	Excluded for privacy			6.6	96	8.0
		Elementary School	Excluded for privacy			3.1	44	3.7
		Elementary School	Excluded for privacy			6.6	96	7.9
		Elementary School	Excluded for privacy			5.6	81	6.7
		Elementary School	Excluded for privacy			5.5	80	6.6
		Elementary School	Excluded for privacy			5.4	79	6.5
Pico Rivera	Open Space and Recreation	Pico Rivera Bicenntenial Park	11003 Rooks Rd.	34.0243	-118.0468	98.7	1436	118.4
		Smith Park	6016 Rosemead Blvd.	33.9904	-118.0897	15.7	228	18.8
		Streamland Park	3539 Durfee Ave.	34.02	-118.0718	14.1	206	17.0
		Pico Park	9528 Beverly Blvd.	34.0074	-118.0739	10.8	157	12.9
		Park	8717 E. Beverly Blvd.	34.0122	-118.0854	0.2	3	0.3
	Government Institution	Whittier Pumping Plant	4128 San Gabriel River Pkwy	34.0106	-118.0678	6.5	94	7.8

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Pico Rivera	Educational Use	High School	Excluded for privacy			20.5	298	24.6
		Continuation School	Excluded for privacy			12.1	176	14.6
		Elementary School	Excluded for privacy			11.1	162	13.3
		Elementary School	Excluded for privacy			8.3	120	9.9
		Elementary School	Excluded for privacy			7.8	113	9.3
		Elementary School	Excluded for privacy			6.5	95	7.8
		Elementary School	Excluded for privacy			6.4	94	7.7
		Elementary School	Excluded for privacy			6.3	92	7.6
	Educational Use	Elementary School	Excluded for privacy			4.8	70	5.8
		Elementary School	Excluded for privacy			4.7	68	5.6
		Middle School	Excluded for privacy			3.6	52	4.3
		School	Excluded for privacy			3.3	48	3.9
		Elementary School	Excluded for privacy			2.7	40	3.3
		Library	Excluded for privacy			1.3	19	1.6
	Commercial Use	Church	Excluded for privacy			1.3	20	1.6
Santa Fe Springs	Open Space and Recreation	Santa Fe Springs Park	10068 Cedardale Dr.	33.9454	-118.0976	13.8	200	16.5
		Lake Center Park	11641 Florence Ave.	33.936	-118.0853	11.4	166	13.7
		Los Nietos Park	11143 Charlesworth Rd.	33.9558	-118.0835	9.9	145	11.9
		utility corridor	Next to San Gabriel River freeway	33.9642	-118.0863	9.0	131	10.8
		Little Lake Park	10900 Pioneer Blvd.	33.9331	-118.0775	8.8	128	10.6
		Santa Fe Springs City Baseball	9730 Pioneer Blvd.	33.9518	-118.0824	6.4	94	7.7
		utility corridor	Next to San Gabriel River mid trail	33.9543	-118.0898	5.2	76	6.3
		utility corridor	Next to San Gabriel River mid trail	33.9610	-118.0865	3.1	44	3.7
		Lakeview Park	10225 S. Jersey Ave.	33.943	-118.0898	2.1	30	2.5
		park	9918 Cedardale Dr.	33.9497	-118.0926	2.0	30	2.4

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Santa Fe Springs	Educational Use	High School	Excluded for privacy			23.6	343	28.3
		High School	Excluded for privacy			9.3	136	11.2
		Elementary School	Excluded for privacy			9.3	135	11.1
		Elementary School	Excluded for privacy			6.0	87	7.2
	Educational Use	Elementary School	Excluded for privacy			5.0	73	6.0
	Commercial Use	Plaza	Excluded for privacy			5.6	81	6.7
Whittier	Open Space and Recreation	Hellman Wilderness Park	5700 Greenleaf Ave.	34.0005	-118.0333	282.2	4104	338.6
		Palm Park	5703 Palm Ave.	33.9909	-118.0572	11.9	173	14.3
		Amigo Park	5700 Juarez Ave.	33.9993	-118.0691	3.9	56	4.6
		park	10559 Whittier Blvd.	33.9913	-118.0655	2.5	37	3.0

3.4.3 RIGHT-OF-WAY BMPS

Right-of-way BMPs are systems of multiple distributed BMPs placed within a street right-of-way. These BMPs are designed to reduce the volume of stormwater discharge into the MS4 and treat stormwater runoff from adjacent streets and developments. Common right-of-way BMPs include bioretention, biofiltration, and permeable pavement. See the previous section for BMP descriptions. These BMPs can be implemented alone or in conjunction with one another.

A preliminary assessment has been performed to assess areas potentially available for right-of-way BMPs. This was done with a preliminary GIS approach by screening highways, arterial roads, and secondary (collector) roads located in non-residential areas within 200 feet of a catch basin location. The potential locations are indicated with grey circles on **Figure 3-24** below.

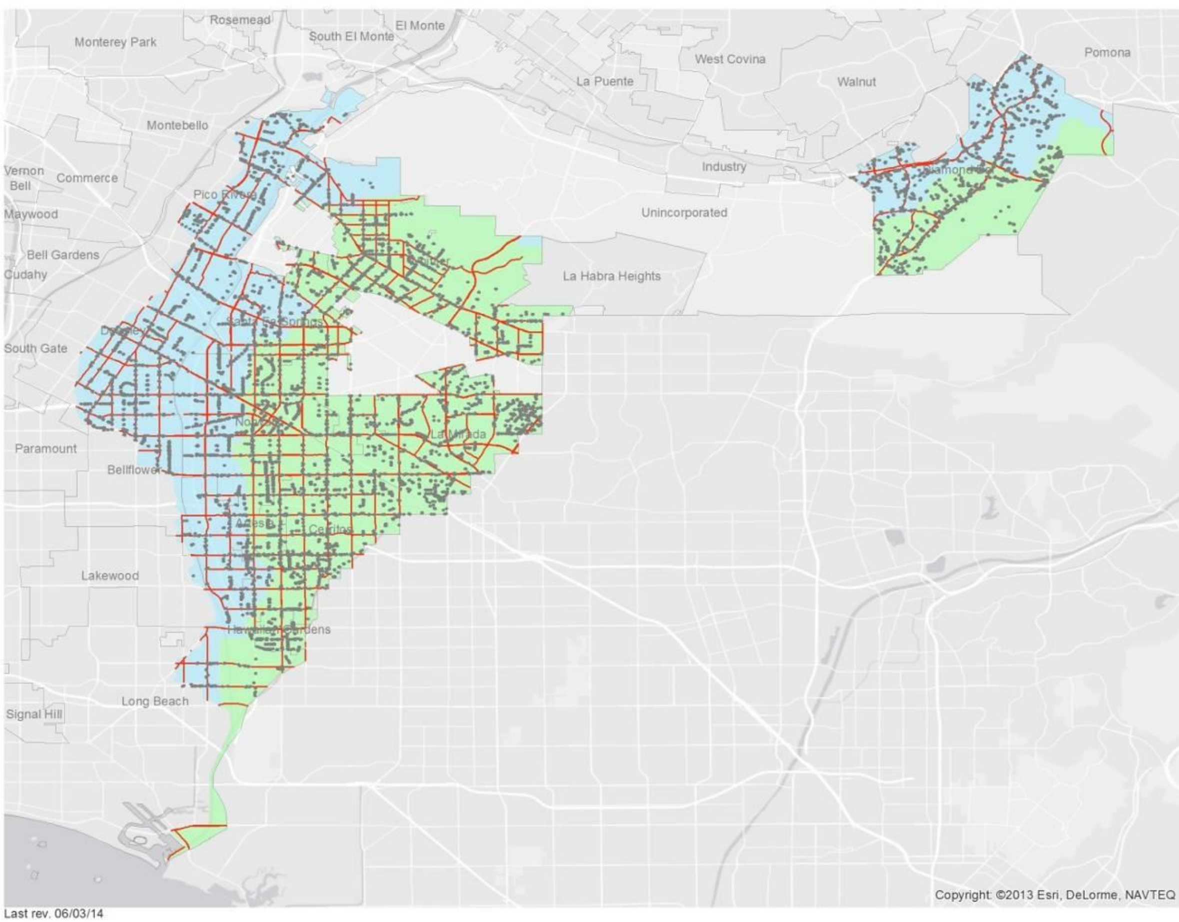

Figure 3-24: Areas potentially available for right-of-way BMPs

4 Reasonable Assurance Analysis

4.1 Executive Summary

A required element the WMP is the Reasonable Assurance Analysis (RAA). The MS4 Permit specifies the RAA use a watershed based computer modeling system to demonstrate:

“that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term”.

There are three computer modeling systems approved by the MS4 Permit and the Watershed Management Modeling System (WMMS) was selected to develop this RAA. The Los Angeles County Flood Control District (LACFCD), through a joint effort with U.S. Environmental Protection Agency (USEPA), developed WMMS specifically to support informed decisions associated with managing stormwater.

While the Permits prescribes the RAA as a quantitative demonstration that control measures will be effective, the RAA also promotes a modeling process to identify and prioritize potential control measures to be implemented by the WMP. In other words, the RAA not only demonstrates the cumulative effectiveness of BMPs to be implemented, it also supports their selection. Furthermore, the RAA incorporates the applicable compliance dates and milestones for attainment of the WQBELs and RWLs, and therefore supports BMP scheduling. The ultimate goal of WMMS is to identify cost-effective water quality improvement projects through an integrated, watershed-based approach.

On March 25, 2014, the Los Angeles Regional Water Quality Control Board (Regional Board) issued “RAA Guidelines” (LARWQCB 2014) to provide information and guidance to assist permittees in development of the RAA. Appendix 4-1 provides appropriate documentation on the modeling assumptions that meet the RAA Guidelines.

The RAA describes the process for identifying milestones the current and next Permit periods, as well as final milestones to meet applicable TMDLs. Modeling was performed to quantify necessary load reductions to achieve the milestones. Based on these load reduction targets, a pollutant reduction plan was established that outlines the types and sequencing of BMPs for each jurisdiction to achieve milestones throughout the schedule. The RAA provides a detailed list of the capacities needed for BMPs over time, incorporating the existing BMPs and control measures identified in the WMP. These recommendations serve as goals for each jurisdiction to seek opportunities for implementation over time, but strategies may change as opportunities for more cost-effective BMPs are identified throughout the schedule.

The RAA has determined that the metal zinc will be the primary or “limiting” pollutant and that by implementing the structural and non-structural measures in Chapter 3 to reduce zinc, the remaining pollutant goals will be achieved for the Water Quality Priorities defined in Chapter 2. The rationale for this modeling approach is included Section 5.3.1 of the RAA (Appendix 4-1).

Over the entire Lower San Gabriel River Watershed, the RAA projects a need for structural controls be sized to capture and or treat 118.6 acre -feet.

4.2 REASONABLE ASSURANCE ANALYSIS

The Reasonable Assurance Analysis for the Lower San Gabriel River Watershed is included in Appendix 4-1. As data is collected through the monitoring program the model will be re-calibrated during the adaptive management process, which allow for improved simulation of physical processes such as flow volumes and volume retention BMPs.

4.2.1 IRRIGATION REDUCTION

There is sufficient information available to justify a 25% reduction in irrigation through specific controls.

- **"Landscape Water Conservation Programs: Evaluation of Water Budget Based Rate Structures" (1997).**[1] This study was prepared for The Metropolitan Water District of Southern California to evaluate the effects of customer outreach programs and adjustment of water-budget based rate structures on landscape water use. Communities that installed these water conservation programs saw landscape irrigation water use reduced 20-37%.
- **"The Residential Runoff Reduction Study" (2004).**[2] This study was produced for the Municipal Water District of Orange County to determine the effects of certain interventions on water savings. This study used a control or baseline site, an educational only site, and a retrofit site that installed weather-based controller technology and public education. The observed reduction at the retrofit site was 50% from pre- to post-intervention, and a reduction of 71% when comparing to the control group (which had no intervention). The education site also saw a reduction of 21% when compared to the control group.
- **"20x2020 Water Conservation Plan" (2010).**[3] This water conservation plan was prepared by a host of California agencies in response to the Californian Governor's Delta plan initiative that mandates California to have to achieve a 20 percent reduction per capita water use statewide by 2020. This study demonstrated that, for the South Coast specifically (which includes Greater Los Angeles, Long Beach and Orange County), potential conservation savings from current actions—basic measures, such as regulatory activities and reinforcing codes related to plumbing and appliance efficiency—are 3% per capita, or 6 gallons per capita per day (GPCD). Potential conservation savings for "cost effective measures" (such as BMPs and new technologies) are 7% per capita at 80% compliance (13 GPCD at 80% compliance and 17 GPCD at 100% compliance). Total "basic measure" savings are 24 GPCD. Baseline water use level for the South Coast region is 180 GPCD, which means with basic measures in place there is

[1] Pekelney, D., & Chestnutt, T. (1997). Landscape Water Conservation Programs: Evaluation of Water Budget Based Rate Structures. *The Metropolitan Water District of Southern California*. P vi of the Summary.

[2] The Municipal Water District of Orange County & The Irvine Ranch Water District. (2004). The Residential Runoff Reduction Study. *The Municipal Water District of Orange County.* P ES1 and ES6.

[3] California Department of Water Resources, State Water Resources Control Board, California Bay-Delta Authority, California Energy Commission, California Department of Public Health, California Public Utilities Commission, California Air Resources Board, California Urban Water Conservation Council, & U.S. Bureau of Reclamation. (2010). 20x2020 Water Conservation Plan.

potential for 13.3% conservation savings. The study further demonstrates that with additional measures (such as residential weather-based irrigation controllers, landscape practices, recycled water, etc.) potential conservation savings are 29 GPCD, or 16% for the South Coast Region. While this study evaluates the effects of interventions on a *per capita* basis, the results of this study have implications on water reductions and water savings for watersheds as a whole.

- **"Landscape Management for Water Savings" (1998).[4]** This study resulted in a "43% increase in landscape water efficiency (water savings) from 1990-1997" after instituting conservation pricing, financial incentives, and education programs for customers and landscape professionals. The author makes a strong conclusion that most irrigation systems need to be recalibrated to only provide the amount of water necessary for the plants within the landscape to grow. Furthermore, the author provides several specific cases that demonstrate that when water resources are mismanaged by outdated irrigation systems or uninformed landscape professionals, this wastes precious water resources and costs the landscape owners excess money.

In addition, on July 28, 2014, an emergency regulatory action went into effect in response to the ongoing drought conditions within California[5]. This emergency regulatory action prohibits: 1) The application of water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures; 2) The use of a hose to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or similar; and 3) The application of water to driveways and sidewalks. These mandatory regulations are expected to reduce landscape and water runoff.

The study results show a strong nexus between public education (leading to an increased awareness of water conservation and usage) and a reduction in irrigation use. The Participating Agencies will develop an outreach and education program focusing on water conservation and landscape water use efficiency.

Based on study results and the initiation of regulations aimed to reduce irrigation water use, a 25% reduction of irrigation water utilized in the RAA is considered reasonable and conservative.

As part of the adaptive management process the Participating Agencies will evaluate these assumptions during Program implementation and develop alternate controls if it becomes apparent that the assumption is not supported.

4.3 NON-MODELED CONTROLS

Currently there is insufficient information to accurately model the implementation of the controls listed in Section 3.2.3 through 3.4.1. These non-modeled controls were instead assigned a modest fraction of 10% for their cumulative load reduction. As part of the adaptive management process the Participating

[4] Ash, T. (1998). How to Profit from a Water Efficient Future. In *Landscape Management for Water Savings*. Tustin, CA: Municipal Water District of Orange County. P 8.

[5] Title 23, California Code of Regulations. Government Code Sections 11346.1 and 11349.6. OAL File No. 2014-0718-01 E.

Agencies will evaluate this assumption during Program implementation and develop alternate controls if it becomes apparent that the assumption is not supported. However, despite the uncertainty surrounding the specific load reductions for these controls, there is support to suggest that the assumption is in fact a modest one.

Chapter 3 provides qualitative assessments of potential pollutant reductions for new non-modeled, nonstructural and structural controls required by the 2012 MS4 Permit (Sections 3.2.4 and 3.3.1) as well as new non-modeled controls developed as part of this WMP (i.e., the "targeted" control measures of Section 3.4.1). As explained in detail in Sections 3.2.4 and 3.3.1, the number and scope of the new and modified (i.e. enhanced) minimum provisions under the Permit is substantial. Of particular note are the Low Impact Development (LID) provisions—which replace prior SUSMP provisions—for new developments. Potential load reductions from future LID projects were not incorporated into the RAA and as such contribute to the 10% non-modeled assumption. Also, pollutant reductions may be expected from continued, preexisting minimum controls with an educational component, such as public education, inspections of industrial/commercial and construction sites, and illicit discharge detection and elimination. Such programs can benefit from a continued increase in behavior change over time. Finally, the TSS Reduction Program—one of the non-modeled targeted control—does allow for a rough estimate of potential load reductions, as outlined in the following subsection.

4.3.1 TSS Reduction Program Quantification

Although expected pollutant reductions resulting from the TSS Reduction Strategy are not modeled empirically within WMMS, a simplified quantification of the program's potential effectiveness may be calculated through the application of the Revised Universal Soil Loss Equation (RUSLE). The RUSLE is defined as

$$A = RKLS$$

where

$A =$ Spatially and temporally averaged soil loss per unit area per unit time. The result is expressed in the units elected for K and R.
$R =$ Rainfall-runoff erosivity factor (per unit time, generally one year),
$K =$ Soil erodibility factor (mass per unit area – an area density – generally tons per acre),
$L =$ Slope length factor and
$S =$ Slope steepness factor.

Using local values of R, K and LS obtained through maps available on the State Water Resources Control Board's website for the Construction General Permit[6],

$R \approx 40\ year^{-1}$
$K \approx 0.32\ \frac{tons}{acre}$ and

[6] http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

$LS \approx 0.45$

giving

$$A = (40\ year^{-1})\left(0.32\ \frac{tons}{acre}\right)0.45$$
$$A = 5.76\ \frac{tons}{acre\ year}.$$

Following the CGP Risk assessment procedures, 5.76 tons per acre year is within the "low sediment risk" designation.

During the preparation of this WMP, several participating agencies provided estimates of exposed soil within their jurisdiction that were not related to construction activities. The City of Bellflower field-verified these estimates, which totaled approximately 18 acres or about 0.5% of the City. Following the calculated value for A, this equates to approximately 100 tons of soil loss per year within the City.

Extrapolating this tonnage to the Lower SGR Watershed,

$$M_{TSS} = fWA = 0.005(50{,}240\ acres)\left(5.76\ \frac{tons}{acre\ year}\right)$$
$$M_{TSS} = 251\ acres\left(5.76\ \frac{tons}{acre\ year}\right)$$
$$M_{TSS} \approx 1{,}500\ \frac{tons}{year}$$

where

$M_{TSS} =$ Estimated annual soil loss within the LSGR watershed in tons,
$f =$ Estimated fraction of exposed soil (non-construction) within a given urbanized area and
$W =$ Watershed area.

Historical monitoring results from the adjacent Los Cerritos Watershed suggest that approximately 1.8 grams of zinc adheres to every kilogram of TSS, so that the zinc discharge M_{Zn} associated with M_{TSS} is

$$M_{Zn} \approx \left(\frac{1.8}{1000}\right)M_{TSS}$$
$$M_{Zn} \approx \left(\frac{1.8}{1000}\right)\left(1{,}500\ \frac{tons}{year}\right)\left(\frac{2000\ lbs}{1\ ton}\right)$$
$$M_{Zn} \approx 5{,}400\ \frac{lbs}{year}\ or\ 2{,}400\ \frac{kg}{year}.$$

The RAA predicts an annual zinc loading of 7,962 kg within the Lower SGR Watershed for the average storm year. Assuming that within the term of the MS4 Permits the TSS Reduction Strategy approaches an effectiveness goal of 10% (240 kg/year), this would equate to a load reduction of **3.0%**. Reductions of this magnitude provide support for the 10% load reduction assumed for non-modeled controls. Further development of the TSS Reduction program is anticipated to meaningfully aid in the achievement of targeted load reductions.

4.4 Synchrony of Non-modeled and Modeled Controls

Although the Compliance Schedule Chapter indicates that a 10% reduction is sufficient for near-term pollutant reductions to achieve early interim milestones, it should be noted that the Group expects some targeted structural BMPs to be in place prior to these milestones. For example, implementation of the Prop 84 Grant is scheduled for completion in 2017. As such, the Group need not rely solely on the veracity of the 10% assumption to meet the interim milestones.

5 COMPLIANCE SCHEDULE

This Chapter provides the compliance schedule for each Participating Agency. The compliance schedule will be used to measure progress toward addressing the highest WQPs and achieving interim and final WQBELs and RWLs. Where deadlines are not specified within the MS4 Permit term, interim milestones are provided. The schedule is expressed as the needed structural BMP capacities over space and time. The Reasonable Assurance Analysis (RAA, Chapter 4) refines the capacity over space to the subwatershed level. The BMP capacities assume a 10% reduction over the MS4 Permit term through implementation of the nonstructural BMPs described in Chapter 3. The following section of this chapter includes the nonstructural BMP schedule.

Meeting the load reductions determined by the RAA results in an aggressive compliance schedule in terms of the technological, operational, and economic factors that affect the design, development, and implementation of the necessary control measures. Notably, as described in Chapter 6, there is currently no funding source to pay for these controls. Assuming finances are available, conversion of available land into a regional BMP is a protracted process that can take several years (not accounting acquisition, when required). As such the Group considers the compliance schedule to be as short as possible.

This is true for all WQPs—by the nature of the limiting pollutant approach, it is expected that each of the remaining WQPs will be controlled at a faster rate than zinc. So the aggressive schedule in place to target zinc provides an equally aggressive schedule to target the remaining WQPs, and as such it is considered to be as short as possible for all WQPs.

5.1 NONSTRUCTURAL BEST MANAGEMENT PRACTICES SCHEDULE

A 10% load reduction is assumed to result from the cumulative effect of nonstructural BMPs. These nonstructural BMPs consist of Minimum Control Measures, Nonstormwater Discharge Measures and Targeted Control Measures (MCMs, NSWD measures and TCMs) as described in Chapter 3.

5.1.1 NONSTRUCTURAL MINIMUM CONTROL MEASURES SCHEDULE

The MCMs will be implemented by the Participating Agencies upon approval of the WMP by the Regional Board Executive Officer or by the implementation dates provided in the MS4 Permit, where applicable. The scope of the MCM programs has expanded significantly from the prior third term MS4 Permit. This change is not entirely unexpected as a period of over ten years separates the adoption of the third and fourth term permits. Consequently significant pollutant reductions are anticipated through effective implementation of the new nonstructural MCMs. In particular, effective implementation of the Development Construction program will compliment the nonstructural TSS Reduction Strategy.

MCM provisions new to the Cities are described in WMP Section 3.2. Guidance documents have been prepared as an optional aid to Cities in MCM development/implementation – see Attachment 3.1.

5.1.2 Nonstructural Non Stormwater Discharge Measures Schedule

The NSWD measures will be implemented by the Participating Agencies upon approval of the WMP by the Regional Board Executive Officer or by the implementation dates provided in the MS4 Permit, where applicable. The scope of the NSWD measures has expanded from the prior third term MS4 Permit. In particular, NSWD source investigations are now tied into a robust outfall screening program required by the MS4 Permit Monitoring and Reporting Program and additional conditions have been placed on common exempt NSWDs, such as potable water discharges and irrigation runoff. Consequently significant pollutant reductions are anticipated through the resulting reductions in NSWD flows.

NSWD measures new to the Participating Agencies are described in WMP Section 3.3.

5.1.3 Nonstructural Targeted Control Measures Schedule

The specific Participating Agencies implementing each TCM is included in Table 3-5 in Chapter 3. The table also lists whether the TCM is a *planned* or a *potential* control measure. Potential control measures are contingent upon unknown factors such as governing body approval and as such implementation within the MS4 Permit term cannot be guaranteed. Descriptions of each nonstructural TCM are included in WMP Section 3.4.

Uncertainties associated with the targeted nonstructural controls complicate establishment of specific implementation dates. Despite this uncertainty, the Group has made a diligent effort to provide a clear schedule of specific actions within the current and next permit terms in order to achieve target load reductions. In addition, the status of these controls will be included in the annual watershed reports as well as through the adaptive management process in order to assess their progress in attaining targeted load reductions. Table 5-1 lists the nonstructural TCM compliance schedule.

TSS Reduction Strategy

The expanded start-date ranges for the TSS Reduction Strategy (TCM-TSS-1 to 6) are set to accommodate the time needed to develop, adopt and implement model ordinances. A successfully implemented ordinance from the City of Whittier is included in this WMP as Appendix A-3-2. The remaining Cities will consider this ordinance as a template for their own TSS Reduction Strategy.

Complete implementation of this Program throughout the watershed is not expected by the end of the MS4 Permit term. However, as discussed in WMP Section 3.4, appreciable pollutant reductions may be realized with only partial implementation.

Table 5-1: Nonstructural TCM Compliance Schedule

Nonstructural TCM	Chapter 3 ID	Effort	Start date	Milestones
Prioritize facility inspections based on WQPs	TCM-ICF-1	J*	7/1/2015	Reprioritize facilities as new water quality data is collected.
Enhance tracking through use of online GIS MS4 Permit database	TCM-MRP-1	J	7/1/2015	Modify database to reflect MS4 Permit provisions by 7/1/2016.
Statewide Trash Amendments (nonstructural measures)**	TCM-PAA-3	J	(Estimate) 7/1/2015	Schedule is listed in draft amendments, est. 10-15 year schedule.
Increased street sweeping frequency or routes	TCM-PAA-4	J	7/1/2015	Report on status with annual report submittal.
Apply for grant funding for stormwater quality projects	TCM-INI-4	W/J	7/1/2014	Suitable grants are pursued when practicable.
Refocused outreach to target audiences and WQPs	TCM-PIP-1	W/J	7/1/2015	Report on status with annual report submittal.
Train staff to facilitate LID and Green Streets implementation	TCM-PLD-1	J	7/1/2014	Complete first round by 7/1/2016. Continue periodic staff training.
LID ordinance for projects below MS4 Permit thresholds	TCM-PLD-2	J	7/1/2014	When practicable, adopt ordinance by end of permit term.
Encourage retrofitting of downspouts	TCM-RET-1	J	7/1/2015	Report on status with annual report submittal.
Prepare guidance documents to aid implementation of MCMs	TCM-SWM-1	W/J	7/1/2014	Develop documents by 7/1/2015. Revise documents as needed.
Exposed soil ordinance	TCM-TSS-1	J	7/1/2015	Develop by 12/28/2015. If practicable adopt by 12/28/2016.
Erosion repair and slope stabilization on private property	TCM-TSS-2	J	7/1/2015	Report on status with annual report submittal.
Private parking lot sweeping ordinance	TCM-TSS-3	J	7/1/2015	When practicable, adopt ordinance by 12/28/2016.
Sweeping of private roads and parking lots	TCM-TSS-4	J	7/1/2015	Enforce TCM-TSS-3 once adopted.
Erosion repair and slope stabilization on public property	TCM-TSS-6	J	7/1/2015	Report on status with annual report submittal.
Copper reduction through implementation of SB 346	TCM-INI-1	W*	Ongoing	Milestones are independent of participating agency actions.
Lead reduction through implementation of SB 757	TCM-INI-2	W	Ongoing	Milestones are independent of participating agency actions.
Support safer consumer product regs for zinc reduction in tires	TCM-INI-3	W	Ongoing	Report on status with annual report submittal.
Incentives for irrigation reduction practices	TCM-NSW-1	J	Ongoing	Ongoing; no interim or final milestones.
Upgraded sweeping equipment	TCM-PAA-1	J	Ongoing	Report on status with annual report submittal.
(Sanitary) Sewer System Management Plan	TCM-PAA-2	J	Ongoing	Ongoing; no interim or final milestones.
Negotiate with utilities for erosion control within ROW	TCM-TSS-5	W	Ongoing	Report on status with annual report submittal.

*W – Watershed Group effort, J – Jurisdictional effort

** Contingent upon State Water Board's adoption of Trash Amendments

5.2 PLANNED PROJECT - PROPOSITION 84 GRANT AWARD

The cities of Downey, Norwalk, Santa Fe Springs, and Whittier are participating in a regional multi-watershed project through the Gateway Water Management Authority (GWMA). This project applied for and was awarded funding though the Proposition 84 Grant. Initiation of this project will begin as soon as the grant contracts and funding are finalized which is expected to be in the fall of 2014. The BMPs include: one (1) vegetated bioswale, six (6) tree box filters, and ten (10) bioretention tree wells. The project will install LID BMPs along transportation corridors to treat stormwater runoff and its associated pollutants.

With the installation of these LID BMPs, this project is expected to reduce pollutant loads throughout the watershed. The full benefits of this project as it ties into interim and final compliance milestones will be determined during the adaptive management process. The project is currently in the design phase. Project milestones and implementation timeframes are as follows:

Design, Environmental Documentation and Design and Bid Solicitation Process

The Project went through review to determine compliance with the environmental requirements such as those outlined in the California Environmental Quality Act (CEQA) in December 2014.

The Project will begin the process of obtaining necessary permits such as local construction permits and Los Angeles County permits in May 2015. This task is expected to be finalized in July 2015, prior to commencement of construction. All proposed BMPs will be located on public property in the public right of way and therefore, issues obtaining site access are not expected as well as obtaining access agreements and easement deeds will not be required.

During the Project design and bid process, a preliminary engineering analysis will be performed for proposed designs and locations, preparation and review of design drawings and technical specifications. The Participating Agencies will collaborate in reviewing the submitted proposals and construction documents. Once the review process is complete a construction contract will be awarded and finalized by the end of July 2015.

Construction and Implementation

The Project construction and implementation process is expected to begin in August 2015. Construction is anticipated to last for approximately twelve months and completion is expected in August 2016. Associated activities for construction will include mobilization and site preparation, excavation, installation of BMPs and proper coordination with contractors.

5.3 STRUCTURAL BEST MANAGEMENT PRACTICE SCHEDULE

Uncertainties associated with the structural controls complicate establishment of specific implementation dates. Despite this uncertainty the Group has made a diligent effort to provide a clear schedule of specific actions within the current and next permit terms in order to achieve target load reductions.

5.3.1 STRUCTURAL MINIMUM CONTROL MEASURES SCHEDULE

Significant pollutant reductions are anticipated through each City's effective implementation of the new structural LID BMP requirements of the Planning and Land Development Program. These new MCM provisions are described in WMP Section 3.2. Guidance documents have been prepared as an optional aid to Cities in MCM development/implementation – see Attachment 3.1. The Planning and Land Development Program will be implemented no later than June 28, 2014.

5.3.2 STRUCTURAL TARGETED CONTROL MEASURES SCHEDULE

The RAA (see Chapter 4) demonstrates the cumulative effectiveness of BMPs to be implemented, supports BMP selection, and provides volume reduction goals optimized across the entire watershed. The results are summarized for volume reduction (represented in acre-feet) for interim and final compliance milestones.

The plan depicted in the RAA is considered a potential initial scenario. Through the adaptive management process, the participating agencies may select different types of BMPs (e.g. increase implementation of green streets and reduce implementation of regional BMPs) or substitute alternative BMPs altogether (e.g., implement dry wells instead of green streets).

The wet weather volume reductions necessary for each milestone (10%, 35% and Final) for each City show the combined total estimated BMP volume (acre-feet) for right-of-way (ROW) BMPs and regional Low Impact Development (LID) BMPs on public or private parcels. Specific green streets projects were not investigated during this initial analysis for potential BMPs, therefore, the City-specific summary lists potential regional LID BMPs that *could* be used to achieve the required interim milestones and targets. Since this WMP is a planning-level document, over time the Watershed Group will report and demonstrate that the summative effect of projects implemented add up to the required reductions for interim milestones and final targets.

Dry weather reductions are attained through a combination of non-structural practices and structural BMPs as they are implemented as part of the wet weather attainment of limits. As wet-weather BMPs are implemented, they serve to remove the dry-weather flows thus meeting the compliance set forth to achieve dry-weather reductions.

APPROACH TO IMPLEMENTING STRUCTURAL CONTROLS

As expressed in the tables of Section 5.4, the Participating Agencies can meet the September 30, 2017, 10% milestone without structural controls. Despite this, the Group understands that targeting subsequent load reductions demands that the process of implementing structural controls begin as soon as possible. The initial phase of this process is as follows:

Right-of-Way BMPs (green street principles) - As the Participating Agencies prepare new capital improvement projects throughout their jurisdiction, a review to incorporate green street principles into the project will be done. Additionally, the Strategic Transportation Plan (STP), currently a draft document), prepared by the Gateway Water Management Authority, identifies major transportation corridors slated for significant redevelopment. The STP will require that structural stormwater BMPs be considered and incorporated into these projects where feasible. Implementation of the STP is expected to contribute to the achievement of the required metal reductions by the compliance deadlines.

Schedule: Every two years the adaptive management process will include an assessment of the effectiveness of both 1) right-of-way BMPs incorporated into CIP projects and 2) the STP in contributing toward targeted load reductions.

Regional BMPs - In each jurisdiction, potential Regional BMP locations have been identified and ranked. To maximize efficiency and resources, a feasibility study will be developed to aid in selection of the most effective BMPs. The study will provide criteria for selecting locations for regional BMPs, the process of ground-truthing to concretely determine feasibility, and a schedule that demonstrates implementation of regional BMPs. In conjunction with development of the feasibility study, each Participating Agency will conduct a preliminary site assessment at the highest ranked potential BMP. The preliminary site assessment will include reviewing available plans, and identifying nearby stormdrain systems and drainage areas. Should information acquired during the preliminary assessment suggest the selected potential BMP to be infeasible, additional high ranked potential BMPs in that jurisdiction will be explored. By December 2016, each Participating Agency would have conducted sufficient preliminary site determinations to select a location sufficient for further exploration. Selected sites will be chosen for additional exploration to include field analysis.

Schedule: The preliminary site assessments and feasibility study will be completed by March 2016. Field analysis at selected sites will begin in December 2016.

Even though not all projects can be specified and scheduled at this time, the Participating Agencies are committed to constructing the necessary regional and right-of-way BMPs to meet the determined load reductions per applicable compliance schedules. Through implementation of the WMP and adaptive management there is the potential for the final compliance milestones to change.

Furthermore, the LACFCD will work with the Watershed group in their efforts to address source controls; assess, develop, and pursue funding for structural BMPs, and promote the use of water reuse and infiltration. As regional project scopes are further refined, the LACFCD will contribute to the WMP projects on a case-by-case basis, agreed upon with the Watershed Group.

5.4 POLLUTANT REDUCTION PLAN TO ATTAIN INTERIM & FINAL LIMITS

The following pages describe the pollutant reduction plans for each City for drainage areas within both the San Gabriel River and Coyote Creek. Figure 5-1 is an illustration of the total structural BMP capacity needed to comply with final WQBELs/RWLs within the Lower SGR Watershed.

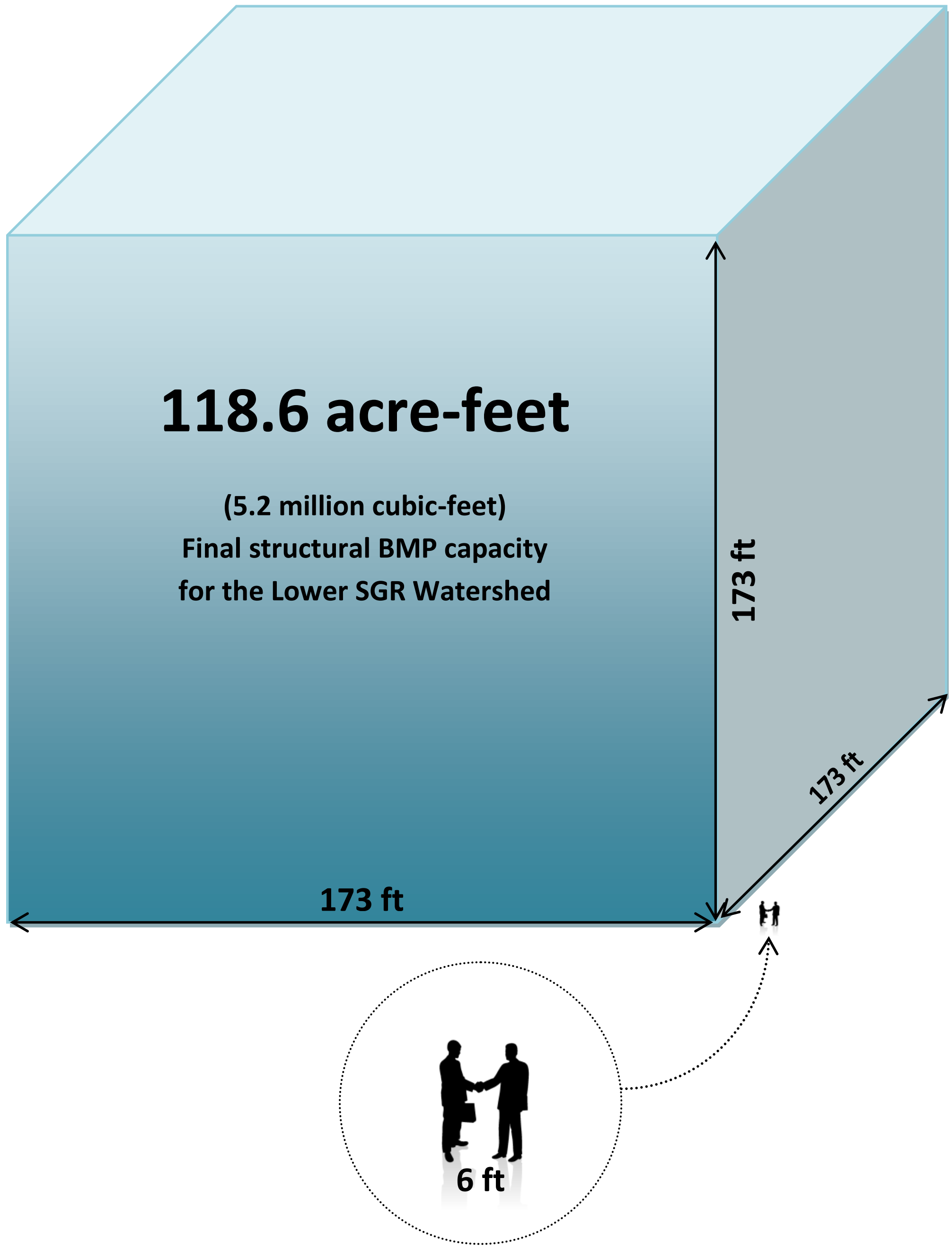

Figure 5-1: The Compliance Cube (total required BMP capacity for the Lower SGR Watershed)

5.4.1 City of Artesia

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Artesia	10%	NS*	NS*
	35%	0.1	0.1
	Final	---	0.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Artesia within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.1 acre-feet by September 30, 2020 to meet the 35% interim milestone, which is equivalent to the final compliance milestone by September 30, 2026.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the remaining 0.1 acre-feet could be addressed using Right-of-Way BMPs to meet the 35% interim milestone and final compliance milestone.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Artesia	10%	NS*	NS*
	35%	1.1	1.1
	Final	0.0	1.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Artesia within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 1.1 acre-feet by September 30, 2020 to meet the 35% interim milestone, which is equivalent to the final compliance milestone.

If Padelford Park was transformed into an infiltration BMP, the potential capture volume would be 1.6 acre-feet, which would be sufficient to meet the 35% interim compliance and the final compliance. Additionally, the 1.1 acre-feet needed to meet the 35% interim milestone and final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.2 CITY OF BELLFLOWER

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Bellflower	10%	NS**	NS**
	35%	0.2	0.2
	Final	5.2	5.5

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Bellflower within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.2 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 5.5 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.2 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.3 City of Cerritos

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Cerritos	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.6	0.6

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Cerritos within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 0.6 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN*	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Cerritos	10%	NS**	NS**
	35%	0.0	0.0
	Final	6.4	6.5

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Cerritos within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 6.5 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.4 City of Diamond Bar

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Diamond Bar	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.2	0.2

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Diamond Bar within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 0.2 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN*	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Diamond Bar	10%	NS**	NS**
	35%	0.3	0.3
	Final	8.7	8.9

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Diamond within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.3 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 8.9 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.3 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.5 CITY OF DOWNEY

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Downey	10%	NS*	NS*
	35%	0.0	0.0
	Final	10.4**	10.4**

* Nonstructural practices achieve 10% milestone
**Value attained after the city's existing distributed BMP volumes totaling 7.1 acre-ft were incorporated

According to the RAA results, the areas of the city of Downey within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 10.4 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.6 CITY OF HAWAIIAN GARDENS

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Hawaiian Gardens	10%	NS**	NS**
	35%	1.8	1.8
	Final	0.3	2.2

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Hawaiian Gardens within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 1.8 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 2.2 acre-feet by September 30, 2026 for the final compliance milestone.

Since the available area in Hawaiian Gardens consists mostly of educational use, the 1.8 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.7 CITY OF LA MIRADA

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
La Mirada	10%	NS*	NS*
	35%	0.0	0.0
	Final	15.2	15.2

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of La Mirada within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 15.2 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.8 CITY OF LAKEWOOD

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Lakewood	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.3	0.3

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Lakewood within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 0.3 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN*	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Lakewood	10%	NS**	NS**
	35%	1.6	1.6
	Final	0.3	1.8

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Lakewood within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 1.6 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 1.8 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 1.6 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.9 City of Long Beach

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Long Beach	10%	NS*	NS*
	35%	2.4	2.4
	Final	0.3	2.7

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Long Beach within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 2.4 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 2.7 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 2.4 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Long Beach	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.0	0.0

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Long Beach within the Coyote Creek Watershed will not need to capture to capture and/or treat stormwater in order to meet the compliance milestones. The suggested approach for these areas is to implement the targeted nonstructural source control BMPs along with all required MCMs until further information is gathered from the adaptive management process.

5.4.10 CITY OF NORWALK

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Norwalk	10%	NS**	NS**
	35%	0.1	0.1
	Final	0.3	0.3

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Norwalk within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.1 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 0.3 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.1 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Norwalk	10%	NS*	NS*
	35%	0.2	0.2
	Final	4.6	4.8

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Norwalk within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.2 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 4.8 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.2 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.11 City of Pico Rivera

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Pico Rivera	10%	NS**	NS**
	35%	0.0	0.0
	Final	10.7	10.8

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Pico Rivera within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 10.8 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.12 City of Santa Fe Springs

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Santa Fe Springs	10%	NS*	NS*
	35%	0.0	0.0
	Final	4.9	4.9

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Santa Fe Springs within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 4.9 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Santa Fe Springs	10%	NS*	NS*
	35%	0.0	0.0
	Final	2.1	2.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Santa Fe Springs within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 2.1 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

5.4.13 City of Whittier

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Whittier	10%	NS*	NS*
	35%	0.0	0.0
	Final	1.4	1.4

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Whittier within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 1.4 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Whittier	10%	NS*	NS*
	35%	0.0	0.0
	Final	39	39

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Whittier within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 39 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.14 THE STATE OF BACTERIA

A bacteria TMDL has not been adopted for the Lower SGR Watershed. The RAA Guidelines state that in such an instance targets and critical conditions from other TMDLs in the region should be utilized. For bacteria, the existing Los Angeles River Bacteria TMDL is applicable. This results in a final wet and dry weather deadline of 2040, which extends beyond the 2026 deadline for the limiting pollutant zinc. If it is determined through the adaptive management process (e.g., due to future model simulations) that required bacteria load reductions may not be met by controlling for zinc, then the WMP will be modified to incorporate bacteria milestones with measureable criteria or indicators with a final deadline of 2040.

5.5 ESTIMATED COSTS OF STRUCTURAL BMPS

Future costs associated with regional and Right-of-Way BMPs were estimated by using costs associated with an existing regional project (Discovery Park) and estimated costs for potential regional projects. Potential regional project costs were obtained from Los Angeles County.[1] Table 5-2 includes the estimated total costs and cost per acre-foot for regional and Right-of-Way BMPs.

The cost estimates only represent permitting, material, construction, and operation and maintenance (O&M) cost - with the exception of Discovery Park which does not take into account O&M costs. The cost of land acquisition, which is estimated to be over $5,000,000 per acre, was not included since initial regional and Right-of-Way BMP projects are planned for public lands. Because of the preliminary nature of the projects, the estimates developed for the proposed BMPs on public property lie between the preliminary/order of magnitude and budget level estimates, with an expected accuracy of about minus 25 percent to plus 40 percent.[2]

Table 5-2: Existing or potential estimated structural BMP cost

Project Name	Total Estimated Cost	BMP Capacity (acre-feet)	Cost Per Acre Foot
Bethune Park	$570,000	0.9	$1,000,000
Enterprise Park	$1,240,000	3.9	$318,000
Reid Park	$1,400,000	0.6	$2,333,000
Belvedere Park	$3,700,000	13.8	$268,000
Discovery Park	$4,500,000 *	8.0	$562,500
Johnson Park	$5,060,000	20.0	$253,000
Charles White Park	$5,300,000	21.0	$252,380
Right-of Way BMPs**	-------	0.25	$250,000

* Cost does not include O&M.
** A specific project was not used for the cost estimate. Instead various projects were averaged.

Cost were derived by assuming approximately two thirds of the projects implemented will be regional, with the remaining being Right-of-Way projects. Using general assumptions for the projects above, the following costs are anticipated:

[1] Multi-Pollutant TMDL Implementation for the Unincorporated County Area of Los Angeles River: Part 2
[2] Multi-Pollutant TMDL Implementation for the Unincorporated County Area of Los Angeles River: Part 2

- A cost of $2,000,000 per acre foot is anticipated for projects treating less than 1 acre-foot
- A cost of $625,000 per acre foot is anticipated for projects treating between 1 and 10 acre-feet
- A cost of $260,000 per acre foot is anticipated for projects treating more than 10 acre-feet

5.5.1 TOTAL ESTIMATED COSTS OF STRUCTURAL BMPS

The following tables include the total estimated costs of structural BMPs for each City.

CITY OF ARTESIA STRUCTURAL BMP COST ESTIMATE

		POLLUTANT REDUCTION PLAN		
		Total Estimated BMP Volume (acre-ft)		
Watershed	Milestone	Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$450,000 - $840,000
	35%	0.1	0.1	
	Final	---	0.1	
Coyote Creek	10%	NS	NS	
	35%	1.1	1.1	
	Final	---	1.1	

CITY OF BELLFLOWER STRUCTURAL BMP COST ESTIMATE

		POLLUTANT REDUCTION PLAN		
		Total Estimated BMP Volume (acre-ft)		
Watershed	Milestone	Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,100,000 - $3,850,000
	35%	0.2	0.2	
	Final	5.2	5.5	

CITY OF CERRITOS STRUCTURAL BMP COST ESTIMATE

		POLLUTANT REDUCTION PLAN		
		Total Estimated BMP Volume (acre-ft)		
Watershed	Milestone	Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,700,000 - $5,000,000
	35%	0.0	0.0	
	Final	0.6	0.6	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	6.4	6.5	

City of Diamond Bar Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$3,400,000 - $6,400,000
	35%	0.0	0.0	
	Final	0.2	0.2	
Coyote Creek	10%	NS	NS	
	35%	0.3	0.3	
	Final	8.7	8.9	

City of Downey Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$3,900,000 - $7,300,000
	35%	0.0	0.0	
	Final	10.4	10.4	

City of Hawaiian Gardens Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
Coyote Creek	10%	NS	NS	$825,000 - $1,540,000
	35%	1.8	1.8	
	Final	0.3	2.2	

City of La Mirada Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
Coyote Creek	10%	NS	NS	$3,000,000 - 5,500,000
	35%	0.0	0.0	
	Final	15.2	15.2	

CITY OF LAKEWOOD STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$790,000 - $1,500,000
	35%	0.0	0.0	
	Final	0.3	0.3	
Coyote Creek	10%	NS	NS	
	35%	1.6	1.6	
	Final	0.3	1.8	

CITY OF LONG BEACH STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$1,015,500 - $1,900,000
	35%	2.4	2.4	
	Final	0.3	2.7	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	0.0	0.0	

CITY OF NORWALK STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$1,900,000 - $3,600,000
	35%	0.1	0.1	
	Final	0.3	0.3	
Coyote Creek	10%	NS	NS	
	35%	0.2	0.2	
	Final	4.6	4.8	

City of Pico Rivera Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)		Total Estimated Cost
		Incremental	Cumulative	
San Gabriel River	10%	NS	NS	$4,050,000 - $7,600,000
	35%	0.0	0.0	
	Final	10.7	10.8	

City of Santa Fe Springs Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)		Total Estimated Cost
		Incremental	Cumulative	
San Gabriel River	10%	NS	NS	$2,600,000 - $4,900,000
	35%	0.0	0.0	
	Final	4.9	4.9	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	2.1	2.1	

City of Whittier Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)		Total Estimated Cost
		Incremental	Cumulative	
San Gabriel River	10%	NS	NS	$7,900,000 - $14,700,000
	35%	0.0	0.0	
	Final	1.4	1.4	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	39	39	

6 FINANCIAL STRATEGY

This section outlines the financial strategy to implement the Lower SGR WMP in accordance with the MS4 Permit. The cost estimates provided herein are preliminary and based on the best available information to date. The estimates are also subject to revision as new information becomes available, including as the Watershed Control Measures (WCMs) are refined over the implementation period.

Financing the implementation of the Lower SGR WMP is the greatest challenge confronting the Watershed Group. In the absence of stormwater utility fees, the Participating Agencies have no dedicated revenue stream to pay for implementation of the WMP. In addition to current uncertainties associated with costs and funding, there are multiple uncertainties associated with future risks. The first TMDL compliance dates for the Lower SGR Watershed Group will be the interim metals milestones of 2017, 2020, and the final compliance date of September 30, 2026. Thus, there will be many deadlines that must be met despite limited resources. Member Agencies will need to set priorities and seek funding in order to meet the various compliance deadlines.

Therefore, to address the Lower SGR Water Quality Priorities (WQPs), the Watershed Group is going to pursue a multi-faceted financial strategy to match the multi-faceted Strategy for the Selection and Implementation of WCMs outlined in Chapter 3. In addition, the Watershed Group has coordinated the proposed compliance schedule (see Section 5) with the financial strategy.

The latest Los Angeles and Long Beach MS4 permits have greatly magnified the cost challenges associated with managing stormwater. The absence of a stable stormwater funding mechanism not tied to municipal General Funds is becoming ever more critical. For that reason, the City Manager Committees of the California Contract Cities Association and the League of California Cities, Los Angeles Division, formed a City Managers' Working Group (Working Group) to review stormwater funding options after the LA County proposed Clean Water, Clean Beaches funding initiative failed to move forward. The result was a Stormwater Funding Report that notes, "the Los Angeles region faces critical, very costly, and seriously underfunded stormwater and urban runoff water quality challenges." The Report found that funding stormwater programs is so complex and dynamic, and the water quality improvement measures so costly, that Permittees cannot depend on a single funding option at this time. The City Managers' report includes a variety of recommendations, including: organizational recommendations; education and outreach program recommendations; recommendations for legislation; Clean Water, Clean Beaches recommendations; local funding options; and recommendations for the Regional Water Board[1].

The Watershed Group has considered the recommendations in the Stormwater Funding Report in developing this financial strategy. A critical component of the report is the observation that moving forward with a regional stormwater fee vote (like the LA County Clean Water, Clean Beaches funding

[1]League of California Cities. (2014). Providing Sustainable Water Quality Funding in Los Angeles County. Prepared By City Managers Working Group. Los Angeles County Division May 21, 2014.

initiative) would likely not occur until after June 2015, which means that the first funds would likely not be available until property tax payments are received in 2017. Assuming revenues of approximately $6 million per year available from a funding source based on the proposed Clean Water, Clean Beaches funding initiative, the Watershed Group could expect approximately $60 million to be available over 10 years[2]. However, these amounts may not be sufficient to pay for and maintain expensive stormwater capture and dry-weather low flow diversions to the sanitary sewer if the Watershed Group had to depend on such projects to come into compliance with receiving water limitations (RWLs) and water quality-based effluent limitations (WQBELs) specified in the MS4 Permit.

The Reasonable Assurance Analysis (RAA) for the Lower SGR WMP, indicate that the volume of water required to be captured within the Watershed to comply with RWLs and WQBELs is 118.6 AF.

For cost estimation purposes, this WMP initially assumes that the Lower SGR Watershed could ultimately require the capacity to capture and infiltrate or use 118.6 AF of water. Based on cost estimates for constructing regional and Right-of-Way BMPs, as discussed in Section 5.5, such a requirement could cost the watershed between $34 million and $65 million for construction of these facilities (refer to Section 5.5 for more a detailed cost analysis).

The Watershed Group has been involved in the development of the financial strategy recommendations, and proposes to consider the recommendations of the City Managers Working Group to develop long-term solutions to stormwater quality funding. In the meantime, the Watershed Group will focus on the local funding options presented in the Stormwater Funding Report to secure the needed funding for initial implementation of the WMP.

During the early years of implementation, the Permittees anticipate having to depend largely on local fees such as commercial/industrial inspection fees, General Fund expenditures, and, potentially, Clean Water State Revolving Fund program financing agreements to fund the implementation of the WCMs. The Watershed Group will seek opportunities to leverage the limited funds available. It will do this by financially supporting the efforts of others, such as the California Stormwater Quality Association (CASQA), to seek State approval of true source control measures such as implementation of the Safer Consumer Product Regulations adopted by the Department of Toxic Substances Control in 2013. The Group will also support programs to increase water conservation, reduce dry-weather discharges to the storm drain system, and reduce TSS during wet weather. Successfully accomplishing these efforts could reduce the money needed in the long term to capture and/or treat stormwater discharges to comply with TMDLs and address other WQPs.

Concurrently, the Watershed Group proposes to work with the California Contract Cities, the Los Angeles Division of the League of California Cities, and others to educate elected officials and voters about the

[2] Based on numbers derived for Los Cerritos Channel (LCC) during the development of the LCC WMP using expected annual revenue from a pro rata distribution of funds allocated to the Cities in the LCC Watershed and a possible proportional allocation of funds from the Watershed Authority Groups.

water quality problems facing the region and the need to develop an equitable financing mechanism to fund the programs and facilities necessary to come into compliance with water quality regulations.

Legislative solutions will be necessary to clarify the application of Proposition 218 to fees for the capture and use of stormwater in light of a recent 6th Appellate Court decision and to ensure that any State water bond put on the ballot in fall 2014 contains funding for stormwater quality projects. The Group will also support local and statewide efforts to amend Proposition 218 to have stormwater fees treated in the same manner as water, sewage, and refuse fees. The Watershed Group and/or the Participating Agencies will also seek grants to implement rainwater capture and reuse or capture and infiltrate projects on publicly owned property.

In the long term, financing the WCMs for the Lower SGR Watershed will require establishing dependable revenue streams for local water quality programs. Accomplishing this formidable task will require the cooperation of many entities, including business and environmental organizations and the Regional Board.

7 LEGAL AUTHORITY

MS4 Permit §VI.C.5.b.iv.6 (LA)/ §VII.C.5.h.vi (LB)

This section covers information such as documentation and references/links to water quality ordinances for each participating that demonstrates adequate legal authority to implement and enforce Watershed Control Measures (WCMs) identified in this plan and as required in Section VI.D.5.b.iv.6 of the MS4 Permit. The goal of these WCMs is to create an efficient program that focuses on the watershed priorities by meeting the following objectives:

- Prevent or eliminate non-storm water discharges to the MS4 that are a source of pollutants from the MS4 to receiving waters.
- Implement pollutant controls necessary to achieve all applicable interim and final water quality-based effluent limitations and/or receiving water limitations pursuant to corresponding compliance schedules.
- Ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations.

The WCMs include the minimum control measures, nonstormwater discharge measures and targeted control measures (i.e. controls to address TMDL and 303(d) listings). As the requirement to incorporate these WCMs is an element of the MS4 Permits, the legal authority to implement them results from each agency's legal authority to implement the NPDES MS4 Permit.

A copy of each participating agency's legal authority certification from their chief legal counsel can be found in Appendix A-7. This certification shall be prepared annually. Table 7-1 includes the section that covers water quality ordinance for each agency with a reference link.

Table 7-1 Water quality ordinance language

<table>
<tr><th>City</th><th>Water Quality Ordinance</th><th>Reference</th></tr>
<tr><td>Artesia</td><td>Title 6-Sanitation and Health, Chapter 7, Storm Water Management and Discharge Control</td><td>http://qcode.us/codes/artesia/</td></tr>
<tr><td colspan="3"><u>6.7.02 Purpose and Intent (b)</u> -The intent of this chapter is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the Federal Clean Water Act, the California Porter-Cologne Water Quality Act and the Municipal NPDES Permit.
(c) This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal separate storm sewer system over which it has jurisdiction as required by the Municipal NPDES Permit, and thereby fully and timely comply with the terms of the Municipal NPDES Permits while the CSWMP and the WMAP are being developed by the permittes under the Municipal NPDES Permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequent adopted CSWMP and WMAP, or other programs developed under the Municipal NPDES Permit.</td></tr>
<tr><td>Bellflower</td><td>Title 13-Public Services, Chapter 13.20, Stormwater and Runoff Pollution Control</td><td>http://qcode.us/codes/bellflower</td></tr>
<tr><td colspan="3"><u>13.20.030 Purpose and Intent (B)-</u> The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and</td></tr>
</table>

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acts amendatory thereof or supplementary thereto, to applicable implementing regulations and the municipal NPDES permit and any amendment, revision, or re-issuance thereof.		
Cerritos	Title 6- Health and Sanitation, Chapter 6.32, Stormwater and Urban Runoff Pollution Prevention Controls	http://www.codepublishing.com/ca/cerritos.html
6.32.010 Purpose (C) - *Reducing pollutants in storm water and urban runoff to the maximum extent practicable. (Ord. 777 § 1 (part), 1997)*		
Diamond Bar	Title 8- Health and Safety, Chapter 8.12, Division 5, Stormwater and Urban Runoff Pollution Control	http://library.municode.com/index.aspx?clientId=12790
Sec. 8.12.1630 Purpose and Intent (b) - *The intent of this division is to protect and enhance the quality of watercourses, water bodies, and wetlands within the city in a manner consistent with the Federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the municipal NPDES permit.* *(c) This division is also intended to provide the city with the legal authority necessary to control discharges to and from those portions of the municipal storm water system over which it has jurisdiction as required by the municipal NPDES permit and to hold dischargers to the municipal storm water system accountable for their contributions of pollutants and flows.*		
Downey	Article V- Sanitation, Chapter 7, Stormwater and Urban Runoff Pollution and Conveyance Controls	http://qcode.us/codes/downey/
Section 5701. Watershed Management Program - *Notwithstanding other provisions in the Downey Municipal Codes, the MS4 Permit requires the City of Downey to implement the Watershed Management Program (WMP), and any subsequent amendments, are hereby incorporated into this Ordinance by reference. (Added by Ord. 1142, adopted 02-11-03; amended by Ord. 1320, adopted 11-12-13).*		
Hawaiian Gardens	Title 6- Health and Safety, Chapter 6.47, Urban Storm Water Runoff Control	http://qcode.us/codes/hawaiiangardens/
6.47.020 Purpose and Intent (D) - *Reducing pollutants in storm water and urban runoff to the maximum extent practicable in order to achieve water quality standards/receiving water limitations. (Ord. 549 § 1, 2013; Ord. 476 § 1, 2002)*		
La Mirada	Title 13- Water and Sewage, Chapter 13.12, Urban Runoff	http://www.amlegal.com/library/ca/lamirada.shtml
13.12.020 Purpose and Intent (c) - *Reducing pollutants in stormwater and urban runoff to the maximum extent practicable.*		
Lakewood	Article 05 (V) - Sanitation-Health, Chapter 8, Stormwater and Urban Runoff Pollution Control	http://weblink.lakewoodcity.org/weblink8/
5800 - Adoption of the Los Angeles County Stormwater Runoff Pollution Control Ordinance - *Except as otherwise provided in this Chapter, the stormwater runoff pollution control ordinance of the County of Los Angeles contained in Chapter 12.80 of Title 12- Environmental Protection of the Los Angeles County Code relating to control of pollutants carried by stormwater and runoff adopted by the County of Los Angeles on June 9, 1998, is hereby adopted and made a part hereof as though set forth in full. The same shall hereafter constitute the Stormwater and Runoff Pollution Control Ordinance of the City of Lakewood relating to the control of pollutants carried by stormwater and runoff and discharging into receiving water of the United States.*		
Long Beach	Volume II-Title 18-Building and Construction, Chapter 18.61, NPDES and SUSMP Regulations	http://library.municode.com/index.aspx?clientId=16115
18.61.010 Purpose - *The purpose of this chapter is to provide regulations and give legal effect to certain requirements of the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of Long Beach, and the subsequent requirements of the Standard Urban Storm Water Mitigation Plan (SUMSP), mandated by the California Regional Water Quality Control Board, Los Angeles Region*		

(RWQCB). The intent of these regulations is to effectively prohibit non-storm water discharges into the storm drain systems or receiving waters and to require source control BMP to prevent or reduce the discharge of pollutants into storm water to the maximum extent practicable. *The City of Long Beach is a participant member of this watershed group but is under a different MS4 Permit. Certification of legal authority will be in accordance with its MS4 Permit timeline*		
LACFCD	Flood Control District Code, Chapter 21 - Stormwater and Runoff Pollution Control	https://library.municode.com/index.aspx?clientId=16274
21.01 - Purpose and Intent - *The purpose and intent of this chapter is to regulate the stormwater and non-stormwater discharges to the facilities of the Los Angeles County Flood Control District for the protection of those facilities, the water quality of the waters in and downstream of those facilities, and the quality of the water that is being stored in water-bearing zones underground.*		
Norwalk	Title 18 - Environment, Chapter 18.04, Stormwater and Urban Runoff Pollution Control	http://qcode.us/codes/norwalk/
18.04.030 Purpose and Intent (C)- *This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal stormwater system over which it has jurisdiction as required by the municipal NPDES permit, and fully and timely comply with the terms of the municipal NPDES permit while the CSWMP and the WMAP are being developed by the permittees under the municipal NPDES permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequently adopted CSWMP and WMAP, or other programs developed under the municipal NPDES permit.*		
Pico Rivera	Title 16- Environment, Chapter 16.04, Stormwater and Urban Runoff Pollution Prevention	http://qcode.us/codes/picorivera
16.01.010 Purpose and Intent (4) - *Reducing pollutant loads in storm water and urban runoff, from land uses and activities identified in the municipal NPDES permit.* *The provisions of this chapter are adopted pursuant to the Federal Water Pollution Control Act, also known as the "Clean Water Act," codified and amended at 33 U.S.C 1251 et seq. The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and acts amendatory thereof of supplementary thereto; applicable implementing regulations; the Municipal NPDES permit, and any amendment, revisions, or re-issuance thereof. (Ord. 989 § 1 (part), 2002).*		
Santa Fe Springs	Title V: Public Works- 52, Stormwater Runoff	http://www.amlegal.com/library/ca/santafesprings.shtml
§ 52.01 Purpose and Intent- *The purpose of this chapter is to protect the health, safety and general welfare of the citizens, and to reduce the quantity of pollutants being discharged to the waters of the United States by: (F) Protecting and enhancing the quality of the waters of the United States in a manner consistent with the provisions of the Clean Water Act.*		
Whittier	Title 8-Health and Safety, Chapter 8.36, Stormwater and Runoff Pollution Control	https://library.municode.com/index.aspx?clientId=16695
8.36.030 Purpose and Intent- *The purpose of this chapter is to protect and improve water quality of receiving waters by: (E) reducing pollutant loads in stormwater and urban runoff, from land uses and activities identified in the municipal NPDES permit.*		

8 COORDINATED INTEGRATED MONITORING PROGRAM

The Participating Agencies have developed a customized coordinated integrated monitoring program (CIMP). The CIMP, based on the provisions set forth in Part IV of the MRP (Attachment E) of the MS4 Permit, assesses progress toward achieving the water quality-based effluent limitations and receiving water limitations per the compliance schedules, and progress toward addressing water quality priorities. The customized monitoring program is designed to address the Primary Objectives detailed in Attachment E, Part II.A of the MS4 Permit and includes the following program elements:

- Receiving Water Monitoring
- Storm Water Outfall Monitoring
- Non-Storm Water Outfall Monitoring
- New Development/Re-Development Effectiveness Tracking
- Regional Studies

The CIMP is included in Appendix 8-1.

9 Adaptive Management Process

Adaptive management is the process by which new information about the state of the watershed is incorporated into the WMP. The WMP is adaptively managed following the process described in Permit §IV.C.8. The process is implemented by the participating agencies every two years from the date of WMP approval by the Regional Water Board (or by the Executive Officer on behalf of the Regional Water Board). The purpose of the adaptive management process is to improve the effectiveness of the WMP based on – but not limited to – consideration of the following:

1. Progress toward achieving interim and/or final water quality-based effluent limitations and/or receiving water limitations in §VI.E and Attachments L through R of the MS4 Permit, according to established compliance schedules;
2. Progress toward achieving improved water quality in MS4 discharges and achieving receiving water limitations through implementation of the watershed control measures based on an evaluation of outfall-based monitoring data and receiving water monitoring data;
3. Achievement of interim milestones;
4. Re-evaluation of the water quality priorities identified for the Watershed Management Area (WMA) based on more recent water quality data for discharges from the MS4 and the receiving water(s) and a reassessment of sources of pollutants in MS4 discharges;
5. Availability of new information and data from sources other than the MS4 Permittees' monitoring program(s) within the WMA that informs the effectiveness of the actions implemented by the Permittees;
6. Regional Water Board recommendations; and
7. Recommendations for modifications to the Watershed Management Program solicited through a public participation process.

9.1 Modifications

Based on the results of the adaptive management process, the participating agencies may find that modifications of the WMP are necessary to improve effectiveness. Modifications may include new compliance deadlines and interim milestones, with the exception of those compliance deadlines established in a TMDL.

9.1.1 Reporting

Modifications are reported in the Annual Report, as required pursuant to Part XVIII.A.6 of the Permit Monitoring and Reporting Program (No. CI-6958), and as part of the Report of Waste Discharge (ROWD) required pursuant to Part II.B of Attachment D – Standard Provisions. The background and rational for these modifications are included by addressing the following points:

- Identify the most effective control measures and describe why the measures were effective and how other control measures will be optimized based on past experiences.

- Identify the least effective control measures and describe why the measures were deemed ineffective and how the control measures will be modified or terminated.
- Identify significant changes to control measures during the prior year and the rationale for the changes.
- Describe all significant changes to control measures anticipated to be made in the next year and the rationale for the changes. Those changes requiring approval of the Regional Water Board or its Executive Officer shall be clearly identified at the beginning of the Annual Report.
- Include a detailed description of control measures to be applied to New Development or Re-development projects disturbing more than 50 acres.
- Provide the status of all multi-year efforts that were not completed in the current year and will continue into the subsequent year(s).

9.1.2 IMPLEMENTATION

Modifications are implemented upon approval by the Regional Water Board Executive Officer or within 60 days of submittal if the Regional Water Board Executive Officer expresses no objections.

9.2 RECEIVING WATER LIMITATIONS

The adaptive management process fulfills the requirements in MS4 Permit §V.A.4 to address continuing exceedances of receiving water limitations.

10 REPORTING PROGRAM & ASSESSMENT

10.1 ANNUAL REPORT

PERMIT MRP §XV.A (LA/LB)

Each year on or before December 15th, the participating agencies will submit, either jointly or individually, an annual report to the Regional Water Board Executive Officer. The annual report will present a summary of information that will allow the Regional Board to assess implementation and effectiveness of the watershed management program[1].

The reporting process is intended to meet the following objectives:

- Each agency's participation in one or more Watershed Management Programs.
- The impact of each agency's storm water and non-storm water discharges on the receiving water.
- Compliance with receiving water limitations, numeric water quality-based effluent limitations, and non-storm water action levels.
- The effectiveness of control measures in reducing discharges of pollutants from the MS4 to receiving waters.
- Whether the quality of MS4 discharges and the health of receiving waters is improving, staying the same, or declining as a result watershed management program efforts, and/or TMDL implementation measures, or other Minimum Control Measures.
- Whether changes in water quality can be attributed to pollutant controls imposed on new development, re-development, or retrofit projects.

Annual Report will identify data collected and strategies, control measures and assessments implemented for each watershed within the participating agency's jurisdiction. The report will include summaries for each of the following seven sections as required by the MS4 Permit:

1) Stormwater Control Measures -Summary of New Development/Re-development Projects, actions to comply with TMDL provisions
2) Effectiveness Assessment of Stormwater Control Measures -Summary of rainfall data, provide assessment and compare water quality data, summary to whether or not water quality is improving
3) Non-Stormwater Control Measures -Summary of outfalls screening
4) Effectiveness Assessment of Non-Storm Water Control Measures -Summary of the effectiveness of control measures implemented
5) Integrated Monitoring Compliance Report - Report with summary of all identified exceedances of outfall-based stormwater monitoring data, we weather receiving water monitoring data, dry weather receiving water data and non-storm water outfall monitoring data
6) Adaptive Management Strategies -Summary of effective, less effective control measures

[1] Annual reports will cover summary from previous fiscal year beginning June 1st through July 30th.

7) Supporting Data and Information - Monitoring data summary

The participating agencies will submit annual reports as required by the MS4 Permit. The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

10.1.1 Data Reporting *Permit MRP §XIV.L (LA/LB)*

Analytical data reports will be submitted on a semi-annual basis. Data will be sent electronically to the Regional Water Board's Storm Water site at MS4stormwaterRB4@waterboards.ca.gov. These data reports will summarize:

- Exceedances of applicable WQBELs, receiving water limitations, or any available interim action levels or other aquatic toxicity thresholds.
- Basic information regarding sampling dates, locations, or other pertinent documentation.

10.1.2 Chronic Toxicity Reporting *Permit MRP §XII.K (LA/LB)*

Aquatic toxicity monitoring results will be submitted to the Regional Board on an annual basis as part of the integrated monitoring compliance report as well as in the semi-annual basis data report submittal.

10.2 Watershed Report *Permit MRP §XVII.A (LA/LB)*

The participating agencies will submit biennial watershed reports as required by the MS4 Permit to the Regional Water Board Executive Officer. This biennial report, which will be included in the annual report in odd years, will include information related to the following sections:

- Watershed Management Area
- Subwatershed (HUC-12) Description
- Description of the Permittees Drainage Area within the Subwatershed

Per MS4 Permit § XVII.B, the participating agencies may reference the Watershed Management Program (WMP) in the odd-year report, when the required information is already included or addressed in this WMP, to satisfy baseline information requirements.

The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

10.3 TMDL Reporting *Permit MRP §XIX (LA/LB)*

The participating agencies will also submit an annual report to the Regional Water Board Executive Officer regarding progress of TMDL implementation within the watershed.

The TMDLs that will be addressed in the report are:

- Metals and Selenium
- Harbor Toxics

The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

Watershed Management Program Appendix 1

A-1-1 Definitions, Acronyms and Abbreviations

DEFINITIONS, ACRONYMS AND ABBREVIATIONS

The following are definitions for terms in this Watershed Management Program:

Bacteria Total Maximum Daily Load (TMDL) Dry Weather: Defined in the Bacteria TMDLs as those days with less than 0.1 inch of rainfall and those days occurring more than 3 days after a rain.

Bacteria Total Maximum Daily Load (TMDL) Wet Weather: Defined in the Bacteria TMDLs as a day with 0.1 inch or more of rain and 3 days following the rain event.

Baseline Waste Load Allocation: The Waste Load Allocation assigned before reductions are required. The progressive reductions in the Waste Load Allocations are based on a percentage of the Baseline Waste Load Allocation. The Baseline Waste Load Allocation for each jurisdiction was calculated based on the annual average amount of trash discharged to the storm drain system from a representative sampling of land use areas, as determined during the Baseline Monitoring Program.

Basin Plan: The Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

Beneficial Uses: The existing or potential uses of receiving waters as designated by the Regional Board in the Basin Plan.

Best Management Practices (BMPs): BMPs are practices or physical devices or systems designed to prevent or reduce pollutant loading from and or volume of stormwater or nonstormwater discharges to receiving waters.

Commercial Development: Any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

Commercial Malls: Any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers.

Daily Generation Rate (DGR): The estimated amount of trash deposited within a representative drainage area during a 24hour period, derived from the amount of trash collected from streets and catch basins in the area over a 30-day period.

Disturbed Area: An area that is altered as a result of clearing, grading, and/or excavation.

Effluent Limitation: Any restriction imposed on quantities, discharge rates, and concentrations of pollutants, which are discharged from point sources to waters of the U.S.

Environmentally Sensitive Areas (ESAs): An area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to stormwater mitigation requirements are: areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas

Study, Los Angeles County Department of Regional Planning (1976) and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Game's Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the Basin Plan as supporting the "Rare, Threatened, or Endangered Species (RARE)" beneficial use; and an area identified by a Permittee as environmentally sensitive.

Estuaries: Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater.

Hillside: Property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

Hydrologic Unit Code (HUC): A standardized watershed classification system in which each hydrologic unit is identified by a unique hydrologic unit code (HUC).

Illicit Connection: Any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

Illicit Discharge: Any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations.

Industrial/Commercial Facility: Any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

Industrial Park: A land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

Institutional Controls: Programmatic control measures that do not require construction or structural modifications to the MS4. Examples include street sweeping, public education, and clean out of catch basins that discharge to storm drains.

Integrated Pest Management (IPM): An ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties.

Low Impact Development (LID): LID consists of building and landscape features designed to retain or filter stormwater runoff.

Low Impact Development (LID) Plan: See "SUSMP" definition.

Maximum Extent Practicable (MEP): The process in choosing effective BMPs and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive.

National Pollutant Discharge Elimination System (NPDES): The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405.

Natural Drainage System: A natural drainage system is a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

New Development: Land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

Nonstormwater Discharge: Any discharge into the MS4 or from the MS4 into a receiving water that is not composed entirely of stormwater.

Not Detected (ND): Sample results which are less than the laboratory's minimum detection level.

Nuisance: Anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.; (3) occurs during, or as a result of, the treatment or disposal of wastes.

Receiving Water: A "water of the United States" into which stormwater runoff is or may be discharged.

Receiving Water Limitation: Any applicable numeric or narrative water quality objective or criterion, or limitation to implement the applicable water quality objective or criterion.

Redevelopment: Land-disturbing activity that results in the creation, addition, or replacement of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Significant Ecological Areas (SEAs): An area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan.

Source Control BMP: Any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution.

SUSMP: The Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP shall address the Planning and Land Development conditions and requirements of the MS4 Permit.

Wet Season: The calendar period beginning October 1 through April 15.

Acronym/Abbreviation	Full Phrase/Definition
µg/L	micrograms per Liter
303(d) List	California's Clean Water Act Section 303(d) List
ASBS	Areas of Special Biological Significance
Basin Plan	Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties
BMP	Best Management Practices
Caltrans Permit	The State Board's Caltrans NPDES Permit, Order No. 2012-0011-DWQ
CASQA	California Stormwater Quality Association
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	The State Board's Construction General Permit Order No. 2009-0009-DWQ, or as amended.
CIMP	The Lower San Gabriel River Watershed Group Coordinated Integrated Monitoring Program.
Cities	The Lower San Gabriel River Watershed Group participating cities, only.
County	The LACFCD and the LA County DPW
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
DC	Development Construction Program
ELRS	Equivalent Load Reduction Strategy
EPA	United States Environmental Protection Agency
GIS	Geographical Information System
gpd	gallons per day
GWMA	Gateway Water Management Authority
HUC	Hydrologic Unit Code
ICF	Industrial/Commercial Facilities Program
ICID	Illicit Connection and Illicit Discharge Elimination Program
IGP	The State Board's Industrial Storm Water General Permit Order No. 2014-0057-DWQ, or as amended.
INI	Initiatives (as defined in the WMP)
IPM	Integrated Pest Management
JSWMP	Jurisdictional Stormwater Management Program
LA	Load Allocations
LA County DPW	Los Angeles County Department of Public Works
LA MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175, only (excluding LB MS4 and Caltrans Permits).
LACFCD	Los Angeles County Flood Control District
LB MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2014-0024, only (excluding LA MS4 and Caltrans Permits).
LID	Low Impact Development
LID Plan	Low Impact Development Plan

Acronym/Abbreviation	Full Phrase/Definition
Lower SGR Watershed	Lower San Gabriel River Watershed
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
mg/L	milligrams per Liter
MGD	Million Gallons Per Day
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175 and Order No. R4-2014-0024.
NAICS	North American Industry Classification System
NPDES	National Pollutant Discharge Elimination System
NSWD	Nonstormwater Discharge
Ocean Plan	Water Quality Control Plan for Ocean Waters of California
PAA	Public Agency Activities Program
Participating Agencies	The Lower San Gabriel River Watershed Group participating agencies, excluding Caltrans.
PEP	Progressive Enforcement Policy
Permittees	The County of Los Angeles and 85 cities within the coastal watersheds of Los Angeles County
PIP	Public Information and Participation Program
PLD	Planning and Land Development Program
PMP	Pollutant Minimization Plan
POTW	Publicly Owned Treatment Works
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
RAA	Reasonable Assurance Analysis
RAP	Reasonable Assurance Program
REAP	Rain Event Action Plan
Regional Board	California Regional Water Quality Control Board, Los Angeles Region
RP	Responsible Party
SEA	Significant Ecological Area
SIC	Standard Industrial Classification
SMARTS	State Water Resources Control Board’s Storm Water Multiple Application and Report Tracking System
SQMP	Stormwater Quality Management Programs
SSO	Sewer Leaks, sanitary sewer overflow
State Board	California State Water Resources Control Board
State Listing Policy	State Board’s Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List

Acronym/Abbreviation	Full Phrase/Definition
SUSMP	Standard Urban Stormwater Mitigation Plan
SWPPP	Stormwater Pollution Prevention Plan
SWQDv	Stormwater Quality Design Volume
TAC	Technical Advisory Committee
TCM	Targeted Control Measure
TMDL	Total Maximum Daily Load
TRA	Training
TSS	Total Suspended Solids
WAG	Watershed Authority Group
WDID	Waste Discharge Identification
WLA	Waste Load Allocations
WMP	The Lower San Gabriel River Watershed Group Watershed Management Program
WQBEL	Water Quality Based Effluent Limitations
WQO	Water Quality Objective
WQP	Water Quality Priority
WRP	Water Reclamation Plant

Watershed Management Program Appendix 2

A-2-1 2010 303(d) List

REGION/REGION NAME	WATER BODY NAME	POLLUTANT	POLLUTANT CATEGORY	POTENTIAL SOURCES	SOURCE CATEGORY
Regional Board 4 - Los Angeles Region	Coyote Creek	Ammonia	Nutrients	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	Coyote Creek	Copper, Dissolved	Metals/Metalloids	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Diazinon	Pesticides	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Lead	Metals/Metalloids	Major Municipal Point Source-wet weather discharge	Municipal Wastewater
Regional Board 4 - Los Angeles Region	Coyote Creek	Toxicity	Toxicity	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	Coyote Creek	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek, North Fork	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek, North Fork	Selenium	Metals/Metalloids	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 1 (Estuary to Firestone)	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 1 (Estuary to Firestone)	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Cyanide	Other Inorganics	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Lead	Metals/Metalloids	Nonpoint Source	Unspecified Nonpoint Source
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Lead	Metals/Metalloids	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 3 (Whittier Narrows to Ramona)	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Ammonia	Nutrients	Nonpoint Source	Unspecified Nonpoint Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Ammonia	Nutrients	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Total Dissolved Solids	Salinity	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Toxicity	Toxicity	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Coliform Bacteria	Pathogens	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Coliform Bacteria	Pathogens	Nonpoint Source	Unspecified Nonpoint Source

Watershed Management Program Appendix 2

A-2-2 Mass Emission Station Monitoring Results

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	2.6	0	1	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.126	0	0.018	0	0	0.019
pH	Comp	SM4500H B	0-14		7.82	7.06	8.03	7.02	8.75	8.65
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	5.5	8.2	8.58	9.38	9.18	9.61
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20	MPN/100ml	300000	500000	800000	500000	8000	3500
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	300000	300000	9000	300000	1700	70
Ratio Fecal Coliform/Total Coliform					1.0	0.6	0.011	0.6	0.21	0.02
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	800000	110000	170000	130000	800	800
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	800000	50000	170000	130000	800	800
General										
Chloride	Comp	EPA300.0	2	mg/L	29.5	9.13	78	14.8	88	87
Fluoride	Comp	EPA300.0	0.1	mg/L	0.36	0.14	0.54	0.1	0.46	1
Nitrate	Comp	EPA300.0	0.1	mg/L	7.32	1.61	8.31	2.89	2.28	8.9
Sulfate	Comp	EPA300.0	0.1	mg/L	44.5	10.4	114	22.1	125	129
Alkalinity	Comp	EPA310.1	4	mg/L	69	43	137.5	27.5	155	220
Hardness	Comp	EPA130.2	2	mg/L	130	60	180	45.6	195	340
COD	9i	EPA410.4	10	mg/L	96.1	24.4	148	24	28	87.6
TPH	Grab	EPA418.1	1	mg/L	1.4	1	2.8	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	522	160.8	792	171.1	831	2020
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	370	114	522	112	518	1250
Turbidity	Comp	EPA180.1	0.1	NTU	48	54.5	45.1	67.4	0.73	1.98
Total Suspended Solids	Comp	EPA160.2	2	mg/L	648	351	204	181	63	12
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	123	68	14.8	2.4	15	9
MBAS	Comp	EPA425.1	0.05	mg/L	0.27	0.053	0.151	0	0	0.062
Total Organic Carbon	Comp	EPA415.1	1	mg/L	29.3	7.81	17.9	4.27	5.35	10.1
BOD	Comp	SM5210B	2	mg/L	52.1	9.4	12.1	6.03	6.62	42.4
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.442	0.096	0.441	0.242	0	0
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.46	0.155	0.524	0.259	0	0
NH3-N	Comp	EPA350.3	0.1	mg/L	2.51	0.158	2.11	0	0	0.298
Nitrate-N	Comp	SM4110B	0.5	mg/L	1.65	0.364	1.87	0.6525	0.515	2.01
Nitrite-N	Comp	SM4110B	0.03	mg/L	1.01	0.198	1.42	0	0	0.365
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	3.36	0.558	6.84	1.16	0.82	1.87
Metals										
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	1118	0	0	134	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	2.99	0.83	1.22	0	0.64	0.68
Total Antimony	Comp	EPA200.8	5	ug/l	3.56	0.87	1.27	0	0.64	0.7
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	2.48	0	2.28	0	6.19	2.27
Total Arsenic	Comp	EPA200.8	5	ug/l	3.01	1.42	2.43	1.19	6.19	3.46
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	0.97	0	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	3.15	1.16	4.11	3.37	2.06	1.02
Total Chromium	Comp	EPA200.8	5	ug/l	8.49	11.7	4.55	9.25	12.5	2.6
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	11.7	4.21	4.83	4.76	3.98	6.9
Total Copper	Comp	EPA200.8	5	ug/l	45.9	9.91	17.9	12.1	9.94	10.1

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Dissolved Iron	Comp	EPA200.8	100	ug/l	0	109	163	213	0	0
Total Iron	Comp	EPA200.8	100	ug/l	1420	225	209	581	203	145
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.62	0.58	0	0	0
Total Lead	Comp	EPA200.8	5	ug/l	20.9	1.44	1.27	2.05	1.25	0.54
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	14.2	2.25	7.65	2.68	2.29	3.37
Total Nickel	Comp	EPA200.8	5	ug/l	17	15.5	9.57	6.01	18.9	4.3
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.37	0	0	0	1.92	0
Total Selenium	Comp	EPA200.8	5	ug/l	2.37	0	0	0	1.92	0
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50	ug/l	84.5	32	52	6	9.32	53
Total Zinc	Comp	EPA200.8	50	ug/l	219	52	61	41	11.6	84
Semi-Volatiles Organics (EPA 625)										
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dichloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dimethylpheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dinitropheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-chloro_3_methylpheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Pentachloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0.31	0	0.085	0.07	0	0.038

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WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzec
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	0	12.9	0	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.029	0.005	0.047	0	0	0.019
pH	Comp	SM4500H B	0-14		8.26	7.24	7.79	7.4	8.32	
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	7.1	8.4	9.39	8.26	8	8.9
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20	MPN/100ml	300000	300000	240000	500000	17000	50000
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	50000	300000	17000	220000	500	50000
Ratio Fecal Coliform/Total Coliform					0.17	1.0	0.071	0.44	0.029	1.0
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	24000	300000	130000	500000	230	1700
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	3000	300000	130000	500000	80	1300
General										
Chloride	Comp	EPA300.0	2	mg/L	74	25.4	20.6	23.2	167	93.2
Fluoride	Comp	EPA300.0	0.1	mg/L	0.35	0.19	0.13	0.19	0.23	0.21
Nitrate	Comp	EPA300.0	0.1	mg/L	2.5	6.63	3.87	3.88	34.9	30.9
Sulfate	Comp	EPA300.0	0.1	mg/L	102	38.3	21.9	36.1	150	117
Alkalinity	Comp	EPA310.1	4	mg/L	69	64	55	60.5	107	
Hardness	Comp	EPA130.2	2	mg/L	210	108	80	103	270	250
COD	9i	EPA410.4	10	mg/L	83.7	41.4	121	36	37.5	66.6
TPH	Grab	EPA418.1	1	mg/L	0	1	1.1	1	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	732	313	229	281	1215	1012
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	464	206	152	190	806	636
Turbidity	Comp	EPA180.1	0.1	NTU	143	963	46	457.5	0.13	9.8
Total Suspended Solids	Comp	EPA160.2	2	mg/L	630	1258	543	794	5	28
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	437	63	48.1	7	3	8
MBAS	Comp	EPA425.1	0.05	mg/L	0.209	0	0	0	0.085	0.088
Total Organic Carbon	Comp	EPA415.1	1	mg/L	10.2	6.44	6.75	6.77	7.77	7.95
BOD	Comp	SM5210B	2	mg/L	21.46	21.3	11.9	6.46	69.9	50.6
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.343	0.195	0.218	0.347	0.362	
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.356	0.713	0.236	0.349	0.411	
NH3-N	Comp	EPA350.3	0.1	mg/L	0.466	0	0	0	0.314	
Nitrate-N	Comp	SM4110B	0.5	mg/L	0.565	1.5	0.87	0.876	7.88	9.4
Nitrite-N	Comp	SM4110B	0.03	mg/L	0	0	0	0	5.81	0
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	3.58	0.372	2.44	7.64	0.314	
Metals										
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0	
Total Aluminum	Comp	EPA200.8	100	ug/l	2780	158	100	122	0	
Dissolved Antimony	Comp	EPA200.8	5	ug/l	1.68	0.98	0.78	0.51	0.55	
Total Antimony	Comp	EPA200.8	5	ug/l	3.87	1.02	0.81	0.58	0.58	
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	0	3.15	1.3	1.94	1.05	
Total Arsenic	Comp	EPA200.8	5	ug/l	4.49	6.1	1.39	2.18	1.05	
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Cadmium	Comp	EPA200.8	1	ug/l	2.15	0	0	0	0	
Dissolved Chromium	Comp	EPA200.8	5	ug/l	0	0.97	1.88	6.18	3.54	
Total Chromium	Comp	EPA200.8	5	ug/l	17.5	12.5	4.36	10.1	12.3	
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	8.98	4.23	6.01	5.82	4.39	
Total Copper	Comp	EPA200.8	5	ug/l	81.4	10.5	11.9	13.1	18.1	

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Dissolved Iron	Comp	EPA200.8	100	ug/l	221	220	311	953	0	
Total Iron	Comp	EPA200.8	100	ug/l	3680	540	431	1730	207	
Dissolved Lead	Comp	EPA200.8	5	ug/l	0.67	1.21	1.55	0	0	
Total Lead	Comp	EPA200.8	5	ug/l	56	2.52	2.16	5.39	1.38	
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	9.92	2.9	3.22	4.29	7.46	
Total Nickel	Comp	EPA200.8	5	ug/l	21.1	15.9	5.76	8.22	23.5	
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.61	0	0	0	1.95	
Total Selenium	Comp	EPA200.8	5	ug/l	3.86	0	0	0	1.95	
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Silver	Comp	EPA200.8	1	ug/l	0.43	0	0	0	0	
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	
Dissolved Zinc	Comp	EPA200.8	50	ug/l	23.8	26	22	4	36.4	
Total Zinc	Comp	EPA200.8	50	ug/l	440	74	41	48	36.4	
Semi-Volatiles Organics (EPA 625)										
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dichloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dimethylpheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dinitropheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-chloro_3_methylpheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Pentachloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0.34	0	0.41	0.035	0	0.047

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0	
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0	

Note:
1) blank cell indicates sample was not analyzec
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
Conventional									
Oil and Grease	Grab	EPA413.1	1	mg/L	0	0	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.02	0	0.017	0.007	0.01
pH	Comp	SM4500H B	0-14		7.5	6.89	6.89	7.39	8.16
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	3.02	8.12	11.28	6.6	17.1
Indicator Bacteria									
Total Coliform	Grab	SM9230B	20	MPN/100ml	50000	170000	24000	80000	2400
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	3000	110000	3000	1700	2400
Ratio Fecal Coliform/Total Coliform					0.06	0.65	0.13	0.02	1.00
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	24000	110000	17000	1100	900
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	24000	80000	13000	1100	260
General									
Chloride	Comp	EPA300.0	2	mg/L	64.3	15.1	32.4	219	103
Fluoride	Comp	EPA300.0	0.1	mg/L	0.29	0.16	0.15	0.63	0.54
Nitrate	Comp	EPA300.0	0.1	mg/L	0	6.63	12.3	0.96	17.5
Sulfate	Comp	EPA300.0	0.1	mg/L	78.8	24	53	317	158
Alkalinity	Comp	EPA310.1	4	mg/L	157.3	77	78	217	237
Hardness	Comp	EPA130.2	2	mg/L	225	92.8	112	325	395
COD	9i	EPA410.4	10	mg/L	279.1	30	38.6	70.8	125
TPH	Grab	EPA418.1	1	mg/L	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	649	277	374	1735	1767
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	408	192	250	1000	1100
Turbidity	Comp	EPA180.1	0.1	NTU	16.3	60	1.02	1.15	0.7
Total Suspended Solids	Comp	EPA160.2	2	mg/L	2061	336	102	445	9
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	394	88	25	77	7
MBAS	Comp	EPA425.1	0.05	mg/L	0.466	0.113	0.181	0.058	0
Total Organic Carbon	Comp	EPA415.1	1	mg/L	69.5	10	10.1	10.9	6.63
BOD	Comp	SM5210B	2	mg/L	119	20.3	17.3	4.31	14.4
Nutrients									
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.763	0.32	0.26	0.10	0.00
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.844	0.36	0.30	0.13	0.00
NH3-N	Comp	EPA350.3	0.1	mg/L	4.64	0.00	0.00	0.14	0.19
Nitrate-N	Comp	SM4110B	0.5	mg/L	0	1.50	2.78	0.22	3.95
Nitrite-N	Comp	SM4110B	0.03	mg/L	0.18	0.07	0.13	0.69	1.11
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	7	1.73	2.28	2.34	1.16
Metals									
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	5856	112	130	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	2.63	1.58	1.88	1.39	0.65
Total Antimony	Comp	EPA200.8	5	ug/l	4.75	1.63	2.02	1.39	0.65
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	3.44	1.91	1.78	3.94	2.85
Total Arsenic	Comp	EPA200.8	5	ug/l	7.17	1.96	1.78	3.94	3.71
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	2.46	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	5.96	1.52	3.1	7.7	4.78
Total Chromium	Comp	EPA200.8	5	ug/l	19	5.78	6.26	19.2	6.66
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	5.56	7.4	11	8.56	6.35
Total Copper	Comp	EPA200.8	5	ug/l	97.5	21.6	17.6	16.6	8.58
Dissolved Iron	Comp	EPA200.8	100	ug/l	316	0	0	0	0
Total Iron	Comp	EPA200.8	100	ug/l	20100	294	318	157	0
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.96	1.5	0	0
Total Lead	Comp	EPA200.8	5	ug/l	73.1	1.85	2.25	0.81	0.82
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0.236	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	15.1	3.94	4.53	6.62	5.3
Total Nickel	Comp	EPA200.8	5	ug/l	38	6.12	6.47	6.62	7.26
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.36	0	0	4.6	4.55
Total Selenium	Comp	EPA200.8	5	ug/l	2.85	0	0	4.6	5.64
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	1.2	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
Dissolved Zinc	Comp	EPA200.8	50	ug/l	6.9	40	65	17.1	13
Total Zinc	Comp	EPA200.8	50	ug/l	530	52	90	17.1	50
Semi-Volatiles Organics (EPA 625)									
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-chloro_3_methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0
Base/Neutral									
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	48.4	0	40.7	31.5	5.2
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0.7	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	6.4	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	6.6	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Chlorinated Pesticides									
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0
Polychlorinated Biphenyls									
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Organohosphate Pesticides									
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0	0	0.104	0.181	0
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0
Herbicides									
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
Conventional									
Oil and Grease	Grab	EPA413.1	1	mg/L	0	0	0	0	3.3
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.012	0.022	0.015	0.023	0
pH	Comp	SM4500H B	0-14		8.17	7.68	7.64	7.49	7.92
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	9.56	9.02	10.68	8.52	10.38
Indicator Bacteria									
Total Coliform	Grab	SM9230B	20	MPN/100ml	30000	170000	3000	30000	13000
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	500	130000.00	270	110.00	500.00
Ratio Fecal Coliform/Total Coliform					0.02	0.76	0.09	0.00	0.04
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	1300	22000	1300	700	300
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	1300	17000	800	700	170
General									
Chloride	Comp	EPA300.0	2	mg/L	153	123	132	147	111
Fluoride	Comp	EPA300.0	0.1	mg/L	0.32	0.17	0.17	0.23	0.11
Nitrate	Comp	EPA300.0	0.1	mg/L	24.6	32.4	36.3	31.5	10.3
Sulfate	Comp	EPA300.0	0.1	mg/L	191	186	174	132	121
Alkalinity	Comp	EPA310.1	4	mg/L	140.8	169	152	112	107
Hardness	Comp	EPA130.2	2	mg/L	260	320	305	210	195
COD	9i	EPA410.4	10	mg/L	103.5	45.3	44.5	40.7	31.7
TPH	Grab	EPA418.1	1	mg/L	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	1116	1167	1107	1008	733
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	706	716	682	594	450
Turbidity	Comp	EPA180.1	0.1	NTU	0.55	30	1.16	0.5	0.2
Total Suspended Solids	Comp	EPA160.2	2	mg/L	10	29	80	6	23
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	4	10	14	2	11
MBAS	Comp	EPA425.1	0.05	mg/L	0.061	0.052	0.07	0.054	0.05
Total Organic Carbon	Comp	EPA415.1	1	mg/L	8.69	5.49	5.81	6.75	5.42
BOD	Comp	SM5210B	2	mg/L	16.7	5.87	14.8	3.4	3.93
Nutrients									
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.09	0.54	0.35	0.13	0.09
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.11	0.65	0.38	0.14	0.11
NH3-N	Comp	EPA350.3	0.1	mg/L	0.00	0.00	0.00	0.00	0.00
Nitrate-N	Comp	SM4110B	0.5	mg/L	5.55	7.32	8.20	7.11	2.33
Nitrite-N	Comp	SM4110B	0.03	mg/L	0.76	0.48	0.44	1.93	0.37
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	0.95	1.71	0.77	0.64	0.17
Metals									
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	198	258	178	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	0.529	0	0.6	0	0
Total Antimony	Comp	EPA200.8	5	ug/l	0.529	0	0.74	0	0.88
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	0	1.52	1.44	1.01	1.67
Total Arsenic	Comp	EPA200.8	5	ug/l	1.05	1.58	1.55	1.01	1.88
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	0.807	1.19	3.81	5.93	0
Total Chromium	Comp	EPA200.8	5	ug/l	0.807	4.76	4.74	14.6	0.86
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	2.21	4.3	5.95	4.96	4.86
Total Copper	Comp	EPA200.8	5	ug/l	12.5	16	10.5	13.9	10.7
Dissolved Iron	Comp	EPA200.8	100	ug/l	0	115	102	0	0
Total Iron	Comp	EPA200.8	100	ug/l	160	423	320	150	0
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.92	1.46	0	0
Total Lead	Comp	EPA200.8	5	ug/l	3.34	1.72	2.14	1.04	0.72
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0.234	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	3.7	4.97	5.62	4.61	3.47
Total Nickel	Comp	EPA200.8	5	ug/l	7.52	6.36	6.66	5.37	3.62
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.52	2.3	2.18	1.55	1.54
Total Selenium	Comp	EPA200.8	5	ug/l	2.69	2.39	2.58	1.55	1.65
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50	ug/l	26.9	46	42	36.8	13
Total Zinc	Comp	EPA200.8	50	ug/l	64.5	61	67	36.8	33

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
Semi-Volatiles Organics (EPA 625)									
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-chloro_3_methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	2.9	2.1	0	0
Base/Neutral									
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	42.4	43.4	19.8	18.7	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	9.5	1.7	1.9	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	1	0	0	3.1	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	7.2	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Chlorinated Pesticides									
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0
Polychlorinated Biphenyls									
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Organohosphate Pesticides									
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0	0	0	0	0
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0
Herbicides									
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
General Chemistry												
Cyanide	0.01	mg/L	0.004				0.010	0.000	0.000	0.000	0.008	0.013
pH	mg/L			6.5<pH<8.5			7.04	7.42	7.29	7.52	8.18	8.04
TPH	1						0.00	0.00	0.00	0.00	0.00	0.00
Oil and Grease	1	mg/L	75				0.00	0.00	0.00	0.00	0.00	0.00
Total Phenols	0.1	mg/L					0.00	9.10	0.00	0.00	0.00	0.00
Dissolved Oxygen	1	mg/L		<5			8.40		8.91	10.40	11.72	7.30
Calcium	1	mg/L					56.90	35.30	29.70	32.10	80.00	84.20
Magnesium	1	mg/L					16.00	10.20	13.60	10.70	34.00	29.20
Potassium	1	mg/L					9.95	5.10	4.47	3.75	12.50	11.70
Sodium	1	mg/L					34.40	25.70	42.30	23.00	118.00	110.00
Bicarbonate	2	mg/L					168.00	87.20	89.90		0.00	
Carbonate	2	mg/L					0.00	0.00	0.00	0.00	0.00	0.00
Chloride	2	mg/L		150			52.50	33.90	59.20	25.10	134.0	220.0
Fluoride	0.1	mg/L		2.2			0.36	0.18	0.13	0.18	0.40	0.26
Sulfate	0.1	mg/L		350			95.50	58.70	66.30	37.90	196.00	198.00
Alkalinity	0.1	mg/L					138.00	71.50	73.70	77.00	178.00	165.00
Hardness	2	mg/L					208	130	130	124	340	330
COD	10	mg/L					102.70	14.90	45.90	45.16	85.70	57.40
Specific Conductance	1	umhos/cm					598	391	451	337	1107	1072
Total Dissolved Solids	2	mg/L		1500			352	214	254	200	748	738
Turbidity	0.1	NTU	225				87.60	20.70	0.53	107.00	4.23	3.41
Total Suspended Solids	2	mg/L					723	48	18	1246	34	47
Volatile Suspended Solids	1	mg/L					140	11	6	69	15	10
MBAS	0.05	mg/L					0.31	0.07	0.00	0.00	0.06	0.06
Total Organic Carbon	1	mg/L					41.79	8.18	4.80	8.28	5.16	5.59
BOD	2	mg/L					59.70	6.79	4.58	3.30	21.00	30.60
Nutrients												
Dissolved Phosphorus	0.05	mg/L					0.27	0.19	0.10	0.10	0.00	0.00
Total Phosphorus	0.05	mg/L					0.62	0.30	0.15	0.77	0.11	0.12
Ammonia	0.1	mg/L					4.99	0.00	0.15	0.00	0.25	0.62
NH3-N	0.1	mg/L					4.12	0.00	0.12	0.00	0.21	0.51
Nitrate	0.1	mg/L					5.39	9.10	6.89	5.30	16.50	12.4
Nitrate-N	0.5	mg/L		10			1.22	2.05	1.56	1.20	3.73	2.80
Nitrite-N	0.03	mg/L		1			1.04	0.00	0.04	0.00	0.18	0.34
Kjeldahl-N	0.1	mg/L					15.30	1.49	0.89	1.87	1.37	0.64
Indicator Bacteria												
Total Coliform	20	MPN/100ml		10,000			1,400,000	240,000	240,000	17,000	17,000	9000
Fecal Coliform	20	MPN/100ml		400			140,000	17,000	90,000	2,800	170	40
Fecal Streptococcus	20	MPN/100ml					300,000	90,000	35,000	2,800	40	20
Enterococcus	20	MPN/100ml		104			300,000	90,000	35,000	1,700	40	20
Metals												
Dissolved Aluminum	100	ug/l					0.00	0.00	0.00	1215.00	0.00	0.00
Total Aluminum	100	ug/l		1000			260	776	1,240	16,100	175	0
Dissolved Antimony	5	ug/l					2.17	0.64	0.58	0.68	0.00	0.50
Total Antimony	5	ug/l		6			2.26	0.83	0.60	1.12	0.00	0.51
Dissolved Arsenic	5	ug/l					2.20	1.50	2.10	2.91	1.35	2.00
Total Arsenic	5	ug/l	32	50			2.34	1.73	2.54	6.74	1.75	2.27
Dissolved Barium	10	ug/l					36.70	29.10	32.70	95.50	51.40	50.30
Total Barium	10	ug/l					49.70	32.10	63.10	257.00	51.60	51.00
Dissolved Berylium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Beryllium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Boron	100	ug/l					530	150	108	137	348	351
Total Boron	100	ug/l					710	940	126	152	674	378
Dissolved Cadmium	1	ug/l			2.7-4.0	5.4-9.4	0.00	0.00	0.00	0.33	0.00	0.00
Total Cadmium	1	ug/l			2.9-4.4	5.8-10.3	0.00	0.00	0.00	0.82	0.00	0.00
Dissolved Chromium	5	ug/l			78.0-9119.2	680.3-999.7	1.26	1.08	1.74	0.70	0.56	12.60
Total Chromium	5	ug/l		50	246.9-377.1	2071.1-3163.5	1.87	2.68	4.91	19.20	1.42	18.80

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Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
Dissolved Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Copper	5	ug/l			10.8-16.8	16.4-26.8	6.16	5.36	3.57	10.20	4.59	3.59
Total Copper	5	ug/l	12		11.2-17.4	17.1-27.9	22.50	12.70	32.20	37.90	9.05	11.00
Dissolved Iron	100	ug/l					203	0	0	849	0	0
Total Iron	100	ug/l					896	1,340	1,950	15,050	104	119
Dissolved Lead	5	ug/l			3.2-5.5	81.6-141.9	0.00	0.00	0.00	11.40	0.00	0.00
Total Lead	5	ug/l	8		4.2-8.1	107.4-207.4	3.78	4.42	9.05	37.50	1.17	1.07
Dissolved Manganese	30	ug/l					0.00	0.00	0.00	79.40	0.00	0.00
Total Manganese	30	ug/l					165.00	32.40	48.30	648.00	0.00	52.10
Dissolved Mercury	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Mercury	1	ug/l	0.16	2			0.25	0.00	0.00	0.00	0.00	0.00
Dissolved Nickel	5	ug/l			65.0-96.7	561.7-870.1	9.43	3.50	2.18	2.71	5.32	5.13
Total Nickel	5	ug/l	20	100	65.1-96.9	562.8-871.8	11.30	4.99	6.66	18.30	5.36	5.82
Dissolved Selenium	5	ug/l					1.79	0.00	1.03	0.00	2.56	3.58
Total Selenium	5	ug/l	60	50			2.02	0.00	1.06	0.00	3.58	3.71
Dissolved Silver	1	ug/l				5.0-12.2	0.00	0.00	0.00	0.00	0.00	0.00
Total Silver	1	ug/l	80			5.9-14.3	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Zinc	50	ug/l			140.6-218.0	140.6-218.0	32.20	10.30	15.90	17.70	22.80	9.49
Total Zinc	50	ug/l			143.8-222.9	143.8-222.9	49.60	24.60	69.30	90.70	33.40	21.80
Semi-Volatiles												
Acenaphthylene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Acetophenone	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Antracene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aminobiphenyl	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzidine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(k)flouranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)pyrene	0.1	ug/l		0.2			0.00	0.00	0.00	0.00	0.00	0.00
Butyl benzyl phthalate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-chloroethyl)ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Chloroethoxy) methane	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Ethylhexl) phthalate	1	ug/l					0.00	0.00	0.00	0.00	26.70	0.00
Bis(2-chlorisopropyl) ether	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Bromophenyl phenyl ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chloroaniline	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Chlorophenyl phenyl ether	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chrysene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
7,12-Dimethyl-benz(a)-anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
alpha,alpha-Dimethylphenethylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenz(a,j)acridine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenzo(a,h)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,3-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.05	ug/l		5			0.00	0.00	0.00	0.00	0.00	0.00
3,3-Dichlorobenzidine	0.05	ug/l		600			0.00	0.00	0.00	0.00	0.00	0.00
Diethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
di-n-Butyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Diphenylamine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diphenylhydrazine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
di-n-Octyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Ethyl methanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin ketone	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluorene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.5	ug/l		1			0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobutadiene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachloro-cyclopentadiene	3	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Hexachloroethane	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Isophorone	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylcholanthrene	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylmethanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Naphthalene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
3-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Nitrobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-butyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-dimethyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-diphenyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-di-n-propyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitrosopiperidine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenacetin	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenanthrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Picoline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pronamide	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pyrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4,5-Tetra-chlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trichlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzoic acid	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro-3-methylphenol	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro_3_methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2- Chlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dimethylphenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dinitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,6 Dinitro-2-methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Metholphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,3,4,6-Tetrachlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-Trichlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,6-trichlophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
PCBs												
Aroclor-1016	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1221	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1232	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1242	0.5	ug/l		0.03	0.014		0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1248	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1254	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1260	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
Pesticides												
Aldrin	0.05	ug/l				3	0.00	0.00	0.00	0.00	0.00	0.00
alpha-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
beta-BHC	0.05	ug/l	0.008				0.00	0.00	0.00	0.00	0.00	0.00
delta-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
gamma-BHC (lindane)	0.05	ug/l		0.2		0.95	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane	0.05	ug/l			0.0043	2.4	0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDD	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDE	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDT	0.1	ug/l			0.001	1.1	0.00	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.1	ug/l			0.056	0.24	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 1	0.1	ug/l			0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 2	0.1	ug/l	0.018		0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan sulfate	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin	0.1	ug/l	0.004	2	0.036	0.086	0.00	0.00	0.00	0.00	0.00	0.00
Endrin aldehyde	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor Epoxide	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Methoxychlor	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Toxaphene	1	ug/l		3	0.0002	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Diazinon	0.01	ug/l		0.08			0.096	0.100	0.051	0.00	0.00	0.00
Chlorpyrifos	0.05	ug/l		0.07			0.00	0.00	0.00	0.00	0.00	0.00
Diuron	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Malathion	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Prometryn	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Simazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Atrazine	2	ug/l		3			0.00	0.00	0.00	0.00	0.00	0.00
Cyanazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Molinate	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Thiobencarb	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Herbicides												
Carbofuran	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP-Silvex	10	ug/l		70			0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP	1	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Bentazon	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Glyphosate	25	ug/l		700			0.00	0.00	0.00	0.00	0.00	0.00

[1] CTR values for metals are hardness dependent; higher hardness gives higher WQO

[2] Values of 0 represent that the constituent was not detected above the PQL as defined in the Municipal Stormwater Permit. Results are presented in accordance with Method B of the permit

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
General Chemistry												
Cyanide	0.01	mg/L	0.004				0.005	1.300	0.007	0.000	0.015	0.009
pH	mg/L			6.5<pH<8.5			7.18	6.61	6.79	6.94	8.18	8.30
TPH	1						0.00	0.00	0.00	0.00	0.00	0.00
Oil and Grease	1	mg/L	75				0.00	0.00	0.00	0.00	0.00	0.00
Total Phenols	0.1	mg/L					0.00	9.66	0.00	0.00	0.00	0.00
Dissolved Oxygen	1	mg/L		<5			6.83		9.30	9.20	15.19	10.90
Calcium	1	mg/L					56.10	12.00	29.70	12.80	96.20	120.00
Magnesium	1	mg/L					14.60	4.86	8.75	7.78	41.30	53.50
Potassium	1	mg/L					7.47	2.69	3.67	2.07	7.47	11.40
Sodium	1	mg/L					55.20	16.50	28.10	20.90	156.00	265.00
Bicarbonate	2	mg/L					195.00	40.30	84.50		326.00	0.00
Carbonate	2	mg/L					0.00	0.00	0.00	0.00	0.00	0.00
Chloride	2	mg/L		150			58.70	14.50	28.70	17.10	175.00	228.00
Fluoride	0.1	mg/L		2.2			0.37	0.11	0.16	0.00	0.69	0.90
Sulfate	0.1	mg/L		350			96.30	16.80	44.70	23.70	293.00	492.00
Alkalinity	0.1	mg/L					160.00	33.00	69.30	40.70	267.00	283.00
Hardness	2	mg/L					200	50	110	64	410	520
COD	10	mg/L					117.90	11.30	79.70	18.72	27.40	88.40
Specific Conductance	1	umhos/cm					607	149	349	199	1545	1,923
Total Dissolved Solids	2	mg/L		1500			364	94	192	122	966	1,354
Turbidity	0.1	NTU	225				64.90	8.43	1.38	8.67	0.81	1.24
Total Suspended Solids	2	mg/L					1312	196	105	88	74	33
Volatile Suspended Solids	1	mg/L					233	58	38	3	20	9
MBAS	0.05	mg/L					0.29	0.13	0.07	0.00	0.00	0.00
Total Organic Carbon	1	mg/L					38.20	10.07	8.70	7.45	7.22	5.59
BOD	2	mg/L					59.80	12.80	14.40	5.18	32.90	8.85
Nutrients												
Dissolved Phosphorus	0.05	mg/L					0.11	0.19	0.17	0.12	0.09	0.00
Total Phosphorus	0.05	mg/L					0.38	0.26	0.29	0.25	0.13	0.00
Ammonia	0.1	mg/L					2.83	0.00	0.64	0.16	0.76	0.14
NH3-N	0.1	mg/L					2.34	0.00	0.53	0.13	0.63	0.11
Nitrate	0.1	mg/L					1.96	4.28	4.28	4.67	13.10	23.05
Nitrate-N	0.5	mg/L		10			0.44	0.97	0.97	0.15	2.96	5.21
Nitrite-N	0.03	mg/L		1			0.68	0.00	0.17	0.07	0.36	0.17
Kjeldahl-N	0.1	mg/L					12.20	2.24	2.24	1.31	1.29	0.99
Indicator Bacteria												
Total Coliform	20	MPN/100ml		10,000			900,000	1,600,000	500,000	500,000	30,000	9,000
Fecal Coliform	20	MPN/100ml		400			110,000	30,000	300,000	14,000	11,000	800
Fecal Streptococcus	20	MPN/100ml					900,000	900,000	170,000	50,000	1,700	130
Enterococcus	20	MPN/100ml		104			900,000	300,000	170,000	22,000	1,700	130
Metals												
Dissolved Aluminum	100	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Aluminum	100	ug/l		1000			170	1,061	1,560	1,360	0	148
Dissolved Antimony	5	ug/l					2.47	0.64	1.64	0.80	0.00	0.00
Total Antimony	5	ug/l		6			2.57	1.25	2.36	1.24	0.00	0.00
Dissolved Arsenic	5	ug/l					2.74	1.37	1.66	1.13	1.70	3.58
Total Arsenic	5	ug/l	32	50			2.87	1.39	2.16	1.48	1.70	4.02
Dissolved Barium	10	ug/l					44.00	19.40	26.00	17.70	40.10	71.10
Total Barium	10	ug/l					62.90	32.90	63.10	40.90	40.10	72.20
Dissolved Berylium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Beryllium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Boron	100	ug/l					330	0	0	0	447	508
Total Boron	100	ug/l					680	960	0	0	1,450	662
Dissolved Cadmium	1	ug/l			1.4-6.6	2.0-19.6	0.00	0.00	0.00	0.00	0.00	0.00
Total Cadmium	1	ug/l			1.4-7.5	2.1-22.2	0.00	0.00	0.38	0.28	0.00	0.00
Dissolved Chromium	5	ug/l			37.1-207.7	311.0-1742.8	1.30	0.69	1.48	0.73	0.84	0.98
Total Chromium	5	ug/l		50	117.3-657.4	984.3-5515.0	1.92	3.48	5.35	3.97	0.84	2.69

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Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
Dissolved Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Copper	5	ug/l			5.0-29.9	7.0-50.7	7.30	7.02	5.94	6.38	4.38	5.40
Total Copper	5	ug/l	12		5.2-31.2	7.3-52.8	23.30	16.80	44.50	22.50	11.20	11.70
Dissolved Iron	100	ug/l					156	0	0	136	0	0
Total Iron	100	ug/l					698	1,874	2,050	1,355	0	103
Dissolved Lead	5	ug/l			1.2-11	30.1-288.1	0.00	0.00	0.00	1.67	0.00	0.00
Total Lead	5	ug/l	8		1.3-19.2	33.8-492.0	3.24	7.31	14.70	13.50	2.15	1.48
Dissolved Manganese	30	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Manganese	30	ug/l					395.0	40.3	64.2	57.00	0.00	0.00
Dissolved Mercury	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Mercury	1	ug/l	0.16	2			0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Nickel	5	ug/l			29.0-171.8	260.5-1544.8	10.00	3.26	3.07	2.18	3.82	4.22
Total Nickel	5	ug/l	20	100	29.0-172.1	261.0-1547.9	12.20	4.44	8.04	5.35	3.82	4.29
Dissolved Selenium	5	ug/l					1.69	0.00	0.00	0.00	2.94	7.78
Total Selenium	5	ug/l	60	50			1.76	0.00	0.00	0.00	2.94	9.29
Dissolved Silver	1	ug/l				1.1-39.1	0.00	0.00	0.00	0.00	0.00	0.00
Total Silver	1	ug/l	80			1.2-46.0	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Zinc	50	ug/l			65.1-387.3	65.1-387.3	24.70	36.10	36.60	31.00	11.40	7.60
Total Zinc	50	ug/l			66.6-396.0	66.6-396.0	47.00	65.80	153.00	79.30	24.50	27.60
Semi-Volatiles												
Acenaphthylene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Acetophenone	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Antracene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aminobiphenyl	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzidine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(k)flouranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)pyrene	0.1	ug/l		0.2			0.00	0.00	0.00	0.00	0.00	0.00
Butyl benzyl phthalate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-chloroethyl)ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Chloroethoxy) methane	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Ethylhexl) phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	14.20
Bis(2-chlorisopropyl) ether	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Bromophenyl phenyl ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chloroaniline	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Chlorophenyl phenyl ether	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chrysene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
7,12-Dimethyl-benz(a)-anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
alpha,alpha-Dimethylphenethylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenz(a,j)acridine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenzo(a,h)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,3-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.05	ug/l		5			0.00	0.00	0.00	0.00	0.00	0.00
3,3-Dichlorobenzidine	0.05	ug/l		600			0.00	0.00	0.00	0.00	0.00	0.00
Diethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
di-n-Butyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Diphenylamine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diphenylhydrazine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
di-n-Octyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Ethyl methanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin ketone	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluorene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.5	ug/l		1			0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobutadiene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachloro-cyclopentadiene	3	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Hexachloroethane	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Isophorone	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylcholanthrene	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylmethanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Naphthalene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
3-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Nitrobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-butyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-dimethyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-diphenyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-di-n-propyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitrosopiperidine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenacetin	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenanthrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Picoline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pronamide	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pyrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4,5-Tetra-chlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trichlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzoic acid	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro-3-methylphenol	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro_3_methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2- Chlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dimethylphenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dinitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,6 Dinitro-2-methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Metholphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,3,4,6-Tetrachlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-Trichlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,6-trichlophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
PCBs												
Aroclor-1016	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1221	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1232	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1242	0.5	ug/l		0.03	0.014		0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1248	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1254	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1260	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pesticides												
Aldrin	0.05	ug/l				3	0.00	0.00	0.00	0.00	0.00	0.00
alpha-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
beta-BHC	0.05	ug/l	0.008				0.00	0.00	0.00	0.00	0.00	0.00
delta-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
gamma-BHC (lindane)	0.05	ug/l		0.2		0.95	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane	0.05	ug/l			0.0043	2.4	0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDD	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDE	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDT	0.1	ug/l			0.001	1.1	0.00	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.1	ug/l			0.056	0.24	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 1	0.1	ug/l			0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 2	0.1	ug/l	0.018		0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan sulfate	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin	0.1	ug/l	0.004	2	0.036	0.086	0.00	0.00	0.00	0.00	0.00	0.00
Endrin aldehyde	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor Epoxide	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Methoxychlor	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Toxaphene	1	ug/l		3	0.0002	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Diazinon	0.01	ug/l		0.08			0.065	0.060	0.079	0.00	0.00	0.00
Chlorpyrifos	0.05	ug/l		0.07			0.00	0.00	0.00	0.00	0.00	0.00
Diuron	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Malathion	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Prometryn	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Simazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Atrazine	2	ug/l		3			0.00	0.00	0.00	0.00	0.00	0.00
Cyanazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Molinate	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Thiobencarb	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Herbicides												
Carbofuran	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP-Silvex	10	ug/l		70			0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP	1	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Bentazon	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Glyphosate	25	ug/l		700			0.00	0.00	0.00	0.00	0.00	0.00

[1] CTR values for metals are hardness dependent; higher hardness gives higher WQO

[2] Values of 0 represent that the constituent was not detected above the PQL as defined in the Municipal Stormwater Permit. Results are presented in accordance with Method B of the permit

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	1.10	0	0	0	0	0	0
Total Phenols	Grab	EPA420.1	0.10	mg/L	0	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0	0	0.01	0.014	0.01	0.018	0.016
pH	Comp	SM4500H B	0-14		7.72	7.63	7.71	8.05	7.26	8.10	8.22
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	6.05	8.16	8.57	12.26	10.97	13.90	14.38
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	50,000,000	900,000	1,600,000	22,000	160,000	22,000	17,000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	16,000,000	300,000	22,000	2,400	50,000	3,000	800
Ratio Fecal Coliform/Total Coliform					0.32	0.33	0.01	0.11	0.31	0.14	0.05
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300,000	90,000	90,000	170	17,000	3,000	130
Enterococcus	Grab	SM9230B		MPN/100ml	300,000	90,000	90,000	170	8,000	3,000	130
General											
Chloride	Comp	EPA300.0	2.00	mg/L	70.30	75.20	53.80	210.00	13.70	202.00	196.00
Fluoride	Comp	EPA300.0	0.10	mg/L	0.4	0.34	0.29	0.67	0	0.7	0.75
Nitrate	Comp	EPA300.0	0.10	mg/L	15.5	7.74	9.41	17.5	2.21	17.7	9.57
Sulfate	Comp	EPA300.0	0.10	mg/L	135.40	137.00	95.90	309.00	25.00	367.00	350.00
Alkalinity	Comp	EPA310.1	4.00	mg/L	150.7	104.5	104.5	201	41.8	247.5	220
Hardness	Comp	EPA130.2	2.00	mg/L	210	180	170	380	88	420	370
COD	Comp	EPA410.4	10.00	mg/L	148	76.547	75.64	72	0	65.2	145.3
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.0	0	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	858	712	566	2020	208	1589	2050
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	576.00	434.00	350.00	1112.00	118.00	1044.00	1340.00
Turbidity	Comp	EPA180.1	0.10	NTU	2.10	2.51	2.23	0.79	8.94	1.47	0.84
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	967	302	259	3	368	11	5
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	139	63	80	1	72	5	1
MBAS	Comp	EPA425.1	0.05	mg/L	0.6822	0.126	0.261	0.05	0.154	0.066	0.087
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	36.8	9.21	17.2	6.28	4.12	4.5	7.83
BOD	Comp	SM5210B	2.00	mg/L	29.1	13.4	28.1	9.86	10.4	8.95	8.81
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	0	0	0	0	0	0	0
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0552	0.116	0.112	0	0.122	0	0
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.1367	0.201	0.398	0	0.73	0	0
NH3-N	Comp	EPA350.3	0.10	mg/L	1.22	0.21162	0.524	0.11	0.33	0	0.15
Nitrate - N	Comp	SM4110B	0.50	mg/L	3.50	1.75	2.125	3.952	0.499	3.997	2.16
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.00	0.155	0.268	0	0.0396	0.00	0.4534
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	10.9	1.208	2.425	1.48	4.24	0.825	0.92
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2,490	615	214	0	15,000	0	104
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.56	0.5	1.65	0.51	0.82	0	0.76
Total Antimony	Comp	EPA200.8	5.00	ug/L	3.89	1.11	2.23	0.63	2.05	0.70	0.77
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	3.15	0	1.63	2.66	1.14	1.74	3.19
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.92	1.91	2.19	3.3	3.67	3.77	4.42
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	48.60	15.60	26.80	38.00	20.60	28.50	41.50
Total Barium	Comp	EPA200.8	10.00	ug/L	152.00	29.70	31.80	38.40	155.00	48.40	44.90
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.80	0.00	0	0	1.29	0	0
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.72	0.71	2.83	3.63	1.34	1.42	6.79
Total Chromium	Comp	EPA200.8	5.00	ug/L	8.37	2.84	2.86	4.1	19.5	6.41	7.31
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	10.70	6.79	12.50	5.31	4.25	6.00	5.72
Total Copper	Comp	EPA200.8	5.00	ug/L	63.20	7.52	13.70	16.7	56.9	9.13	18.8
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	339	0	0	0	0	0	0
Total Iron	Comp	EPA200.8	100.00	ug/L	4540	123	331	0	12980	0	172
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.64	0	0	0	0.77	0.5	0
Total Lead	Comp	EPA200.8	5.00	ug/L	23.30	0.95	1.87	0.77	54	0.52	0.78
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	10.00	1.84	4.37	3.58	2.84	2.09	4.91
Total Nickel	Comp	EPA200.8	5.00	ug/L	20.30	4.11	5.77	3.73	21.9	3.63	22.1
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	2.46	0	1.84	4.36	0	3.5	5.4
Total Selenium	Comp	EPA200.8	5.00	ug/L	2.83	1.96	2.15	5.99	0	6.50	7.57
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1.00	ug/L	0.26	0	0	0	0.28	0	0
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	35.00	11.90	46.00	17.5	17.6	26.10	9.09
Total Zinc	Comp	EPA200.8	50.00	ug/L	342.00	35.60	75.00	17.9	242	48.90	18.8
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
Phenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE	Sample Type	EPA Method	PQL	Units	10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Benzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	0	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0.36
Naphthalene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/L							
gamma-chlordane	Comp	EPA625	0.05	ug/L							
Chlordane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units							
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	0	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/L	0	0	0	0	0	0	0
Prometryn	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Atrazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Simazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Malathion	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	0	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10.00	ug/L	0	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	0	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	0	1.10	0	0	0	0
Total Phenols	Grab	EPA420.1	0.10	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0	0	0.012	0	0.017	0
pH	Comp	SM4500H B	0-14		8.21	7.48	7.99	7.99	7.79	7.9
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	7.12	8.31	10.2	11.00	9.49	8.40
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	90,000,000	240,000	16,000	3,000	3,000	9,000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	16,000,000	240,000	800	300	3,000	130
Ratio Fecal Coliform/Total Coliform					0.18	1.00	0.05	0.10	1.00	0.01
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	240,000	90,000	700	80	1,300	210
Enterococcus	Grab	SM9230B		MPN/100ml	240,000	90,000	700	80	1,300	210
General										
Chloride	Comp	EPA300.0	2.00	mg/L	73.10	37.50	134.00	80.40	119.00	100.00
Fluoride	Comp	EPA300.0	0.10	mg/L	0.18	0.18	0.18	0.14	0.17	0.28
Nitrate	Comp	EPA300.0	0.10	mg/L	11.5	5.49	9.09	7.07	8.85	3.74
Sulfate	Comp	EPA300.0	0.10	mg/L	153.00	53.20	158.00	98.40	155.00	179.00
Alkalinity	Comp	EPA310.1	4.00	mg/L	132	69.3	145.2	122	129.8	193
Hardness	Comp	EPA130.2	2.00	mg/L	250	112.5	255	220	250	345
COD	Comp	EPA410.4	10.00	mg/L	73	37.3814	39.94	49.9	53.4	10.6
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	0	1.6	0	0	0	0
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	863	379	974	871	944	1197
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	578.00	222.00	584.00	474.00	582.00	666.00
Turbidity	Comp	EPA180.1	0.10	NTU	1.32	8.07	0.59	1.33	1.25	0.68
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	517	933	11	9	31	9
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	60	109	3	5	8	6
MBAS	Comp	EPA425.1	0.05	mg/L	0.1919	0.106	0	0.065	0.061	0
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	8.57	12.47	5.08	4.99	4.63	2.76
BOD	Comp	SM5210B	2.00	mg/L	6.04	39.7	8.56	7.6	21.1	4.63
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	0	0	0	0	0	0
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0794	0.139	0.064	0.078	0.058	0.097
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0992	0.266	0.088	0.095	0.103	0.157
NH3-N	Comp	EPA350.3	0.10	mg/L	0.665	0.21162	0.322	0.54	0.589	0.12
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.60	1.24	2.053	1.596	1.998	0.845
Nitrite - N	Comp	SM4110B	0.03	mg/L	0	0.207	0	0	0.377	0
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	5.44	0.9982	0.871	2.72	1.448	0.44
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2,140	575	112	174	0	262
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	0.93	0	0	0	0	0
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.41	0.88	0.00	0	0.00	0
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.65	0	1.21	1.24	1.2	2.56
Total Arsenic	Comp	EPA200.8	5.00	ug/L	2.79	1.36	1.80	1.51	1.82	3.18
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	46.00	12.30	43.10	50.40	39.2	71.20
Total Barium	Comp	EPA200.8	10.00	ug/L	100.00	29.60	55.00	51.40	54.0	82.70
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.51	0.00	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.87	0.00	4.37	2.47	1.19	4.75
Total Chromium	Comp	EPA200.8	5.00	ug/L	6.82	1.92	5.26	3.04	3.88	4.79
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	3.49	3.04	3.55	3.69	4.67	2.6
Total Copper	Comp	EPA200.8	5.00	ug/L	34.50	6.79	6.83	10.6	5.31	17.6
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0
Total Iron	Comp	EPA200.8	100.00	ug/L	4290	232	138	287	112	469
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.00	0	0	0	0.71	0
Total Lead	Comp	EPA200.8	5.00	ug/L	14.20	1.01	0.77	1.4	0.94	1.12
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	5.54	1.50	3.68	3.51	3.31	6.04
Total Nickel	Comp	EPA200.8	5.00	ug/L	12.10	3.54	4.51	4.56	4.62	21
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.97	0	1.95	0	2.31	1.42
Total Selenium	Comp	EPA200.8	5.00	ug/L	2.12	0.00	2.57	1.49	2.71	2
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1.00	ug/L	0.00	0.00	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	24.00	9.84	19.00	17.1	29.10	4.16
Total Zinc	Comp	EPA200.8	50.00	ug/L	175.00	32.80	36.00	23.3	55.60	19.8
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
Phenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	0	0	22.8	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Benzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/L						
gamma-chlordane	Comp	EPA625	0.05	ug/L						
Chlordane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/L	0	0.03	0	0	0	0
Prometryn	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Atrazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Simazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Malathion	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10.00	ug/L	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

Appendix B. 2006-2007 Sampling Results for Coyote Creek | Mass Emission Monitoring

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	1.400		-99	1.300	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.010	0.005	0.010	0.007
pH	Comp	SM4500H B	0-14		7.540	7.680	7.680	7.670	8.110	8.130
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	8.180		8.790	7.880	16.650	14.900
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	170,000.000		300,000.000	170,000.000	20.000	5,000.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	170,000.000		9,000.000	17,000.000	20.000	1,300.000
Ratio Fecal Coliform/Total Coliform					1.000		0.030	0.100	1.000	0.260
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	170,000.000		14,000.000	30,000.000	20.000	40.000
Enterococcus	Grab	SM9230B		MPN/100ml	110,000.000		14,000.000	24,000.000	20.000	40.000
General										
Chloride	Comp	EPA300.0	2.00	mg/L	85.500	45.400	42.700	52.100	176.000	23.400
Fluoride	Comp	EPA300.0	0.10	mg/L	0.390	0.299	0.289	0.345	0.650	0.967
Nitrate	Comp	EPA300.0	0.10	mg/L	15.400	-99	-99	-99	12.800	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	135.000	76.700	59.200	85.300	292.000	399.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	151.800	133.100	91.300	100.100	258.500	201.300
Hardness	Comp	EPA130.2	2.00	mg/L	250.000	190.000	140.000	180.000	380.000	350.000
COD	Comp	EPA410.4	10.00	mg/L	139.000	58.680	77.550	51.100	58.070	21.059
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.500		-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	965.000	532.000	472.000	612.000	1820.000	2200.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	604.000	310.000	278.000	252.000	1008.000	1264.000
Turbidity	Comp	EPA180.1	0.10	NTU	4.900	1.760	1.560	1.260	2.680	0.410
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	216.000	382.000	75.000	88.000	8.000	6.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	54.000	85.000	25.000	33.000	6.000	2.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.264	0.124	0.161	0.121	-99	0.059
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	30.500	11.100	17.900	14.700	4.430	7.850
BOD	Comp	SM5210B	2.00	mg/L	13.700	12.800	29.700	17.900	22.900	19.000
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.220	0.120	0.169	0.135	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.604	1.160	0.353	0.359	-99	0.050
NH3-N	Comp	EPA350.3	0.10	mg/L	0.800	0.220	0.420	0.230	-99	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	3.480	-99	-99	-99	2.710	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.155	-99	-99	-99	0.216	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	3.280	3.940	2.960	2.380	0.840	1.240
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2370.000	1820.000	1530.000	2170.000	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.160	1.490	2.230	2.280	0.570	0.770
Total Antimony	Comp	EPA200.8	5.00	ug/L	3.500	2.850	3.440	3.720	0.690	0.810
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.930	3.010	2.220	1.880	3.860	3.510
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.120	6.980	3.380	2.620	4.040	4.320
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	47.000	28.100	30.600	32.500	61.700	40.900
Total Barium	Comp	EPA200.8	10.00	ug/L	121.000	132.000	63.800	68.000	67.400	43.700
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.690	0.610	0.250	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	2.560	1.790	3.070	1.700	5.500	3.660
Total Chromium	Comp	EPA200.8	5.00	ug/L	7.490	11.500	5.750	5.080	5.810	3.720
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	1.060	1.600	0.880	0.300	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	1.060	1.600	0.880	0.300	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	11.500	7.950	13.300	11.000	4.200	7.080
Total Copper	Comp	EPA200.8	5.00	ug/L	66.600	73.200	50.300	45.500	28.300	28.700
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	71.000	272.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	3830.000	5490.000	1040.000	1900.000	184.000	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.620	1.100	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	19.000	21.400	10.300	10.400	0.830	0.810
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	7.650	3.940	4.950	5.060	4.290	4.010
Total Nickel	Comp	EPA200.8	5.00	ug/L	16.200	13.700	8.720	9.460	6.520	4.640
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.540	4.020	1.300	1.310	8.160	5.130
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.950	4.290	1.650	1.580	8.590	5.570
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.300	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	71.700	27.800	39.600	31.900	9.210	12.100
Total Zinc	Comp	EPA200.8	50.00	ug/L	208.000	216.000	123.000	120.000	15.900	33.500
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	0.147
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99
Other										
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.970	0.270	0.510	0.280	0.100	0.110
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		1.000	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.009		0.027	-99	-99	0.020
pH	Comp	SM4500H B	0-14		7.340	7.380	7.810	7.830	8.050	7.860
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	8.480		9.090	8.810	9.640	9.300
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	240,000.000		160,000.000	30,000.000	17,000.000	9,000.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	14,000.000		1,300.000	2,200.000	2,100.000	230.000
Ratio Fecal Coliform/Total Coliform					0.058		0.008	0.073	0.124	0.026
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	11,000.000		1,100.000	800.000	230.000	170.000
Enterococcus	Grab	SM9230B		MPN/100ml	11,000.000		1,100.000	800.000	230.000	170.000
General										
Chloride	Comp	EPA300.0	2.00	mg/L	86.600	51.900	93.300	50.000	101.000	92.500
Fluoride	Comp	EPA300.0	0.10	mg/L	0.210	0.227	0.288	0.256	0.260	0.233
Nitrate	Comp	EPA300.0	0.10	mg/L	10.900	-99	-99	-99	3.930	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	91.900	60.400	116.000	50.400	174.000	109.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	111.100	69.300	117.700	111.100	171.600	113.300
Hardness	Comp	EPA130.2	2.00	mg/L	210.000	150.000	200.000	180.000	310.000	220.000
COD	Comp	EPA410.4	10.00	mg/L	189.000	104.980	55.730	41.730	38.780	51.827
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	828.000	562.000	872.000	792.000	1090.000	892.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	498.000	308.000	488.000	414.000	618.000	476.000
Turbidity	Comp	EPA180.1	0.10	NTU	5.930	12.800	0.930	1.680	2.450	0.620
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	264.000	6.000	21.000	29.000	291.000	9.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	52.000	2.000	6.000	2.000	54.000	7.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.187	-99	0.076	0.060	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	34.900	8.380	8.880	6.450	2.930	3.920
BOD	Comp	SM5210B	2.00	mg/L	21.400	20.600	80.800	11.700	8.990	4.560
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.135	0.189	0.123	0.092	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.513	0.826	0.176	0.138	0.770	0.110
NH3-N	Comp	EPA350.3	0.10	mg/L	1.240	0.560	-99	-99	0.170	0.240
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.460	-99	-99	-99	0.887	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.190	0.133	0.111	0.050	-99	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	3.840	2.460	1.700	1.040	2.460	1.100
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	3450.000	2430.000	920.000	1110.000	296.000	121.000
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.120	0.970	0.810	0.840	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.900	1.490	1.140	1.060	-99	-99
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.540	2.120	1.440	1.330	2.710	1.540
Total Arsenic	Comp	EPA200.8	5.00	ug/L	2.720	2.620	1.890	1.550	3.020	1.860
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	44.500	31.200	44.200	46.500	70.100	55.500
Total Barium	Comp	EPA200.8	10.00	ug/L	107.000	65.000	61.800	65.800	74.100	61.000
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.440	-99	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.550	-99	1.310	1.060	3.840	2.100
Total Chromium	Comp	EPA200.8	5.00	ug/L	7.800	3.930	1.690	2.320	6.890	2.740
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	6.490	4.720	6.390	4.740	2.890	3.090
Total Copper	Comp	EPA200.8	5.00	ug/L	43.200	32.700	21.100	24.500	32.500	23.800
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	125.000	340.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	5130.000	2600.000	696.000	727.000	808.000	153.000
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.030	1.170	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	15.300	8.230	3.410	3.070	2.880	1.070
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	5.850	3.220	6.080	4.100	4.960	3.300
Total Nickel	Comp	EPA200.8	5.00	ug/L	12.600	6.750	8.120	6.330	5.120	4.050
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	2.420	3.560	1.560	1.090	4.720	1.320
Total Selenium	Comp	EPA200.8	5.00	ug/L	3.270	3.760	1.970	1.110	5.220	1.510
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	35.800	20.600	18.400	9.350	7.620	11.000
Total Zinc	Comp	EPA200.8	50.00	ug/L	138.000	67.200	36.200	26.300	29.800	20.700
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99
Other										
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	1.500	0.090	-99	-99	0.210	0.290
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	1.700		-99	-99	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		-99	-99	-99	-99	-99
pH	Comp	SM4500H B	0-14		7.380	7.980	7.610	8.010	7.380	8.490	7.730
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	7.890		11.600	10.370	11.800	12.200	13.400
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	24,000.000		35,000.000	50,000.000	30,000.000	1,300.000	2,400.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	9,000.000		3,000.000	1,700.000	9,000.000	800.000	130.000
Ratio Fecal Coliform/Total Coliform					0.375		0.086	0.034	0.300	0.615	0.054
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	90,000.000		13,000.000	9,000.000	14,000.000	230.000	40.000
Enterococcus	Grab	SM9230B		MPN/100ml	90,000.000		13,000.000	9,000.000	14,000.000	230.000	20.000
General											
Chloride	Comp	EPA300.0	2.00	mg/L	29.000	16.800	47.300	74.900	39.700	61.400	87.000
Fluoride	Comp	EPA300.0	0.10	mg/L	0.200	0.177	0.216	0.328	0.243	0.160	0.240
Nitrate	Comp	EPA300.0	0.10	mg/L	11.200	-99	-99	-99	-99	2.340	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	60.200	29.800	91.800	115.000	77.700	114.000	155.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	83.600	99.000	116.600	132.000	80.300	101.200	114.400
Hardness	Comp	EPA130.2	2.00	mg/L	180.000	130.000	220.000	250.000	220.000	205.000	250.000
COD	Comp	EPA410.4	10.00	mg/L	97.400	28.950	55.890	42.410	37.390	29.310	6.461
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.800		-99	-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	426.000	269.000	627.000	868.000	482.000	690.000	936.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	254.000	150.000	332.000	466.000	298.000	384.000	536.000
Turbidity	Comp	EPA180.1	0.10	NTU	8.680	9.310	1.310	1.540	2.740	1.060	0.630
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	694.000	564.000	934.000	40.000	24.000	69.000	183.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	164.000	152.000	280.000	4.000	6.000	21.000	50.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.222	0.100	0.084	0.068	0.078	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	29.100	10.700	7.930	6.910	9.050	3.510	4.950
BOD	Comp	SM5210B	2.00	mg/L	17.700	11.200	21.600	11.800	7.370	3.340	5.910
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.229	0.163	0.052	-99	-99	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.499	1.070	0.192	0.078	-99	0.180	0.050
NH_3-N	Comp	EPA350.3	0.10	mg/L	0.530	0.200	-99	-99	0.100	0.260	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.530	-99	-99	-99	-99	0.528	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.125	-99	-99	-99	-99	-99	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	4.180	3.920	4.960	1.300	1.140	1.140	1.440
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	7140.000	4720.000	11100.000	1060.000	410.000	286.000	917.000
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.170	1.070	0.930	0.780	0.900	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	2.870	3.040	4.440	1.180	1.170	-99	0.530
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.030	1.830	1.280	1.270	1.100	2.540	1.800
Total Arsenic	Comp	EPA200.8	5.00	ug/L	6.370	3.760	7.560	1.590	1.290	2.880	1.820
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	28.600	21.300	33.800	45.600	20.800	60.600	76.400
Total Barium	Comp	EPA200.8	10.00	ug/L	203.000	145.000	206.000	65.500	30.900	66.500	93.800
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	2.830	0.970	3.030	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.100	0.520	1.590	1.370	1.260	2.110	1.790
Total Chromium	Comp	EPA200.8	5.00	ug/L	20.600	11.700	21.100	1.910	1.520	2.510	3.130
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	-99	0.250	0.300	0.370	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	-99	0.250	0.300	0.370	-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	8.620	4.470	4.040	5.230	5.910	2.310	2.920
Total Copper	Comp	EPA200.8	5.00	ug/L	128.000	67.600	90.400	20.000	16.700	20.800	25.300
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	334.000	277.000	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	12400.000	6660.000	12500.000	618.000	341.000	151.000	635.000
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.700	0.980	-99	-99	0.510	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	50.500	33.700	52.200	3.700	2.480	0.690	4.880
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	0.400	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	4.540	2.310	3.720	3.070	2.430	2.190	2.540
Total Nickel	Comp	EPA200.8	5.00	ug/L	25.500	13.800	26.400	4.910	3.990	2.850	4.760
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.040	3.690	1.140	2.070	-99	5.020	1.510
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.510	3.820	2.660	2.310	-99	5.740	1.710
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.330	0.440	0.400	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	45.500	24.200	62.200	39.900	20.000	5.290	9.340
Total Zinc	Comp	EPA200.8	50.00	ug/L	442.000	361.000	1380.000	93.000	41.900	16.400	140.000
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.640	0.240	-99	-99	0.120	0.320	0.100
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	-99	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.009	-99	-99	0.013	0.021
pH	Comp	SM4500H B	0-14		7.400	7.800	7.840	7.750	7.840	8.350	8.030
Dissolved Oxyger	Grab	SM4500O G	1.00	mg/L	9.150		10.100	8.570	10.700	16.720	17.000
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	28,000.000		300,000.000	160,000.000	24,000.000	11,000.000	1,700.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	14,000.000		16,000.000	17,000.000	16,000.000	800.000	70.000
Ratio Fecal Coliform/Total Coliforn					0.500		0.053	0.106	0.667	0.073	0.041
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	130,000.000		50,000.000	160,000.000	30,000.000	800.000	20.000
Enterococcus	Grab	SM9230B		MPN/100ml	130,000.000		24,000.000	160,000.000	17,000.000	230.000	(99.000)
General											
Chloride	Comp	EPA300.0	2.00	mg/L	42.700	70.600	66.400	46.900	55.800	170.000	167.000
Fluoride	Comp	EPA300.0	0.10	mg/L	0.190	0.277	0.318	0.276	0.232	0.320	0.330
Nitrate	Comp	EPA300.0	0.10	mg/L	12.300	-99	-99	-99	-99	20.300	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	79.200	148.000	110.000	71.200	99.900	295.000	278.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	99.000	115.500	110.000	83.600	113.300	200.200	179.300
Hardness	Comp	EPA130.2	2.00	mg/L	190.000	230.000	230.000	150.000	210.000	440.000	430.000
COD	Comp	EPA410.4	10.00	mg/L	435.000	152.440	76.320	43.040	65.300	57.460	18.684
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.800		-99	-99	1.000	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	540.000	760.000	744.000	514.000	699.000	1775.000	1778.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	318.000	448.000	438.000	290.000	416.000	1046.000	940.000
Turbidity	Comp	EPA180.1	0.10	NTU	4.270	5.330	2.560	2.140	1.490	1.130	0.870
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	886.000	215.000	95.000	29.000	97.000	11.000	14.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	240.000	68.000	29.000	5.000	31.000	6.000	6.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.338	0.117	0.137	0.137	0.168	-99	-99
Total Organic Carbor	Comp	EPA415.1	1.00	mg/L	37.100	19.100	18.700	10.900	14.100	5.420	6.780
BOD	Comp	SM5210B	2.00	mg/L	23.300	21.300	19.800	43.900	26.500	21.700	60.800
Methyl Tertiary Butyl Ether (MTBE	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.270	0.260	0.157	0.117	0.182	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.822	0.633	0.228	0.158	0.586	0.069	-99
NH_3-N	Comp	EPA350.3	0.10	mg/L	0.710	0.210	-99	-99	0.590	0.130	0.140
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.780	-99	-99	-99	-99	4.584	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.253	0.050	-99	0.053	-99	0.332	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	5.300	3.960	4.100	1.660	3.540	0.940	0.960
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	3360.000	4350.000	1430.000	1120.000	2140.000	143.000	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.630	2.110	3.010	2.290	1.990	0.650	0.640
Total Antimony	Comp	EPA200.8	5.00	ug/L	5.870	3.010	3.980	2.870	3.680	0.780	0.740
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.260	3.300	2.870	1.890	1.810	3.550	2.080
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.910	4.260	3.340	2.180	2.610	3.830	3.020
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	40.800	41.300	43.700	24.600	32.400	49.400	43.100
Total Barium	Comp	EPA200.8	10.00	ug/L	195.000	94.300	71.700	37.100	74.400	50.800	44.500
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	1.930	0.740	0.340	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.650	1.810	3.930	2.060	2.500	4.610	2.590
Total Chromium	Comp	EPA200.8	5.00	ug/L	15.200	6.050	4.610	3.040	6.340	5.170	2.750
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.470	1.410	1.240	1.270	0.650	0.350
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.470	1.410	1.240	1.270	0.650	0.350
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	13.600	18.000	21.100	15.200	11.300	4.950	4.950
Total Copper	Comp	EPA200.8	5.00	ug/L	166.000	66.400	48.000	32.700	48.300	22.700	23.800
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	186.000	1350.000	136.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	6080.000	2350.000	1220.000	513.000	1640.000	100.000	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.560	2.880	2.710	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	573.000	13.000	8.230	4.470	14.700	0.710	0.680
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0.157	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	0.157	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	12.800	6.550	7.200	6.220	4.780	4.450	4.040
Total Nickel	Comp	EPA200.8	5.00	ug/L	32.200	12.700	10.500	8.710	9.600	5.010	4.640
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.170	5.690	3.400	1.590	2.850	10.400	5.600
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.590	5.870	3.770	1.820	3.290	11.100	9.170
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	1.700	-99	0.270	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	68.900	639.000	64.200	23.600	47.200	9.060	-99
Total Zinc	Comp	EPA200.8	50.00	ug/L	435.000	803.000	135.000	58.100	169.000	15.300	22.100
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ethe	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ethe	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ethe	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ethe	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ethe	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylpheno	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	0.016	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.860	0.250	0.110	-99	0.710	0.160	0.170
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

RB-AR14728

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	1.40		-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	0.40		-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.2850		-99	-99		0.01	0.0180
pH	Comp	SM4500H B	0-14		7.50	6.70	6.97	7.03	6.90	8.30	8.25
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	9.66		9.64	9.10		13.33	11.80
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	300		160000	90000		9000	1300
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	300		90000	17000		1300	20
Ratio Fecal Coliform/Total Coliform											
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	130		50000	90000		800	20
Enterococcus	Grab	SM9230B		MPN/100ml	130		50000	90000		500	20
General											
Chloride	Comp	EPA300.0	2.00	mg/L	25	27.40	59	20.80	16	221	180
Fluoride	Comp	EPA300.0	0.10	mg/L	0.3470	0.1280	0.4950	0.2170	0.1830	1.13	0.9420
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	37.90	38.80	109	31.70	26.10	403	316
Alkalinity	Comp	EPA310.1	4.00	mg/L	116.60	50	61	47.30	33	259	220
Hardness	Comp	EPA130.2	2.00	mg/L	110	100	205	85	77	325	330
COD	Comp	EPA410.4	10.00	mg/L	179	45.40	52.60	34.60	39.81	127.70	65.40
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		1.12	2.12		-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	388	346	717	256	219	1831	1585
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	272	202	468	160	130	1278	1050
Turbidity	Comp	EPA180.1	0.10	NTU	3.88	5.50	1.81	2.28	5.65	1.27	0.53
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	1556	223	35	53	84	9	3
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	322	33	3	14	22	3	3
MBAS	Comp	EPA425.1	0.05	mg/L	0.3090	0.17	0.10	0.18	0.20	0.05	0.07
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	25.20	13.10	8.49	6.87	6.26	5.25	5.39
BOD	Comp	SM5210B	2.00	mg/L	57.30	16.70	21.40	18.50	6.90	10.20	12.20
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99		-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.3530	0.2360	0.15	0.23	0.15	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	1.23	0.4990	0.15	0.23	0.17	-99	-99
NH_3-N	Comp	EPA350.3	0.10	mg/L	2.15	0.53	0.7030	0.2370	0.2680	-99	0.2420
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.61	-99	-99	-99	-99	0.03
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	10.12	2.62	6.30	1.73	0.9060	0.63	1.73
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	17400	6220	3430	784	1720	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.45	1.66	1.68	1.29	1.33	0.52	0.56
Total Antimony	Comp	EPA200.8	5.00	ug/L	9.25	2.45	3.59	1.40	2.68	0.61	0.64
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.64	1.96	2.25	1.24	1.40	3.76	3.31
Total Arsenic	Comp	EPA200.8	5.00	ug/L	15.70	2.98	4.64	1.41	2.10	4.09	3.49
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	43.80	29.90	28.70	18.60	16.80	51.40	41.30
Total Barium	Comp	EPA200.8	10.00	ug/L	620	93.80	111	25.90	58.20	52.90	48.10
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0.51	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	4.97	0.52	0.71	-99	0.45	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.11	1.56	1.37	1.23	1.17	3.47	7.26
Total Chromium	Comp	EPA200.8	5.00	ug/L	43.30	8.19	7.96	1.98	5.23	3.54	7.31
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.29	-99	-99	-99	-99	0.27
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.29	-99	0.25	0.30	0.34	0.27
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	4.03	6.92	8.22	7.29	6.75	5.03	4.27
Total Copper	Comp	EPA200.8	5.00	ug/L	351	46	54.10	15.50	32.80	9.52	22.90
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	527	-99	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	31800	7380	4760	1140	2730	103	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	2.13	-99	1.52	0.62	0.84	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	147	16.10	25.70	4.73	15.60	0.50	-99
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.1260	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	9.84	4.05	4.46	2.74	2.31	3.58	3.62
Total Nickel	Comp	EPA200.8	5.00	ug/L	58	13.10	12.10	3.56	10.50	4.18	4.29
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.07	-99	-99	-99	-99	6.40	4.77
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.94	-99	-99	-99	-99	6.86	4.92
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	2.50	-99	0.28	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	15.80	20.50	48	41.50	38.90	12.60	16
Total Zinc	Comp	EPA200.8	50.00	ug/L	2010	202	269	75.30	193	28	36.60
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99		-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	2.60	0.64	0.85	0.2870	0.3240	-99	0.2930
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:

1) blank cell indicates DATA is NOT AVAILABLE

2) PQL = minimum level

3) Highlighted cells show exceedances

4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	-99		-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99		-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.0054	-99		0.0240	0.0160
pH	Comp	SM4500H B	0-14		7.52		7.58	7.53		8.01	7.98
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	5.66		5.06	9.83		8.28	8.36
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	160000		90000	240000		24000	30000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	500		24000	16000		800	170
Ratio Fecal Coliform/Total Coliform											
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	2400		240000	160000		300	20
Enterococcus	Grab	SM9230B		MPN/100ml	2400		240000	90000		300	20
General											
Chloride	Comp	EPA300.0	2.00	mg/L	68.50		51.80	80.60		116	146.60
Fluoride	Comp	EPA300.0	0.10	mg/L	0.3240		0.3510	0.2890		0.6470	0.3290
Nitrate	Comp	EPA300.0	0.10	mg/L	-99		-99	-99		-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	101		62.20	78.40		118	156
Alkalinity	Comp	EPA310.1	4.00	mg/L	125.40		94	110		143	147.40
Hardness	Comp	EPA130.2	2.00	mg/L	280		160	80		215	270
COD	Comp	EPA410.4	10.00	mg/L	67.70		43.80	51.60		100.90	53.80
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		1.50	1.12		-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	811		561	693		904	1083
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	558		346	434		572	676
Turbidity	Comp	EPA180.1	0.10	NTU	1.98		2.76	1.89		0.68	0.58
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	226		102	319		37	19
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	43		14	52		6	5
MBAS	Comp	EPA425.1	0.05	mg/L	0.1570		0.09	0.11		0.06	0.16
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	18.20		5.64	4.62		5.42	5.84
BOD	Comp	SM5210B	2.00	mg/L	41.70		15.80	20.70		9.22	17.90
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99		-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.2730		0.24	0.14		0.29	0.07
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.6020		0.34	0.28		0.33	0.11
NH_3-N	Comp	EPA350.3	0.10	mg/L	-99		1.01	-99		0.5130	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99		-99	-99		-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99		0.13	0.05		-99	0.23
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	2.56		1.79	2.08		0.82	1.63
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99		-99	-99		-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	4100		1110	4660		1550	585
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.51		0.94	0.89		0.55	0.54
Total Antimony	Comp	EPA200.8	5.00	ug/L	2.46		1.20	2.10		0.73	0.65
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2		1.37	1.33		1.29	1.24
Total Arsenic	Comp	EPA200.8	5.00	ug/L	3.88		1.50	2.29		1.33	1.31
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	52.50		26.60	34.90		32.10	49.60
Total Barium	Comp	EPA200.8	10.00	ug/L	171		42.60	88.70		40.20	63.60
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.80		0.29	0.50		-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.60		1.43	1.71		2.16	5.68
Total Chromium	Comp	EPA200.8	5.00	ug/L	11.90		2.78	7.59		2.74	7.36
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99		-99	-99		-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99		-99	0.25		-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	7.88		5.45	3.44		4.29	3
Total Copper	Comp	EPA200.8	5.00	ug/L	40.40		15.20	29.90		12.90	23.60
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	-99		-99	-99		-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	8200		3770	4860		4160	1340
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.51		1.58	0.55		-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	22.40		7.12	16.10		2.30	2.28
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99		0.17	-99		0.4330	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	6.84		3.69	3.92		3.53	6.77
Total Nickel	Comp	EPA200.8	5.00	ug/L	16		5.49	9.45		4.92	7.89
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.43		-99	-99		1.47	1.83
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.83		-99	-99		1.52	1.90
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.25		-99	0.25		-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99		-99	-99		-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99		-99	-99		-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	39.60		34.30	35.40		38	29.80
Total Zinc	Comp	EPA200.8	50.00	ug/L	206		72	133		112	51.30
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99		-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99		-99	-99		-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99		-99	-99		-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99		-99	-99		-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99		-99	-99		-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99		-99	-99		-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	-99		1.22	-99		0.6210	-99
Endrin ketone	Comp	EPA625	0.1	ug/L	-99		-99	-99		-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99		-99	-99		-99	-99

Note:

1) blank cell indicates DATA is NOT AVAILABLE

2) PQL = minimum level

3) Highlighted cells show exceedances

4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	2.6		-99	1	2.6	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.051		0.0054	-99	-99	0.01	-99
pH	Comp	SM4500H B	0-14		7.46	7	7.02	6.76	7.39	7.68	8.14
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	4		6.38	10.56	9.67	16.65	11.33
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	900000		160000	240000	50000	2400	90000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	300000		50000	16000	24000	40	17000
Ratio Fecal Coliform/Total Coliform					0.333		0.313	0.067	0.480	0.017	0.189
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300000		90000	90000	50000	130	140
Enterococcus	Grab	SM9230B		MPN/100ml	300000		90000	50000	50000	130	140
General											
Chloride	Comp	EPA300.0	2.00	mg/L	23.6	30.6	16.4	39.3	39.3	131	154
Fluoride	Comp	EPA300.0	0.10	mg/L	0.353	0.456	0.231	0.186	0.196	0.191	0.37
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	33.2	59.4	26.4	56.5	59.1	200	342
Alkalinity	Comp	EPA310.1	4.00	mg/L	146.3	72	61	46.2	80.3	167	204
Hardness	Comp	EPA130.2	2.00	mg/L	140	160	110	80	152	370	520
COD	Comp	EPA410.4	10.00	mg/L	84.6	40.7	52	39.4	44.98	67.2	487.9
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	2.25		1.75	1.37	4.5	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	435	454	269	257	445	1191	1474
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	268	250	164	152	246	796	1008
Turbidity	Comp	EPA180.1	0.10	NTU	2.7	1.86	2.52	2.68	3.76	1.5	0.68
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	5653	451	728	89	78	11	43
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	762	86	141	23	16	8	4
MBAS	Comp	EPA425.1	0.05	mg/L	0.218	0.14	0.22	0.19	0.18	0.13	0.07
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	30.5	12.1	10.5	6.84	6.23	6.23	5.89
BOD	Comp	SM5210B	2.00	mg/L	9.9	15.9	23.4	14.6	13	50.8	3
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.569	-99	0.22	0.17	0.13	0.21	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	1.22	0.847	0.25	0.21	0.13	0.29	-99
NH3-N	Comp	EPA350.3	0.10	mg/L	4.7	0.82	1.01	0.563	0.26	0.55	0.162
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.47	0.05	-99	-99	0.75	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	30.08	4.56	7.28	1.91	0.942	1.42	1.59
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	24300	3770	4090	551	1130	-99	114
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.35	1.24	1.38	0.87	0.82	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	4.63	2.38	3.33	1.17	1.47	-99	-99
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.62	2.01	1.1	1.1	1.24	1.46	1.54
Total Arsenic	Comp	EPA200.8	5.00	ug/L	10.2	3.37	2.76	1.15	1.5	1.55	1.83
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	38.3	30	24.6	22.2	25	39.6	52.8
Total Barium	Comp	EPA200.8	10.00	ug/L	876	108	133	31.5	44.5	46.1	61.5
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0.54	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	0.47	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	6.65	0.86	6.59	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.76	1.88	1.72	1.11	1.59	2.38	5.72
Total Chromium	Comp	EPA200.8	5.00	ug/L	47	7.61	17.6	1.84	2.54	2.55	6.65
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.25	-99	-99	-99	-99	0.71
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.25	-99	0.45	0.35	0.63	0.71
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	1.9	2.23	6.55	5.63	5.28	3.28	2.18
Total Copper	Comp	EPA200.8	5.00	ug/L	390	48	57.1	13.5	16.9	11.6	16.3
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	349	-99	110	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	43400	4130	7370	711	1370	113	257
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.09	-99	1.52	0.77	0.59	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	206	23.3	29	4.77	7.47	1.24	1.02
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.119	0.159	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	6.3	3.73	4.32	2.37	2.53	3.97	5.22
Total Nickel	Comp	EPA200.8	5.00	ug/L	58.2	12.5	19.7	3.3	4.51	4.81	6.42
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	1.04	3.89	4.43
Total Selenium	Comp	EPA200.8	5.00	ug/L	3.33	-99	-99	-99	1.06	4.29	5.17
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	1.4	-99	0.68	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	0.56	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	17	17.3	49.8	46.6	53.3	60	11
Total Zinc	Comp	EPA200.8	50.00	ug/L	2120	409	330	94.8	126	94.2	90
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	0.017
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	5.69	0.99	1.22	0.681	0.315	0.67	0.196
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:

1) blank cell indicates DATA is NOT AVAILABLE

2) PQL = minimum level

3) Highlighted cells show exceedances

4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	2.1		1.2	1.1	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.105		0.005	-99	0.0116	0.01	0.0223
pH	Comp	SM4500H B	0-14		7.96	6.85	7.85	7.18	7.11	8.14	8.02
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	5.74		9.92	9.19	11.01	16.65	19.61
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	240000		35000	160000	160000	130	22000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	35000		22000	9000	3000	80	22000
Ratio Fecal Coliform/Total Coliform					0.146		0.629	0.056	0.019	0.615	1.000
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300000		28000	24000	13000	20	1100
Enterococcus	Grab	SM9230B		MPN/100ml	300000		28000	24000	2800	20	1100
General											
Chloride	Comp	EPA300.0	2.00	mg/L	107	38.6	125	13.4	42	133	221
Fluoride	Comp	EPA300.0	0.10	mg/L	0.433	0.434	0.339	0.153	0.229	0.359	0.368
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	201	56.7	223	22.9	77.6	216	342
Alkalinity	Comp	EPA310.1	4.00	mg/L	223.3	110	193	45.1	82.5	178	215
Hardness	Comp	EPA130.2	2.00	mg/L	480	160	390	75	178	385	475
COD	Comp	EPA410.4	10.00	mg/L	103	84.6	44.8	33.2	56.46	58.7	100.2
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1		1.75	2.37	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	1666	535	1228	216	501	1271	1605
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	986	318	846	120	296	868	1096
Turbidity	Comp	EPA180.1	0.10	NTU	0.99	3.16	3.63	2.44	8.97	0.68	0.85
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	316	733	61	161	166	4	3
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	69	150	8	58	38	2	1
MBAS	Comp	EPA425.1	0.05	mg/L	0.129	0.2	-99	0.21	0.24	0.11	0.12
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	15.8	28.5	4.08	7.39	9.66	5.08	7.9
BOD	Comp	SM5210B	2.00	mg/L	60.7	16.8	4.84	11.6	13.9	32	27.5
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.188	0.409	0.09	0.22	0.14	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.559	1	0.11	0.23	0.18	0.06	-99
NH3-N	Comp	EPA350.3	0.10	mg/L	0.32	2.86	0.1	0.218	0.264	0.13	0.284
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	-99	0.1	-99	-99	0.1	0.14
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	7.36	7.38	1.13	2.14	1.3	0.7	2.3
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	18600	6270	180	1370	3100	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.68	1.77	0.59	1.3	1.74	0.68	2.11
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.96	4.46	0.67	1.53	2.92	0.77	2.32
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	3.2	2.83	2.44	1.38	1.96	2.73	3.19
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.63	5.93	2.82	1.63	2.92	2.77	3.2
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	63.2	43.1	58	19.3	32.1	56.9	55.2
Total Barium	Comp	EPA200.8	10.00	ug/L	143	206	67.4	42	91.1	64.3	63.9
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.51	1.67	-99	-99	0.46	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.93	3.89	2.47	1.14	1.93	2.35	7.01
Total Chromium	Comp	EPA200.8	5.00	ug/L	8.52	14.9	3.12	3.35	7.45	2.36	7.47
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.26	-99	0.89	0.28	0.84	0.58	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	12.8	2.23	4.36	7.36	9.45	6.35	5.2
Total Copper	Comp	EPA200.8	5.00	ug/L	46.4	129	10.6	21.7	46.5	12.9	19.8
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	-99	274	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	3290	8770	388	2050	2310	111	120
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	-99	0.78	-99	0.69	0.92	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	12.6	48	1.4	9.18	21.1	0.68	0.71
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.111	0.133	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	7.59	7.86	3.9	3.27	4.79	3.74	5.1
Total Nickel	Comp	EPA200.8	5.00	ug/L	13.9	28.8	5.06	5.87	12.3	4.81	6.17
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	6.46	-99	5.54	-99	1.67	6.41	6.57
Total Selenium	Comp	EPA200.8	5.00	ug/L	7.24	1.67	6.94	-99	2.03	6.6	6.68
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	-99	0.55	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	23.9	13.5	15	45.9	47.2	11.8	14.2
Total Zinc	Comp	EPA200.8	50.00	ug/L	238	870	93.1	98.9	192	33.4	45
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.39	3.46	0.121	0.264	0.319	0.16	0.344
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:

1) blank cell indicates DATA is NOT AVAILABLE

2) PQL = minimum level

3) Highlighted cells show exceedances

4) -99 indicates a reported value cannot be achieved

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Conventional																		
Oil and Grease	Grab	EPA1664A / EPA413.1	1	mg/L	2.1	1.1	1.1				3.6		0.7			-99	0.9	0.5
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99	-99	-99				-99		-99			-99	-99	-99
Cyanide	Grab	SM4500-CNE	0.01	mg/L	-99	-99	-99				-99		-99			0.015	0.01	0.014
pH	Comp	SM4500H B	0.00	NONE	7.38	6.98	7.42				7.1		7.3			8.42	8.23	8.66
Dissolved Oxygen	Grab	SM4500 (OG)	1.00	mg/L	11.1	10.3	9.87				9.54		13.6			20.7	12.1	14.5
Indicator Bacteria																		
Total Coliform	Grab	SM9221B/SM9221E	20.00	MPN/100ml	16000000	30000	240000				160000		5000			1700	5000	3000
Fecal Coliform	Grab	SM9221E/SM9221B	20.00	MPN/100ml	2200000	24000	90000				5000		1300			300	230	800
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	1700000	240000	240000				17000		50000			230	230	40
Enterococcus	Grab	SM9230B	20.00	MPN/100ml	1700000	240000	130000				17000		50000			80	230	40
General																		
Chloride	Comp	SM4110B	2.00	mg/L	29	31.9	20.8				21.4		19.6			153	149	193
Fluoride	Comp	SM4110B	0.10	mg/L	0.33	0.14	-99				0.1		-99			0.93	0.95	1.15
Nitrate	Comp	SM4110B	0.10	mg/L	10.4	7.51	5.34				4.1		3.59			17.2	7.33	5.28
Sulfate	Comp	SM4110B	1.00	mg/L	45.9	53.3	34.7				35.7		33			261	239	332
Alkalinity	Comp	SM2320B	1.00	mg/L	66	50	61				55		41			254	215	234
Hardness	Comp	SM2340C	2.00	mg/L	130	75	90				100		60			400	310	356
COD	Comp	SM5220D	10.00	mg/L	102	50.5	71.9				161		35.1			97.1	78.3	62
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.62	1.5	1				0.87		0.5			-99	-99	-99
Specific Conductance	Comp	SM2510B	1.00	umhos/cm	367	344	252				266		231			1776	1472	1962
Total Dissolved Solids	Comp	SM2540C	2.00	mg/L	240	222	162				164		134			1148	952	1200
Turbidity	Comp	SM2130B	0.10	NTU	5.67	9.39	44.4				6.65		14.1			2.03	1.48	0.98
Total Suspended Solids	Comp	SM25400D	1.00	mg/L	1038	159	431	87	27	202	235	90	191	85	97	9	17	6
Volatile Suspended Solids	Comp	SM2540E	1.00	mg/L	231	47	62				53		50			4	8	2
MBAS	Comp	SM5540-C	0.05	mg/L	0.36	0.3	-99				0.29		0.1			0.12	0.37	0.16
Total Organic Carbon	Comp	SM5310B / EPA415.1		mg/L	27.4	10.2	10.7				10.7		4.65			5.32	17.5	28
BOD	Comp	SM5210B	2.00	mg/L	39	15.3	13.3				10.3		6.51			18.8	10.8	11.2
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Nutrients																		
Dissolved Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.23	0.25	0.48				0.22		0.12			-99	0.05	-99
Total Phosphorus	Comp	SM4500-PE	0.05	mg/L	1.02	0.49	1.21				0.49		0.59			-99	0.06	0.06
NH3-N	Comp	SM4500-NH3 F	0.10	mg/L	0.61	0.43	0.33				-99		0.12			-99	-99	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.35	1.7	1.21				0.93		0.81			2.75	1.66	1.19
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.08	-99	-99				-99		-99			0.13	-99	0.07
Kjeidahl-N	Comp	SM4500-NHorg C	0.10	mg/L	7.04	1.49	0.97				0.82		0.81			0.8	1.8	1.22
Metals																		
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99				-99		118			-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	872	189	2280				1020		1930			-99	-99	-99
Dissolved Antimony	Comp	EPA200.8	0.50	ug/L	2.71	1.28	0.95				1.27		0.84			0.53	1.73	0.81
Total Antimony	Comp	EPA200.8	0.50	ug/L	5.55	2.14	1.56				3.41		1.76			0.56	1.79	0.82
Dissolved Arsenic	Comp	EPA200.8	1.00	ug/L	2.49	1.36	1.43				1.64		0.87			3.06	3.13	4.71
Total Arsenic	Comp	EPA200.8	1.00	ug/L	6.76	2.16	3.24				4.26		1.73			3.22	3.28	5.19
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	34.2	25.9	34.7				21.8		20.3			48.7	48.7	45.8
Total Barium	Comp	EPA200.8	10.00	ug/L	256	62	247				125		66.4			55.6	51.1	51.4
Dissolved Beryllium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Beryllium	Comp	EPA200.8	0.50	ug/L	0.28	-99	0.48				0.21		0.12			-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	0.25	ug/L	-99	-99	0.11				-99		-99			0.23	-99	-99
Total Cadmium	Comp	EPA200.8	0.25	ug/L	1.49	2.01	2.55				0.76		0.38			0.25	-99	-99
Dissolved Chromium	Comp	EPA200.8	0.50	ug/L	1.98	1.37	1.09				1.66		1.58			1.34	4.06	4.56
Total Chromium	Comp	EPA200.8	0.50	ug/L	21	5.43	23.8				18		8.59			2.23	4.38	5.66
Dissolved Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	0.27	0.37				0.39		0.54			0.59	0.33	-99
Total Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	0.27	0.37				0.39		0.54			0.59	0.33	-99
Dissolved Copper	Comp	EPA200.8	0.50	ug/L	14.3	8.18	5.17				7.47		5.08			6.18	9.34	3.99
Total Copper	Comp	EPA200.8	0.50	ug/L	170	30.9	31.8				56		27.8			9.34	16.6	9.48
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	340	58.2	77.5				-99		93.3			-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	9870	3220	19900				8470		3350			119	90.8	114
Dissolved Lead	Comp	EPA200.8	0.50	ug/L	3.19	1.12	1.45				0.74		1.07			-99	-99	-99
Total Lead	Comp	EPA200.8	0.50	ug/L	58.8	12.9	36				30.8		15.2			0.59	0.68	0.76
Dissolved Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	1.00	ug/L	7.42	3.71	2.3				2.62		1.84			3.99	5.49	3.91
Total Nickel	Comp	EPA200.8	1.00	ug/L	23.8	10.1	19.8				15.3		7.1			4.52	6.21	4.69
Dissolved Selenium	Comp	EPA200.8	1.00	ug/L	0.95	-99	0.93				-99		-99			4.79	3.67	5.81
Total Selenium	Comp	EPA200.8	1.00	ug/L	1.67	1.01	1.19				0.54		-99			4.8	3.69	6.26
Dissolved Silver	Comp	EPA200.8	0.25	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Silver	Comp	EPA200.8	0.25	ug/L	0.57	0.52	-99				0.24		0.11			-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	0.44				0.11		-99			-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	10.00	ug/L	9870	44.4	13.6				27.8		30.5			9.89	20.2	14.7
Total Zinc	Comp	EPA200.8	10.00	ug/L	774	193	173				266		128			15.6	23.5	19.6
Semi-Volatiles Organics (EPA 625)																		
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Base/Neutral																		
Acenaphthene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Acenaphthylene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Anthracene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	2	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-Chloroethyl vinyl ether	Comp	EPA624	2.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chrysene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Diethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dimethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Fluoranthene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Isophorone	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Naphthalene	Comp	EPA625	0.20	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Nitrobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chlorinated Pesticides																		
Aldrin		EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
alpha-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
beta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
delta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
alpha-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
gamma-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDD	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDE	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDT	Comp	EPA608	0.01	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dieldrin	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan I [alpha]	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan II [beta]	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan sulfate	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endrin	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endrin aldehyde	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Heptachlor	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Heptachlor Epoxide	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Toxaphene	Comp	EPA608	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Polychlorinated Biphenyls																		
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Organophosphate Pesticides																		
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Herbicides																		
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-D	Comp	EPA515.3	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Other																		
Ammonia	Comp	SM4500-NH3 F	0.1	mg/l	0.74	0.52	0.4				-99		0.14			-99	-99	-99
Endrin ketone	Comp	EPA625	1	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances
5) Wet weather suspension of fecal coliform objective applies to 2008-09Event06, 2008-09Event09, and 2008-09Event21

Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Conventional																	
Oil and Grease	Grab	EPA1664A / EPA413.1	1	mg/L	-99	0.6	-99			0.7		-99			0.5	1.3	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99	-99	-99			-99		-99			-99	-99	-99
Cyanide	Grab	SM4500-CNE	0.01	mg/L	0.01	-99	0.01			0.009		-99			0.015	0.01	0.013
pH	Comp	SM4500H B	0.00	NONE	8.22	6.92	7.34			7.52		7.48			8.29	7.53	8.53
Dissolved Oxygen	Grab	SM4500 (OG)	1.00	mg/L	7.83	7.84	9.29			9.44		12.7			9.36	8.18	8.03
Indicator Bacteria																	
Total Coliform	Grab	SM9221B/SM9221E	20.00	MPN/100ml	1700000	240000	28000			2200		5000			9000	160000	1700
Fecal Coliform	Grab	SM9221E/SM9221B	20.00	MPN/100ml	900000	50000	1400			80		1300			1300	500	230
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	170000	300000	500			40		800			230	-99	-99
Enterococcus	Grab	SM9230B	20.00	MPN/100ml	170000	240000	500			40		800			230	-99	-99
General																	
Chloride	Comp	SM4110B	2.00	mg/L	93.7	22.8	55.1			34.1		48.5			166	81.9	108
Fluoride	Comp	SM4110B	0.10	mg/L	0.52	-99	0.12			0.11		0.13			0.29	0.51	0.91
Nitrate	Comp	SM4110B	0.10	mg/L	24.7	7.61	12.1			7.24		4.99			27.2	25.1	26.2
Sulfate	Comp	SM4110B	1.00	mg/L	120	40.7	76.2			52.7		58.3			219	113	117
Alkalinity	Comp	SM2320B	1.00	mg/L	138	50	72			55		89			172	119	151
Hardness	Comp	SM2340C	2.00	mg/L	230	90	145			105		150			325	210	236
COD	Comp	SM5220D	10.00	mg/L	66.5	66.9	46.2			60.3		65.1			63.2	60.5	25
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99	0.75	0.37			1.12		-99			-99	-99	-99
Specific Conductance	Comp	SM2510B	1.00	umhos/cm	845	275	499			364		486			1241	828	1045
Total Dissolved Solids	Comp	SM2540C	2.00	mg/L	554	180	302			214		290			764	516	620
Turbidity	Comp	SM2130B	0.10	NTU	3.25	18.1	6.33			30.5		16.1			1.22	1.84	1.3
Total Suspended Solids	Comp	SM25400D	1.00	mg/L	16	211	261	64	55	113	74	156	87	76	13	21	17
Volatile Suspended Solids	Comp	SM2540E	1.00	mg/L	4	45	37			8		24			6	7	3
MBAS	Comp	SM5540-C	0.05	mg/L	0.37	0.1	0.08			-99		0.03			0.09	0.26	0.08
Total Organic Carbon	Comp	SM5310B / EPA415.1		mg/L	13.2	8.94	7.11			5.68		5.33			4.91	10.1	9.5
BOD	Comp	SM5210B	2.00	mg/L	13.7	11.8	8			4.56		7.42			14.8	11.7	10.6
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99	-99	-99			-99		-99			-99		-99
Nutrients																	
Dissolved Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.23	0.23	0.15			0.3		0.07			-99	0.33	0.28
Total Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.58	0.44	0.44			0.41		0.13			-99	0.42	0.47
NH3-N	Comp	SM4500-NH3 F	0.10	mg/L	0.97	0.31	-99			-99		0.11			0.33	0.38	0.4
Nitrate - N	Comp	SM4110B	0.50	mg/L	5.58	1.72	2.73			1.63		1.13			6.14	5.67	5.91
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.04	-99			-99		-99			0.07	-99	0.04
Kjeidahl-N	Comp	SM4500-NHorg C	0.10	mg/L	2.44	3.24	0.6			0.62		0.9			1.25	1.98	1.18
Metals																	
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99			-99		165			-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	-99	635	675			2340		1360			-99	-99	292
Dissolved Antimony	Comp	EPA200.8	0.50	ug/L	1.14	0.94	0.6			0.61		0.53			0.47	0.88	0.62
Total Antimony	Comp	EPA200.8	0.50	ug/L	1.24	2.05	1.19			1.05		0.89			0.62	0.89	0.68
Dissolved Arsenic	Comp	EPA200.8	1.00	ug/L	1.57	1.22	1.08			0.99		1.13			1.18	1.43	1.6
Total Arsenic	Comp	EPA200.8	1.00	ug/L	1.7	2.87	2.24			2.8		1.9			1.23	1.51	1.61
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	37.7	22.3	29.1			26.2		33.3			56.4	34.3	42.3
Total Barium	Comp	EPA200.8	10.00	ug/L	50.8	120	85.2			153		63.1			64.8	35.9	52
Dissolved Beryllium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Beryllium	Comp	EPA200.8	0.50	ug/L	-99	0.22	0.17			0.39		0.11			-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	0.25	ug/L	-99	-99	-99			-99		0.1			0.12	-99	-99
Total Cadmium	Comp	EPA200.8	0.25	ug/L	-99	0.74	0.47			0.54		0.37			0.14	-99	-99
Dissolved Chromium	Comp	EPA200.8	0.50	ug/L	2.98	0.99	1.1			1.42		2.19			1.05	0.78	1.7
Total Chromium	Comp	EPA200.8	0.50	ug/L	3.53	15.4	11.6			25.7		6.91			3.02	1.03	1.73
Dissolved Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	-99	0.25			0.26		0.38			0.35	-99	-99
Total Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	-99	0.25			0.26		0.38			0.35	-99	-99
Dissolved Copper	Comp	EPA200.8	0.50	ug/L	5.76	4.84	3.47			3.26		3.12			2.95	5.21	3.73
Total Copper	Comp	EPA200.8	0.50	ug/L	11.4	43.8	23.9			31.4		15.7			7.11	10.7	10.5
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	80.7	125	-99			95.9		150			-99	52.6	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	452	10300	7740			17700		2970			375	119	618
Dissolved Lead	Comp	EPA200.8	0.50	ug/L	0.81	1.72	1.1			1.06		1.01			0.25	0.29	0.23
Total Lead	Comp	EPA200.8	0.50	ug/L	1.97	42.3	14.6			17.7		7.49			1.49	0.8	1.8
Dissolved Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	0.15			-99		-99			-99	0.11	-99
Dissolved Nickel	Comp	EPA200.8	1.00	ug/L	4.42	3.01	2.66			4.53		2.38			4.32	4.2	4.69
Total Nickel	Comp	EPA200.8	1.00	ug/L	5.23	15.3	9.38			18.6		6.43			5	4.82	5.82
Dissolved Selenium	Comp	EPA200.8	1.00	ug/L	1.23	0.71	0.68			-99		-99			2.11	1.23	1.22
Total Selenium	Comp	EPA200.8	1.00	ug/L	1.42	0.97	0.71			-99		0.6			2.36	1.4	1.41
Dissolved Silver	Comp	EPA200.8	0.25	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Silver	Comp	EPA200.8	0.25	ug/L	-99	0.24	-99			0.11		-99			-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

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Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Total Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			0.2		-99			-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	10.00	ug/L	35.7	18.5	23.2			14.9		16.4			34.7	26.3	31.5
Total Zinc	Comp	EPA200.8	10.00	ug/L	48.4	223	143			100		58			46.1	28.2	44.2
Semi-Volatiles Organics (EPA 625)																	
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			0.89	-99	-99
Base/Neutral																	
Acenaphthene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Acenaphthylene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Anthracene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	2	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-Chloroethyl vinyl ether	Comp	EPA624	2.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chrysene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Diethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dimethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Fluoranthene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Isophorone	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Naphthalene	Comp	EPA625	0.20	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Nitrobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chlorinated Pesticides																	
Aldrin		EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
alpha-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
beta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
delta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Gamma-BHC (Lindane)	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
alpha-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
gamma-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDD	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDE	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDT	Comp	EPA608	0.01	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dieldrin	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan I [alpha]	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan II [beta]	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan sulfate	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endrin	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endrin aldehyde	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Heptachlor	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Heptachlor Epoxide	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Toxaphene	Comp	EPA608	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Polychlorinated Biphenyls																	
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Organophosphate Pesticides																	
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Herbicides																	
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-D	Comp	EPA515.3	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Other																	
Ammonia	Comp	SM4500-NH3 F	0.1	mg/l	1.18	0.38	-99			-99		0.13			0.4	0.46	0.48
Endrin ketone	Comp	EPA625	1	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances
5) Wet weather suspension of fecal coliform objective applies to 2008-09Event06, 2008-09Event09, and 2008-09Event21

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**9,000***	**1,300***	300	**1,400***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	40	230	300	80
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	40	230	300	80
Bacteria	Total Coliform	MPN/100mL	SM9221B	50,000	2,400	3,000	16,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	<0	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.034***	0.01	0.016	0.02
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	15.6	20	15.2	18
Conventionals	Oil and Grease	mg/L	EPA1664A	<0.4	<0.4	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.31	8.04	8.18	**8.58***
General	Alkalinity as CaCO3	mg/L	SM2320B	275	220	289	275
General	Ammonia	mg/L	SM4500-NH3 F	0.55	0.121	0.121	0.133
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	14.5	14.8	12.1	24
General	Chemical Oxygen Demand	mg/L	SM5220D	368	74.8	55.8	117
General	Chloride	mg/L	SM4110B	262	205	194	237
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.05	<0.05	<0.05	<0.05
General	Fluoride	mg/L	SM4110B	1.23	1.11	1.23	1.18
General	Hardness as CaCO3	mg/L	SM2340C	380	355	410	400
General	Kjeldahl-N	mg/L	SM4500-NHorg C	3.3	0.92	0.62	0.76
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.45	0.1	0.1	0.11
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	4.49	8.22	17.7	12.5
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	1.01	2.03	4	2.82
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.06	0.058	<0.01	0.133
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.11	<0.05	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510B	1836	1590	1800	1830
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	439	329	357	423
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	1,276	1,080	1,250	1,260
General	Total Organic Carbon	mg/L	SM5310B	11.2	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	9.74	4.7	21
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<0.4	<0.4	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	141	78	14	16
General	Turbidity	NTU	SM2130B	3.89	3.08	0.98	1.88
General	Volatile Suspended Solids	mg/L	SM2540E	38	25	2	5

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.85	0.794	0.557	0.562
Metals	Dissolved Arsenic	ug/L	EPA200.8	5.92	4.58	5.35	3.77
Metals	Dissolved Barium	ug/L	EPA200.8	55	55	49.9	49.1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.44	0.938	1.42	1.34
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	5.36	4.82	4.17	5.34
Metals	Dissolved Iron	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	>0.2&<0.5	<0.2	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.3	2.97	3.91	3.42
Metals	Dissolved Selenium	ug/L	EPA200.8	6.39	4.38	9.64	5.61
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	12.4	8.2	<1	24.3
Metals	Aluminum	ug/L	EPA200.8	303	187	<50	166
Metals	Antimony	ug/L	EPA200.8	0.93	0.875	0.663	0.644
Metals	Arsenic	ug/L	EPA200.8	6.06	4.93	5.4	4.09
Metals	Barium	ug/L	EPA200.8	73.4	74.4	59.6	61.8
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	2.01	0.965	4.28	2.14
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	14	13.5	9.12	11.3
Metals	Iron	ug/L	EPA200.8	700	417	118	<50
Metals	Lead	ug/L	EPA200.8	2.17	1.51	<0.2	1.17
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.63	4.52	4.76	4.52
Metals	Selenium	ug/L	EPA200.8	**6.49***	4.48	**9.77***	**6.08***
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	46.6	71.6	38.5	40.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.33	<0.67	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<0.03	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<0.04	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<0.2	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<0.1	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are

QNS = Quantity Not Sufficient

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**800***	300	230	**800***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	20	800	300	<20
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	20	800	300	<20
Bacteria	Total Coliform	MPN/100mL	SM9221B	2,200	9,000	3,000	24,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	<0	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.021	0.02	**0.025***	0.01
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.79	10.4	11.8	12.4
Conventionals	Oil and Grease	mg/L	EPA1664A	<0.4	<0.4	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.19	7.98	7.82	8.01
General	Alkalinity as CaCO3	mg/L	SM2320B	179	151	165	165
General	Ammonia	mg/L	SM4500-NH3 F	0.92	0.581	0.678	0.169
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	9.72	25.3	41.2	5.9
General	Chemical Oxygen Demand	mg/L	SM5220D	116	84.3	66.1	57.9
General	Chloride	mg/L	SM4110B	138	**161***	113	118
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.16	0.09	0.13	0.07
General	Fluoride	mg/L	SM4110B	0.59	0.314	0.417	0.244
General	Hardness as CaCO3	mg/L	SM2340C	260	265	280	20
General	Kjeldahl-N	mg/L	SM4500-NHorg C	1.64	1.36	1.94	0.58
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.76	0.48	0.56	0.14
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	24.3	22.1	27	6.17
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	5.5	4.99	6.1	1.39
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	<0.03	0.13	0.177	<0.03
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.18	0.1	0.19	0.08
General	Specific Conductance	umhos/cm	SM2510B	1027	1080	1010	1000
General	Sulfate	mg/L	EPA300.1	**NS**	NS	NS	NS
General	Sulfate	mg/L	SM4110B	**443***	172	117	199
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	694	706	668	670
General	Total Organic Carbon	mg/L	SM5310B	6.2	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	7.79	6.64	17.9
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<0.4	<0.4	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	14	31	28	23
General	Turbidity	NTU	SM2130B	1.46	1.18	0.73	2.79
General	Volatile Suspended Solids	mg/L	SM2540E	3	15	4	8

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.62	0.603	0.588	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.14	1	2.2	1.93
Metals	Dissolved Barium	ug/L	EPA200.8	44.9	50.6	52.6	73.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.95	0.808	1.74	1.19
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	3.15	3.08	4.61	2.85
Metals	Dissolved Iron	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	>0.2&<0.5	>0.2&<0.5	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.61	3.19	3.47	4.39
Metals	Dissolved Selenium	ug/L	EPA200.8	1.53	1.35	5.27	1.2
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	42.2	43.7	56.6	22.1
Metals	Aluminum	ug/L	EPA200.8	106	116	<50	453
Metals	Antimony	ug/L	EPA200.8	0.63	0.632	0.712	0.793
Metals	Arsenic	ug/L	EPA200.8	1.21	1.09	2.34	2.31
Metals	Barium	ug/L	EPA200.8	48.1	57.3	62.2	97.1
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	0.276	<0.1
Metals	Chromium	ug/L	EPA200.8	1.5	0.872	2.99	1.27
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	8.39	10.1	9.94	9.82
Metals	Iron	ug/L	EPA200.8	200	256	229	667
Metals	Lead	ug/L	EPA200.8	0.98	1.32	0.893	2.14
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.03	4.24	4.46	5.69
Metals	Selenium	ug/L	EPA200.8	1.8	1.61	**5.54***	1.37
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	61.2	103	80	45.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.33	<0.67	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<0.03	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<0.04	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<0.2	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	>1.7&<5	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<0.1	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are

QNS = Quantity Not Sufficient

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	1,600,000**	3,000**	50,000**	90,000**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	900,000	230	240,000	240,000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	900,000	230	240,000	300,000
Bacteria	Total Coliform	MPN/100mL	SM9221B	5,000,000	9,000	240,000	160,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	NS	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.03***	0.02	0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	6.41	7.92	11.1	10
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.52	7.33	6.96	7.35
General	Alkalinity as CaCO3	mg/L	SM2320B	55	55	55	41
General	Ammonia	mg/L	SM4500-NH3 F	0.835	0.719	0.318	0.378
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	30.3	17	9.62	5.38
General	Chemical Oxygen Demand	mg/L	SM5220D	64.1	60.7	286	28.9
General	Chloride	mg/L	SM4110B	22.5	10.2	15.4	10.1
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.28	0.26	0.12	0.11
General	Fluoride	mg/L	SM4110B	0.179	0.251	0.184	0.237
General	Hardness as CaCO3	mg/L	SM2340C	110	60	70	40
General	Kjeldahl-N	mg/L	SM4500-NHorg C	4.24	2.1	1.28	2.12
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<1	<1	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.63	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.69	0.594	0.263	0.312
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	3.72	4.17	3.8	2.95
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	0.8	0.941	0.857	0.665
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.09	<0.01	<0.01	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.78	0.38	0.27	0.13
General	Specific Conductance	umhos/cm	SM2510B	264	138	208	105
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	35.7	13.4	24	14
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	182	94	126	70
General	Total Organic Carbon	mg/L	SM5310B	NS	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	18	15.5	8.75	7.17
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	503	184	132	440
General	Turbidity	NTU	SM2130B	6.8	17.1	13.5	18.2
General	Volatile Suspended Solids	mg/L	SM2540E	112	49	35	138
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	2.08	1.16	1.73	0.798
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.74	1.22	1.27	1.39
Metals	Dissolved Barium	ug/L	EPA200.8	27.8	17.5	20.2	17.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.879	0.964	0.791	0.807
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	10.8	**9.09***	8.6	4.37
Metals	Dissolved Iron	ug/L	EPA200.8	166	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	0.951	1.29	0.623	0.86
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	6.8	4.02	3.03	1.61
Metals	Dissolved Selenium	ug/L	EPA200.8	1.14	<0.5	<0.5	1.69
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	61.8	65.1	50.1	32.9
Metals	Aluminum	ug/L	EPA200.8	236	2140	1820	4480
Metals	Antimony	ug/L	EPA200.8	2.13	3.27	3.07	2.56
Metals	Arsenic	ug/L	EPA200.8	1.81	2.8	2.13	2.97
Metals	Barium	ug/L	EPA200.8	31.9	78.7	59.5	105
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	0.553	0.316	0.863
Metals	Chromium	ug/L	EPA200.8	1.44	6.56	5.07	9.96
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	21.6	49.6	35.7	38.2
Metals	Iron	ug/L	EPA200.8	240	3400	3640	6930
Metals	Lead	ug/L	EPA200.8	2.2	20.8	15.8	31.1
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	7.59	9.63	8.86	10.6
Metals	Selenium	ug/L	EPA200.8	1.22	<0.5	<0.5	1.74
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	62.6	257	175	258
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.67	<0.67	<0.33	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.3	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67	<1.67	7.38
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017	<0.017	0.622
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	0.467

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are re

QNS = Quantity Not Sufficient

* Exceedance of Water Quality Objective

** Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	5,000,000**	300	90,000**	2,200**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	1,600,000	500	160,000	130,000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	1,600,000	500	160,000	240,000
Bacteria	Total Coliform	MPN/100mL	SM9221B	24,000,000	5,000	1,600,000	240,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	NS	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.03***	<0.005	0.008	0.02
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.41	11.1	11.1	9.9
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	7.25	7.2	7.13	7.71
General	Alkalinity as CaCO3	mg/L	SM2320B	96	83	41	69
General	Ammonia	mg/L	SM4500-NH3 F	1.89	0.138	<0.1	0.807
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	32.9	15.6	7.52	12.8
General	Chemical Oxygen Demand	mg/L	SM5220D	72.1	64.8	196	36.4
General	Chloride	mg/L	SM4110B	53.4	46.7	22.8	47.7
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.39	0.29	0.07	0.15
General	Fluoride	mg/L	SM4110B	0.274	0.347	0.129	0.243
General	Hardness as CaCO3	mg/L	SM2340C	160	140	80	30
General	Kjeldahl-N	mg/L	SM4500-NHorg C	5.3	0.96	0.718	1.76
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<1	<1	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.58	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	1.56	0.114	<0.1	0.667
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	13.6	12.4	4.8	8.18
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	3.1	2.79	1.08	1.85
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.09	<0.01	<0.01	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.86	0.31	0.2	0.22
General	Specific Conductance	umhos/cm	SM2510B	508	493	230	393
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	67.1	62.3	32.7	59.4
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	350	314	154	266
General	Total Organic Carbon	mg/L	SM5310B	NS	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	20.2	11.7	5.78	5.6
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	252	57	117	400
General	Turbidity	NTU	SM2130B	6.66	11.6	16.7	197
General	Volatile Suspended Solids	mg/L	SM2540E	51	12	17	46
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	446	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	1.8	1.08	0.713	0.671
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.78	1.51	<0.2	1.71
Metals	Dissolved Barium	ug/L	EPA200.8	31.5	48.5	20.5	30.5
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.74	2	0.673	0.995
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	7.91	11.6	4.53	3.89
Metals	Dissolved Iron	ug/L	EPA200.8	133	513	<50	114
Metals	Dissolved Lead	ug/L	EPA200.8	1.39	6.61	0.722	1.03
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	6.14	>0.5&<1	2.96	2.42
Metals	Dissolved Selenium	ug/L	EPA200.8	1.77	<0.5	<0.5	1.94
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	33.1	85.5	28.3	**44.6***
Metals	Aluminum	ug/L	EPA200.8	107	1140	2490	5530
Metals	Antimony	ug/L	EPA200.8	1.86	1.52	1.24	1.37
Metals	Arsenic	ug/L	EPA200.8	1.84	1.97	1.78	3.19
Metals	Barium	ug/L	EPA200.8	35.3	62.2	57.4	116
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	0.55
Metals	Chromium	ug/L	EPA200.8	2.23	3.19	5.45	12.4
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	12.7	21.3	20.8	24.7
Metals	Iron	ug/L	EPA200.8	201	1270	4690	9530
Metals	Lead	ug/L	EPA200.8	1.77	8.58	9.05	17.3
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	6.81	5.91	7.47	11.8
Metals	Selenium	ug/L	EPA200.8	2.02	1.29	<0.5	2.33
Metals	Silver	ug/L	EPA200.8	0.354	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	41.9	89.9	81.9	103
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.67	<0.67	<0.33	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.3	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	>3.33&<10	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are re

QNS = Quantity Not Sufficient

* Exceedance of Water Quality Objective

** Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	16000*	230
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	24000	230
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	24000	230
Bacteria	Total Coliform	MPN/100mL	SM9221B	240000	240000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.014	0.014
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	10	16.1
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.33	8.27
General	Alkalinity as CaCO3	mg/L	SM2320B	289	347
General	Ammonia	mg/L	SM4500-NH3 F	0.278	0.23
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	15	23.7
General	Chemical Oxygen Demand	mg/L	SM5220D	53.3	47.4
General	Chloride	mg/L	SM4110B	213	263
General	Dissolved Phosphorus	mg/L	SM4500-PE	<0.05	<0.05

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
General	Fluoride	mg/L	SM4110B	1.05	1.32
General	Hardness as CaCO3	mg/L	SM2340C	395	510
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.92	0.88
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	0.23	0.19
General	Nitrate (NO3)	mg/L	SM4110B	10.5	21.2
General	Nitrate-N	mg/L	SM4110B	2.38	4.78
General	Nitrite-N	mg/L	SM4110B	0.0392	0.0362
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510B	1810	2250
General	Sulfate	mg/L	SM4110B	376	519
General	Total Dissolved Solids	mg/L	SM2540C	1260	1490
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	6.47	15.4
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	46	12
General	Turbidity	NTU	SM2130B	2.4	1.22
General	Volatile Suspended Solids	mg/L	SM2540E	28	8
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	7.2	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.792	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	3.06	3.04
Metals	Dissolved Barium	ug/L	EPA200.8	62.5	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.1	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	12.7	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	125	<50
Metals	Dissolved Lead	ug/L	EPA200.8	1.3	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.06	<0.5

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Metals	Dissolved Selenium	ug/L	EPA200.8	5.3	5.31
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	39.8	<1
Metals	Aluminum	ug/L	EPA200.8	285	105
Metals	Antimony	ug/L	EPA200.8	1.02	<0.2
Metals	Arsenic	ug/L	EPA200.8	4.33	3.08
Metals	Barium	ug/L	EPA200.8	77.2	<1
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	5.75	<0.5
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	13.2	<0.5
Metals	Iron	ug/L	EPA200.8	453	<50
Metals	Lead	ug/L	EPA200.8	1.57	<0.2
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.75	<0.5
Metals	Selenium	ug/L	EPA200.8	6.17	7.06
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	66.3	<1
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA625	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL
NS = Not Sampled

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	NS	20
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	NS	20
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	NS	20
Bacteria	Total Coliform	MPN/100mL	SM9221B	NS	800
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	NS	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	NS	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	NS	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	NS	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	NS	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	NS	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	NS	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	NS	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	NS	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	NS	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	NS	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	NS	0.017
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	NS	10.2
Conventionals	Oil and Grease	mg/L	EPA1664A	NS	<1.44
Conventionals	pH	pH units	SM4500H B	NS	8.36
General	Alkalinity as CaCO3	mg/L	SM2320B	NS	173
General	Ammonia	mg/L	SM4500-NH3 F	NS	0.411
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	NS	19.9
General	Chemical Oxygen Demand	mg/L	SM5220D	NS	37.5
General	Chloride	mg/L	SM4110B	NS	130
General	Dissolved Phosphorus	mg/L	SM4500-PE	NS	0.11

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
General	Fluoride	mg/L	SM4110B	NS	0.396
General	Hardness as CaCO3	mg/L	SM2340C	NS	330
General	Kjeldahl-N	mg/L	SM4500-NHorg C	NS	10.6
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	NS	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	NS	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	NS	0.34
General	Nitrate (NO3)	mg/L	SM4110B	NS	19.4
General	Nitrate-N	mg/L	SM4110B	NS	4.38
General	Nitrite-N	mg/L	SM4110B	NS	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	NS	0.13
General	Specific Conductance	umhos/cm	SM2510B	NS	1070
General	Sulfate	mg/L	SM4110B	NS	164
General	Total Dissolved Solids	mg/L	SM2540C	NS	736
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	20
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	NS	<1.5
General	Total Suspended Solids	mg/L	SM2540D	NS	15
General	Turbidity	NTU	SM2130B	NS	2.42
General	Volatile Suspended Solids	mg/L	SM2540E	NS	7
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	NS	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	NS	<0.015
Herbicides	Glyphosate	ug/L	EPA547	NS	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	NS	62.2
Metals	Dissolved Antimony	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Barium	ug/L	EPA200.8	NS	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	NS	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	NS	138
Metals	Dissolved Lead	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	NS	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	NS	<0.5

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Metals	Dissolved Selenium	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	NS	61.8
Metals	Aluminum	ug/L	EPA200.8	NS	255
Metals	Antimony	ug/L	EPA200.8	NS	<0.2
Metals	Arsenic	ug/L	EPA200.8	NS	<0.2
Metals	Barium	ug/L	EPA200.8	NS	<1
Metals	Beryllium	ug/L	EPA200.8	NS	<0.1
Metals	Cadmium	ug/L	EPA200.8	NS	<0.1
Metals	Chromium	ug/L	EPA200.8	NS	<0.5
Metals	Chromium +6	ug/L	EPA218.6	NS	<0.25
Metals	Copper	ug/L	EPA200.8	NS	<0.5
Metals	Iron	ug/L	EPA200.8	NS	440
Metals	Lead	ug/L	EPA200.8	NS	<0.2
Metals	Mercury	ug/L	EPA245.1	NS	<0.1
Metals	Nickel	ug/L	EPA200.8	NS	<0.5
Metals	Selenium	ug/L	EPA200.8	NS	<0.5
Metals	Silver	ug/L	EPA200.8	NS	<0.1
Metals	Thallium	ug/L	EPA200.8	NS	<0.1
Metals	Zinc	ug/L	EPA200.8	NS	65.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	NS	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	NS	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	NS	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	NS	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	NS	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	NS	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	NS	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	NS	<0.065

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	NS	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA625	NS	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	NS	<1.67

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	NS	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	NS	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	NS	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	NS	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL
NS = Not Sampled

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	500000*	240000*	240000*	90000**	5000*
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	1600000	240000	28000	240000	3500
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	1600000	300000	160000	240000	3500
Bacteria	Total Coliform	MPN/100mL	SM9221B	9000000	300000	240000	1600000	50000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	NS	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	NS	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	NS	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	NS	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	NS	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	NS	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	NS	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	NS	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	NS	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.012	<0.005	0.007	<0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	7.74	7.19	10	10.1	10.1
Conventionals	Oil and Grease	mg/L	EPA1664A	>1.44&<5	>1.44&<5	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.07	NS	7.14	6.34*	6.41*
General	Alkalinity as CaCO3	mg/L	SM2320B	110	NS	60.5	38.5	132
General	Ammonia	mg/L	SM4500-NH3 F	0.617	NS	0.898	0.303	0.944
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	146	NS	11.5	7.03	27.9
General	Chemical Oxygen Demand	mg/L	SM5220D	98.8	NS	21.6	20.8	61
General	Chloride	mg/L	SM4110B	33.5	NS	28.9	10.8	65
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.15	NS	0.13	0.15	0.063
General	Fluoride	mg/L	SM4110B	0.206	NS	0.327	0.246	0.434
General	Hardness as CaCO3	mg/L	SM2340C	130	NS	110	50	170
General	Kjeldahl-N	mg/L	SM4500-NHorg C	2.18	NS	3.78	0.76	5.62
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.81	NS	>0.01&<0.5	>0.01&<0.5	0.73
General	NH3-N	mg/L	SM4500-NH3	0.51	NS	0.742	0.25	0.78
General	Nitrate (NO3)	mg/L	SM4110B	5.21	NS	4.35	2.63	5.35
General	Nitrate-N	mg/L	SM4110B	1.18	NS	0.982	0.594	1.21
General	Nitrite-N	mg/L	SM4110B	0.0705	NS	<0.03	<0.03	0.0395
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.21	NS	0.18	0.17	0.076
General	Specific Conductance	umhos/cm	SM2510B	389	NS	359	152	562
General	Sulfate	mg/L	SM4110B	47.1	NS	49.6	17	110
General	Total Dissolved Solids	mg/L	SM2540C	270	NS	224	94	380
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	31.6	NS	39.5	20.9	42.2
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	716	417	240	85	305

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
General	Turbidity	NTU	SM2130B	25	NS	5.28	10.6	6.61
General	Volatile Suspended Solids	mg/L	SM2540E	171	NS	61	19	76
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	NS	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	NS	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	12.3	NS	11	<5	18.1
Metals	Dissolved Aluminum	ug/L	EPA200.8	995	NS	482	380	421
Metals	Dissolved Antimony	ug/L	EPA200.8	<0.2	NS	<0.2	<0.2	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	2.51	NS	2.31	<0.2	2.32
Metals	Dissolved Barium	ug/L	EPA200.8	127	NS	<1	<1	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	NS	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	1760	NS	1100	592	785
Metals	Dissolved Lead	ug/L	EPA200.8	22.5	NS	10.3	7.33	11.1
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	12.8	NS	<0.5	<0.5	<0.5
Metals	Dissolved Selenium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	500*	NS	150*	115*	252*
Metals	Aluminum	ug/L	EPA200.8	4980	NS	2330	1470	1330
Metals	Antimony	ug/L	EPA200.8	6.82	NS	<0.2	<0.2	<0.2
Metals	Arsenic	ug/L	EPA200.8	2.7	NS	2.34	<0.2	2.92
Metals	Barium	ug/L	EPA200.8	218	NS	<1	<1	110
Metals	Beryllium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	1.41	NS	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	15.9	NS	10.5	<0.5	10.4
Metals	Chromium +6	ug/L	EPA218.6	<0.25	NS	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	116	NS	<0.5	<0.5	<0.5
Metals	Iron	ug/L	EPA200.8	8030	NS	4780	2360	2490
Metals	Lead	ug/L	EPA200.8	32.9	NS	14	11.1	15.9
Metals	Mercury	ug/L	EPA245.1	<0.1	NS	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	23.2	NS	<0.5	<0.5	12.1
Metals	Selenium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Silver	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	640	NS	176	138	268
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	NS	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	NS	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.33	NS	<0.33	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	NS	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	NS	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA 420.1	<0.03	<0.03	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<2.5	<2.5	<2.5	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	NS	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	NS	30000*	3000**	170000**	800**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	NS	160000	2400	300000	2400
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	NS	160000	2400	300000	2400
Bacteria	Total Coliform	MPN/100mL	SM9221B	NS	300000	240000	2400000	90000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	NS	NS	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	NS	NS	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	NS	NS	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	NS	NS	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	NS	NS	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	NS	NS	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	NS	NS	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	NS	NS	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	NS	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	NS	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	NS	NS	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	NS	<0.005	<0.005	<0.005	0.012
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	NS	8.51	9.84	10.6	11.1
Conventionals	Oil and Grease	mg/L	EPA1664A	NS	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	NS	NS	7.12	6.34*	6.48*
General	Alkalinity as CaCO3	mg/L	SM2320B	NS	NS	49.5	55	99
General	Ammonia	mg/L	SM4500-NH3 F	NS	NS	0.653	0.278	0.666
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	NS	NS	6.88	5.43	18.9
General	Chemical Oxygen Demand	mg/L	SM5220D	NS	NS	<10	30	33.1
General	Chloride	mg/L	SM4110B	NS	NS	31.5	35.9	71.3
General	Dissolved Phosphorus	mg/L	SM4500-PE	NS	NS	0.12	0.1	0.105
General	Fluoride	mg/L	SM4110B	NS	NS	0.17	0.203	0.345
General	Hardness as CaCO3	mg/L	SM2340C	NS	NS	100	115	175
General	Kjeldahl-N	mg/L	SM4500-NHorg C	NS	NS	2.24	0.72	1.22
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	NS	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	NS	NS	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	NS	NS	0.54	0.23	0.55
General	Nitrate (NO3)	mg/L	SM4110B	NS	NS	5.7	6.09	11.6
General	Nitrate-N	mg/L	SM4110B	NS	NS	1.29	1.37	2.62
General	Nitrite-N	mg/L	SM4110B	NS	NS	<0.03	<0.03	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	NS	NS	0.17	0.13	0.108
General	Specific Conductance	umhos/cm	SM2510B	NS	NS	321	345	577
General	Sulfate	mg/L	SM4110B	NS	NS	44	53.8	98
General	Total Dissolved Solids	mg/L	SM2540C	NS	NS	202	208	360
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	NS	93.5	59.5	7.61
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	NS	<1.5	<1.5	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	NS	122	43	61	24

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
General	Turbidity	NTU	SM2130B	NS	NS	4.21	18.2	5.26
General	Volatile Suspended Solids	mg/L	SM2540E	NS	NS	10	8	21
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	NS	NS	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	NS	NS	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	NS	NS	8.99	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	NS	NS	183	635	125
Metals	Dissolved Antimony	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Barium	ug/L	EPA200.8	NS	NS	<1	<1	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	NS	NS	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	NS	NS	348	875	267
Metals	Dissolved Lead	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Selenium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	NS	NS	71.1	69.1	<1
Metals	Aluminum	ug/L	EPA200.8	NS	NS	730	2950	483
Metals	Antimony	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Arsenic	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Barium	ug/L	EPA200.8	NS	NS	<1	<1	<1
Metals	Beryllium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Chromium +6	ug/L	EPA218.6	NS	NS	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Iron	ug/L	EPA200.8	NS	NS	1510	4780	975
Metals	Lead	ug/L	EPA200.8	NS	NS	6.06	7.9	<0.2
Metals	Mercury	ug/L	EPA245.1	NS	NS	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Selenium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Silver	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	NS	NS	73.1	77.4	88.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	NS	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	NS	NS	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	NS	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	NS	NS	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	NS	NS	<0.33	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	NS	NS	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	NS	NS	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA 420.1	NS	<0.03	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<2.5	<2.5	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	NS	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	NS	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	NS	NS	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	240000**	160000**	16000**	50000**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	500000	240000	30000	240000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	500000	240000	30000	240000
Bacteria	Total Coliform	MPN/100mL	SM9221B	300000	350000	300000	500000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.01	0.014	0.008	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.39	12.8	10.8	10.1
Conventionals	Oil and Grease	mg/L	EPA1664A	>1.44&<5	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.51	7.99	7.24	7.68
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	52.8	62.7	49.5	66
General	Ammonia	mg/L	SM4500-NH3 D	1.17	0.339	1.25	0.23
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	27.6	24.6	8.7	16.4
General	Chemical Oxygen Demand	mg/L	SM5220D	47.1	27	22	29
General	Chloride	mg/L	EPA300.0	20.9	35.5	13.7	19.7
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.263	0.13	0.0579	0.08
General	Fluoride	mg/L	EPA300.0	0.279	0.179	0.193	0.17
General	Hardness as $CaCO_3$	mg/L	SM2340C	100	120	70	90
General	Kjeldahl-N	mg/L	SM4500-NHorg C	2.34	0.88	7.62	1.18
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.55	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	0.97	0.28	1.03	0.19
General	Nitrate (NO_3)	mg/L	EPA300.0	7.99	4.48	3.5	3.44
General	Nitrate-N	mg/L	EPA300.0	1.8	1.01	0.79	0.776
General	Nitrite-N	mg/L	EPA300.0	0.0343	<0.01	>0.01&<0.03	<0.01
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.272	0.14	0.06	0.09
General	Specific Conductance	umhos/cm	SM2510 B	258	369	173	243
General	Sulfate	mg/L	EPA300.0	30.3	59.4	17.8	30.4
General	Total Dissolved Solids	mg/L	SM2540C	208	218	110	134
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	22.9	13.5	8.23	5.24
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
General	Total Suspended Solids	mg/L	SM2540D	402	379	253	420
General	Turbidity	NTU	SM2130B	29.3	19.5	5.75	9.5
General	Volatile Suspended Solids	mg/L	SM2540E	96	109	81	126
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	11	<5	7.83	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	910	498	348	880
Metals	Dissolved Antimony	ug/L	EPA200.8	2.09	1.41	1.01	1.38
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.89	1.57	1.27	2.59
Metals	Dissolved Barium	ug/L	EPA200.8	95.6	50.2	40.1	79
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	0.619	>0.1&<0.25	>0.1&<0.25	0.542
Metals	Dissolved Chromium	ug/L	EPA200.8	3.82	2.2	1.34	2.65
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	**39.1***	**25.8***	**19.5***	**32.7***
Metals	Dissolved Iron	ug/L	EPA200.8	1710	830	590	1610
Metals	Dissolved Lead	ug/L	EPA200.8	15.1	12.7	7.88	18.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	9.11	5.22	3.81	7.18
Metals	Dissolved Selenium	ug/L	EPA200.8	>0.5&<1	>0.5&<1	<0.5	>0.5&<1
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	**378***	132	**126***	**258***
Metals	Aluminum	ug/L	EPA200.8	2010	1300	1310	2880
Metals	Antimony	ug/L	EPA200.8	3.78	2.48	2.14	3.3
Metals	Arsenic	ug/L	EPA200.8	2.13	1.96	1.36	3.41
Metals	Barium	ug/L	EPA200.8	112	66.7	56.6	107
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	>0.1&<0.5
Metals	Cadmium	ug/L	EPA200.8	0.827	0.303	0.333	0.644
Metals	Chromium	ug/L	EPA200.8	8.98	5.19	4.85	8.03
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	50.6	36.5	29.2	49.1
Metals	Iron	ug/L	EPA200.8	3480	2650	2150	5100
Metals	Lead	ug/L	EPA200.8	20.5	16.9	10	25.5
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	12.3	7.8	6.78	11
Metals	Selenium	ug/L	EPA200.8	1.2	>0.5&<1	>0.5&<1	1.05
Metals	Silver	ug/L	EPA200.8	0.321	>0.1&<0.25	>0.1&<0.25	>0.1&<0.25
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	408	135	164	332
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	0.15	0.12	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

^Method detection level exceeds the waer quality benchmark.

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	90000**	220000**	800**	170
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	240000	240000	800	1300
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	240000	240000	1300	1300
Bacteria	Total Coliform	MPN/100mL	SM9221B	2400000	1600000	24000	16000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.015	0.013	0.013	0.009
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	6.61	9.68	10.5	10.3
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	7.77	7.82	7.64	7.69
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	73.7	123	97.9	105
General	Ammonia	mg/L	SM4500-NH3 D	0.532	<0.1	0.496	0.411
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	13	10.9	9.1	9.18
General	Chemical Oxygen Demand	mg/L	SM5220D	>10&<20	>10&<20	>10&<20	>10&<20
General	Chloride	mg/L	EPA300.0	47.3	93.9	79.9	83
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.262	0.13	0.051	0.12
General	Fluoride	mg/L	EPA300.0	0.293	0.317	0.332	0.311
General	Hardness as $CaCO_3$	mg/L	SM2340C	130	30	200	210
General	Kjeldahl-N	mg/L	SM4500-NHorg C	1.86	0.5	4.32	1.28
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	0.44	<0.1	0.41	0.34
General	Nitrate (NO_3)	mg/L	EPA300.0	11.6	15.3	13.5	12.8
General	Nitrate-N	mg/L	EPA300.0	2.62	3.46	3.04	2.89
General	Nitrite-N	mg/L	EPA300.0	<0.01	>0.01&<0.03	0.0498	<0.01
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.28	0.16	0.06	0.14
General	Specific Conductance	umhos/cm	SM2510 B	454	798	636	712
General	Sulfate	mg/L	EPA300.0	57.7	119	87.7	102
General	Total Dissolved Solids	mg/L	SM2540C	298	472	408	402
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	11.9	7.11	8.03	5.06
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5

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General	Total Suspended Solids	mg/L	SM2540D	129	100	118	42
General	Turbidity	NTU	SM2130B	21.3	12.9	5.65	6.06
General	Volatile Suspended Solids	mg/L	SM2540E	28	28	23	14
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	6.8	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	660	565	337	165
Metals	Dissolved Antimony	ug/L	EPA200.8	1.14	0.842	0.597	0.899
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.39	1.6	1.39	1.11
Metals	Dissolved Barium	ug/L	EPA200.8	63.9	68	55	51.8
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	>0.1&<0.25	>0.1&<0.25	>0.1&<0.25	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	2.57	2.81	1.8	1.14
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	>0.25&<5	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	15.6	**13.5***	12.8	10.5
Metals	Dissolved Iron	ug/L	EPA200.8	1140	1030	622	294
Metals	Dissolved Lead	ug/L	EPA200.8	8.39	8.09	5.13	3.3
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	5.28	5.33	5.27	6.33
Metals	Dissolved Selenium	ug/L	EPA200.8	>0.5&<1	1.51	1.36	1.15
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	132	**92.7***	70.2	69.3
Metals	Aluminum	ug/L	EPA200.8	1740	1340	1140	444
Metals	Antimony	ug/L	EPA200.8	1.77	1.37	1.13	1.23
Metals	Arsenic	ug/L	EPA200.8	1.91	1.83	1.43	1.41
Metals	Barium	ug/L	EPA200.8	78.4	88.9	73.3	62.7
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	0.429	0.251	0.266	<0.1
Metals	Chromium	ug/L	EPA200.8	7.01	5.37	4.26	2.43
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	>0.25&<5	<0.25
Metals	Copper	ug/L	EPA200.8	19.2	23.9	18.1	12.9
Metals	Iron	ug/L	EPA200.8	3120	2910	1910	735
Metals	Lead	ug/L	EPA200.8	12.9	15.4	6.52	3.94
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	7.07	37.1	7.68	7.74
Metals	Selenium	ug/L	EPA200.8	>0.5&<1	1.62	1.57	1.51
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	150	160	87.4	73.3
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	0.183	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

^Method detection level exceeds the waer quality benchmark.

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**9000***	500
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	110	800
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	800	800
Bacteria	Total Coliform	MPN/100mL	SM9221B	90000	160000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.009	0.019
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	16.2	14.1
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	**8.51***	8.28
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	207	284
General	Ammonia	mg/L	SM4500-NH3 D	<0.1	<0.1
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	12.2	6.92
General	Chemical Oxygen Demand	mg/L	SM5220D	22	>10&<20
General	Chloride	mg/L	EPA300.0	159	229
General	Dissolved Phosphorus	mg/L	SM4500-PE	<0.05	<0.05
General	Fluoride	mg/L	EPA300.0	0.746	1.02
General	Hardness as $CaCO_3$	mg/L	SM2340C	325	440
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.74	0.58
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	<0.1	<0.1
General	Nitrate (NO_3)	mg/L	EPA300.0	6.55	16.6
General	Nitrate-N	mg/L	EPA300.0	1.48	3.75
General	Nitrite-N	mg/L	EPA300.0	>0.01&<0.03	0.112
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510 B	1400	1900
General	Sulfate	mg/L	EPA300.0	267	407
General	Total Dissolved Solids	mg/L	SM2540C	840	1270
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	5.42	5.45

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	86	6
General	Turbidity	NTU	SM2130B	1.9	1.07
General	Volatile Suspended Solids	mg/L	SM2540E	31	5
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	>50&<100	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.651	0.542
Metals	Dissolved Arsenic	ug/L	EPA200.8	3.14	3.13
Metals	Dissolved Barium	ug/L	EPA200.8	72.5	51.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.915	1.43
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5
Metals	Dissolved Copper	ug/L	EPA200.8	9.45	11.7
Metals	Dissolved Iron	ug/L	EPA200.8	220	>50&<100
Metals	Dissolved Lead	ug/L	EPA200.8	3.97	1.12
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	3.89	3.73
Metals	Dissolved Selenium	ug/L	EPA200.8	3.45	5.98
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	108	51.9
Metals	Aluminum	ug/L	EPA200.8	265	>50&<100
Metals	Antimony	ug/L	EPA200.8	0.912	0.677
Metals	Arsenic	ug/L	EPA200.8	3.65	3.37
Metals	Barium	ug/L	EPA200.8	86.3	56.9
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	5.01	1.54
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5
Metals	Copper	ug/L	EPA200.8	13.5	14.4
Metals	Iron	ug/L	EPA200.8	458	148
Metals	Lead	ug/L	EPA200.8	4.7	1.55
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.51	5.2
Metals	Selenium	ug/L	EPA200.8	4.88	7.13
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	120	63
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	20	**500***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	20	130
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	20	230
Bacteria	Total Coliform	MPN/100mL	SM9221B	2200	24000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	<0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.96	5.8
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.2	7.85
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	189	198
General	Ammonia	mg/L	SM4500-NH3 D	<0.1	0.109
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	6.06	4.23
General	Chemical Oxygen Demand	mg/L	SM5220D	>10&<20	<10
General	Chloride	mg/L	EPA300.0	107	108
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.097	0.13
General	Fluoride	mg/L	EPA300.0	0.379	0.395
General	Hardness as $CaCO_3$	mg/L	SM2340C	305	340
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.38	0.38
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	<0.1	<0.1
General	Nitrate (NO_3)	mg/L	EPA300.0	3.34	4.86
General	Nitrate-N	mg/L	EPA300.0	0.754	1.1
General	Nitrite-N	mg/L	EPA300.0	<0.01	0.0359
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.106	0.16
General	Specific Conductance	umhos/cm	SM2510 B	974	984
General	Sulfate	mg/L	EPA300.0	160	160
General	Total Dissolved Solids	mg/L	SM2540C	594	630
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	2.3	2.56

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	10	14
General	Turbidity	NTU	SM2130B	0.95	1.11
General	Volatile Suspended Solids	mg/L	SM2540E	7	4
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	>0.2&<0.5	>0.2&<0.5
Metals	Dissolved Arsenic	ug/L	EPA200.8	>0.2&<1	2.48
Metals	Dissolved Barium	ug/L	EPA200.8	88.9	97.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	>0.1&<0.25
Metals	Dissolved Chromium	ug/L	EPA200.8	0.57	0.709
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	6.27	5.62
Metals	Dissolved Iron	ug/L	EPA200.8	113	133
Metals	Dissolved Lead	ug/L	EPA200.8	1.78	0.827
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	5.49	4.93
Metals	Dissolved Selenium	ug/L	EPA200.8	1.02	>0.5&<1
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	69.8	49.6
Metals	Aluminum	ug/L	EPA200.8	174	136
Metals	Antimony	ug/L	EPA200.8	0.652	0.624
Metals	Arsenic	ug/L	EPA200.8	2.54	2.65
Metals	Barium	ug/L	EPA200.8	110	111
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	>0.1&<0.25
Metals	Chromium	ug/L	EPA200.8	4.44	1.1
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	7.94	7.62
Metals	Iron	ug/L	EPA200.8	234	333
Metals	Lead	ug/L	EPA200.8	2.91	1.52
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	8.22	6.66
Metals	Selenium	ug/L	EPA200.8	2.01	1.65
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	86.4	55.1
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	>0.03&<0.1	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

Watershed Management Program Appendix 3

A-3-1 MCM Guidance

Public Information and Participation Program

Introduction *Permit §VI.D.5.a (LA)/ §VII.F.1 (LB)*

Each participating city is required to develop and implement a Public Information and Participation Program (PIPP) that includes the requirements listed in Permit §VI.D.5.a (LB §VII.F). This document provides guidance that the participating cities can follow to implement a PIPP in compliance with the Permit.

The objectives of the PIPP are to:

- Measurably increase the knowledge of the target audiences about the MS4, the adverse impacts of stormwater pollution on receiving waters and potential solutions to mitigate the impacts.
- Measurably change the waste disposal and stormwater pollution generation behavior of target audiences by developing and encouraging the implementation of appropriate alternatives.
- Involve and engage a diversity of socio-economic groups and ethnic communities in Los Angeles County to participate in mitigating the impacts of stormwater pollution.

PIPP Implementation *Permit §VI.D.5.b (LA)/§VII.F.2 (LB)*

The PIPP is implemented using the following approaches:

- By participating in a County-wide PIPP,
- By participating in one or more Watershed Group sponsored PIPPs, and
- individually within its jurisdiction.

Cities participating in a County-wide or Watershed Group PIPP provide contact info for their staff responsible for stormwater public education activities to the designated PIPP coordinator. Changes in contact information are provided within 30 days of the date that the change occurred.

Public Participation *Permit §VI.D.5.c (LA)/§VII.F.3 (LB)*

Public Reporting

The means for public reporting of clogged catch basin inlets and illicit discharges/dumping, faded or missing catch basin labels, and general stormwater and non-stormwater pollution prevention information is provided through the use of the countywide 888-CLEAN-LA hotline. In addition, each participating city:

- Includes the reporting information – updated when necessary – in public information and the government pages of the telephone book as they are developed or published.
- Identifies staff or departments who will serve as the contact person(s) and will make this information available on its website.
- Provides current, updated hotline contact information to the general public within its jurisdiction.

Events

Events are organized to target residents and population subgroups. The purpose of the events is to educate and involve the community in stormwater and non-stormwater pollution prevention activities, such as education seminars, clean-ups, and community catch basin stenciling.

Residential Outreach Program

Permit §VI.D.5.d (LA)/§VII.F.4 (LB)

With the exception of item 5, which is no longer an element of the countywide PIP Program, each city implements the following activities for the Residential Outreach Program as part of a countywide program:

1. Conduct stormwater pollution prevention public service announcements and advertising campaigns
2. Prepare public education materials that include information on the proper handling (i.e., disposal, storage and/or use) of:
    a. Vehicle waste fluids
    b. Household waste materials (i.e., trash and household hazardous waste, including personal care products and pharmaceuticals)
    c. Construction waste materials
    d. Pesticides and fertilizers (including integrated pest management (IPM) practices to promote reduced use of pesticides)
    e. Green waste (including lawn clippings and leaves)
    f. Animal wastes
3. Distribute activity specific stormwater pollution prevention public education materials at the following points of purchase:
    a. Automotive parts stores
    b. Home improvement centers / lumber yards / hardware stores/paint stores
    c. Landscaping / gardening centers
    d. Pet shops / feed stores
4. Maintain stormwater websites or provide links to stormwater websites via each participating city's website. This includes educational material and opportunities for the public to participate in stormwater pollution prevention and clean-up activities listed in Part VI.D.4 of the Permit.
5. Provide independent, parochial, and public schools within each participating city's jurisdiction with materials to educate school children (K-12) on stormwater pollution. Material may include videos, live presentations and other information. A useful source of materials to work with, or leverage, is other statewide agencies and associations. These associations include the State Water Board's "Erase the Waste" educational program and the California Environmental Education Interagency Network (CEEIN) to implement this requirement.
6. When implementing the above activities, use effective strategies to educate and involve ethnic communities in stormwater pollution prevention through culturally effective methods.

Industrial/Commercial Facilities Program

Each participating city is required to implement an industrial/commercial facilities program that includes the provisions listed in Permit § VI.D.6 (LB §VII.G). This document provides guidance that the participating cities can follow to implement an industrial/commercial facilities program in compliance with the Permit.

Introduction

Permit § VI.D.6.a (LA)/ §VII.G.1 (LB)

The Industrial/Commercial Facilities Program is designed to prevent illicit discharges into the MS4 and receiving waters, reduce industrial/commercial discharges of stormwater to the maximum extent practicable, and prevent industrial/commercial discharges from the MS4 from causing or contributing to a violation of receiving water limitations. The program consists of the following components:

- Track,
- Educate,
- Inspect and
- Ensure compliance with municipal ordinances at industrial/commercial facilities determined to be critical sources of pollutants in stormwater.

Track Critical Industrial/Commercial Sources

Permit § VI.D.6.b (LA)/ §VII.G.2 (LB)

The critical sources to be tracked are listed in Table ICF-1.

Table ICF-1: Critical Sources

<table>
<tr><th>Facility Category</th><th colspan="2">Facility</th></tr>
<tr><td rowspan="4">Commercial Facilities</td><td colspan="2">Restaurants</td></tr>
<tr><td colspan="2">Automotive service facilities (including those located at automotive dealerships)</td></tr>
<tr><td colspan="2">Retail Gasoline Outlets</td></tr>
<tr><td colspan="2">Nurseries and Nursery Centers (Merchant Wholesalers, Nondurable Goods, and Retail Trade)</td></tr>
<tr><td rowspan="4">Industrial Facilities</td><td colspan="2">USEPA "Phase I" Facilities[1]</td></tr>
<tr><td rowspan="3">Other federally-mandated facilities[2]</td><td>Municipal landfills</td></tr>
<tr><td>Hazardous waste treatment, disposal, and recovery facilities</td></tr>
<tr><td>Industrial facilities subject to § 313 "Toxic Release Inventory" reporting requirements of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)[3]</td></tr>
<tr><td>General Facilities</td><td colspan="2">All other commercial or industrial facilities determined to potentially contribute a substantial pollutant load to the MS4.</td></tr>
</table>

[1] as specified in 40 CFR §122.26(b)(14)(i)-(xi)
[2] as specified in 40 CFR §122.26(d)(2)(iv)(C)
[3] 42 U.S.C. § 11023

Critical source facilities are tracked in an electronic database management system. The information stored for each critical source in the inventory is listed in Table ICF-2.

Table ICF-2: Inventory Information for Critical Sources

Information Category		Information
General	Name	Facility Name
	Location	Facility address
		Facility latitude and longitude coordinates
		Receiving water
	Contact	Owner/operator name
		Mailing address
		Phone number
		Email (if available)
Business Type		Standard Industrial Classification (SIC) code and/or North American Industry Classification System (NAICS) code
		Narrative description of the activities performed and/or principal products produced
Water quality		Status of exposure of materials to stormwater
		Pollutants generated by facility activities (A-ICF-1)
		Identification of whether the facility is tributary to a waterbody segment with impairments[4] for pollutants that are also generated by the facility.
Prioritization		High, medium or low. The default priority is medium.
NPDES Permit		For applicable facilities, identify coverage under the State Water Board's General NPDES Permit for the Discharge of Stormwater Associated with Industrial Activities (Industrial General Permit) or other individual or general NPDES permits or any waiver issued by the Regional or State Water Board pertaining to stormwater discharges.
		For Industrial General Permit facilities, identify whether the facility has filed a No Exposure Certification with the State Water Board.

Update Inventory

The critical sources inventory is updated at least annually. The update is accomplished through the collection of new information from sources such as field activities and readily available inter/intra-agency records (e.g. business licenses, pretreatment permits, sanitary sewer connection permits and the State Water Resources Control Board's Storm Water Multiple Application and Report Tracking System (SMARTS)).

[4] CWA § 303(d) listed or subject to a TMDL

Prioritization

Prioritizing facilities by their potential water quality impact provides an excellent opportunity to optimize the effectiveness of the Industrial/Commercial Facilities Program. The three inventory fields under the "Water Quality" category of Table ICF-2 provide information that allows for such a facility prioritization. Based on these fields, the following tables establish a method to prioritize all industrial/commercial facilities into three graded tiers – High, Medium and Low. The City may follow an alternative prioritization method provided it is based on water quality impact and results in a similar three-tiered scheme. In order to maintain a minimum inspection frequency equivalent to the mandates of the MS4 Permit, a condition must be applied to the prioritization process. This condition is explained on the following page.

Prioritization factors

Factor	Description
A	Status of exposure of materials and industrial/commercial activities to stormwater
B	Identification of whether the facility is tributary to a waterbody segment with impairments[5] for pollutants that are also generated by the facility
C	Other factors determined by the City, such as size of facility, presence of exposed soil or history of stormwater violations

Utilizing these factors, follow steps 1, 2 and 3 below:

1. Collect necessary information to evaluate factors

Factor	Initial method	Subsequent method
A	Satellite imagery	Results of stormwater inspection
B	Cross reference Table 4 or Table 5* with tributary TMDL/ 303(d) pollutants	Cross reference inspection results with tributary TMDL/ 303(d) pollutants
C	Varies	

* See pages 9 and 10 of Appendix A-3-1 ICF (guidance for the Industrial/Commercial Facilities Program)

2. Evaluate factors

Factor	Result	Score
	Low or no exposure	0
A	Moderate exposure	½
	Significant exposure	1
B	No**	0
	Yes***	1
	Low	0
C	Medium	½
	High	1

** No pollutant generation/impairment matches

*** ≥ 1 pollutant generation/impairment matches

3. Prioritize facilities

		C Score		
		0	**½**	**1**
A×B Score	**0**	Low	Medium	High
	½	Medium	High	High
	1	High	High	High

This method serves only as a guide to prioritization. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C.

Figure ICF-1: Industrial/Commercial Facility Prioritization Scheme

Step 3 may also be expressed by the relationships $A \cdot B + C \geq 1 \rightarrow$ High, $1 > A \cdot B + C > 0 \rightarrow$ Medium and $A \cdot B + C = 0 \rightarrow$ Low. The purpose of multiplying A and B is to scale the impact of the presence of the

[5] CWA §303(d) listed or subject to a TMDL

pollutants at a facility (B) by the likelihood that they will be discharged to the MS4 (A). Factor C quantifies water quality concerns that are independent of A or B and as such is incorporated through addition. The purpose of this numerical approach is to provide consistency to the prioritization process. It is intended solely as a guide. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C as listed in Figure ICF-1.

Prioritization Condition

The facility prioritization impacts the inspection frequency. In fact the main objective of prioritizing the facilities is to adjust the inspection schedule to focus efforts on water quality priorities. The intent is not to reduce the total number of inspections. In order to maintain a total number of inspections in line with the expectations of the MS4 Permit (i.e. result in the same number of average inspections per year as a semi-quinquennial frequency), one additional condition must be imposed:

The total number of low priority facilities is less than or equal to 3 times the number of high priority facilities.

Prioritization condition

Prioritization Frequency

The default priority for a facility is Medium. Facilities will be reprioritized as necessary following the results of routine inspections. The City may also use any readily available information that clarifies potential water quality impacts (e.g., satellite imagery) in order to prioritize a facility before the initial inspection. Reprioritization may also be conducted at any time as new water quality based information on a facility becomes available. During reprioritization, the ratio of low priority to high priority facilities will remain at 3:1 or lower. Figure ICF-2 is a flowchart of the prioritization process.

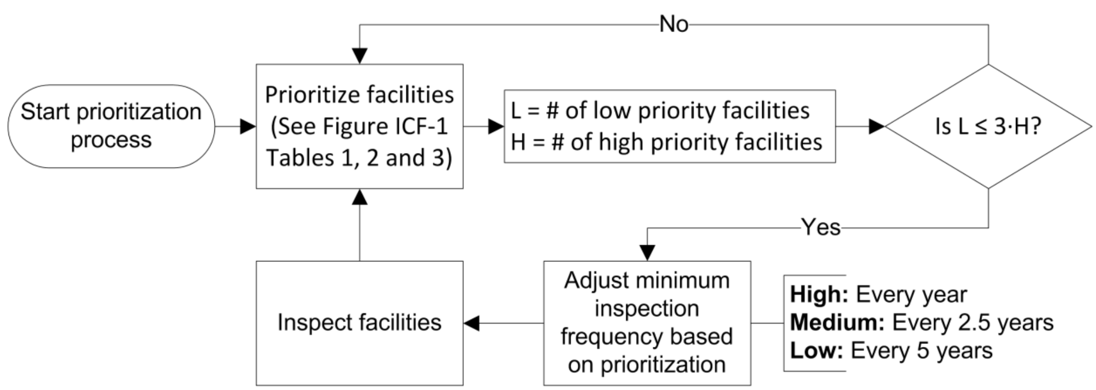

Figure ICF-2: Prioritization Process

Educate Industrial/Commercial Sources

Permit § VI.D.6.c (LA)/ §VII.G.3 (LB)

At least once during the five-year period of the MS4 Permit, the owner/operator of each of the inventoried critical sources is notified of the BMP requirements applicable to the facility/source.

Business Assistance Program

The Business Assistance Program provides technical information to businesses to facilitate their efforts to reduce the discharge of pollutants in stormwater. Assistance is targeted to select business sectors or small businesses upon a determination that their activities may be contributing substantial pollutant loads to the MS4 or receiving water. Assistance may include technical guidance and provision of educational materials. The Program includes at least one of the following components:

- **Technical Guidance** – Provide on-site technical assistance, telephone, or e-mail consultation regarding the responsibilities of businesses to reduce the discharge of pollutants, procedural requirements, and available guidance documents. Guidance methods include but are not limited to:
    - Technical guidance through the critical source inspection program. During an inspection the inspector provides to the business owner/operator 1) on-site technical assistance and 2) contact information for continued consultation. The inspector may also refer staff to relevant fact sheets from the *CASQA Industrial and Commercial BMP Handbook*.
    - Technical guidance initiated with businesses through an informational letter, email, webpage or social media. The notice provides contact information of relevant stormwater staff for business assistance as well as hyperlinks to available guidance documents such as the *CASQA Industrial and Commercial BMP Handbook*.
- **Educational Materials** – Distribute stormwater pollution prevention educational materials to operators of 1) auto repair shops, car wash facilities, restaurants and 2) mobile sources including automobile/equipment repair, washing, or detailing, power washing services, mobile carpet, drape, or upholstery cleaning services, swimming pool, water softener, and spa services, portable sanitary services and commercial applicators and distributors of pesticides, herbicides and fertilizers, if present. Material sources and distribution methods include but are not limited to:
    - Distribution method – The presence of these businesses within an agency's jurisdiction may be determined through business licenses or other readily available inter/intra-agency records.
    - Material sources – Educational materials are available at USEPA's Nonpoint Source (NPS) Outreach Toolbox at http://cfpub.epa.gov/npstbx/index.html. The toolbox is a database of nationwide public education materials that is intended for use by state and local campaigns. The toolbox contains a variety of resources to help develop an effective and targeted outreach campaign.

Inspect Critical Industrial/Commercial Sources

Modified from Permit §VI.D.6.d-e (LA)/ §VII.G.4-5(LB)

Frequency of Inspections

Following the facility prioritization method described in this guidance document, the City will inspect high priority facilities annually, medium priority facilities semi-quinquennially (once every 2.5 years) and low priority facilities quinquennially (once every five years). The frequencies may be altered by the exclusions defined in the following section. The prioritization condition on Page ICF-4 ensures at least the same average number of inspections conducted per year as the semi-quinquennial frequency defined in the MS4 Permit.

The City will conduct the first compliance inspection of industrial/commercial facilities within one year of the approval of the Watershed Management Program by the Executive Officer. There will be a minimum interval of six months between the first and the second mandatory compliance inspections.

Exclusions to the Frequency of Industrial Inspections

Exclusion of Facilities Previously Inspected by the Regional Water Board
The State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS) database[6] is reviewed at defined intervals to determine if an industrial facility has recently been inspected by the Regional Water Board. The first interval is two years after the effective date of the MS4 Permit (LA: December 28, 2014, LB: March 28,, 2016) and the second interval is four years after the effective date (LA: December 28, 2016, LB: March 28, 2018). If it is determined through the review that the Regional Water Board conducted an inspection of a facility within the prior 24 month period, then the facility does not require an inspection.

No Exposure Verification
The initial inspection identifies those facilities that have filed a No Exposure Certification with the State Water Board. Three to four years after the effective date of the MS4 Permit, a second inspection is performed for at least 25% of the facilities identified to have filed a No Exposure Certification. The purpose of this inspection is to verify the continuity of the no exposure status.

Scope of Inspections

A template inspection form is included as Attachment ICF-A.

Scope of Commercial Inspections
Commercial critical source facilities are inspected to confirm that stormwater and non-stormwater BMPs are effectively implemented in compliance with municipal ordinances. At each facility, inspectors verify that the operator is implementing effective source control BMPs for each corresponding activity. The implementation of additional BMPs is required where stormwater from the MS4 discharges to a significant ecological area (SEA), a water body subject to TMDL provisions[7], or a CWA §303(d) listed impaired water body. For those BMPs that are not adequately protective of water quality standards, additional site-specific controls may be required.

Scope of Mandatory Industrial Facility Inspections
At each industrial critical source the inspector confirms that the facility

- Has a current Waste Discharge Identification (WDID) number for coverage under the Industrial General Permit, and that a Storm Water Pollution Prevention Plan (SWPPP) is available on-site; or
- Has applied for, and has received a current No Exposure Certification for facilities subject to this requirement;
- Is effectively implementing BMPs in compliance with municipal ordinances. Facilities must implement the source control BMPs identified in Table ICF-3, unless the pollutant generating activity does not occur. Additional BMPs must be implemented where stormwater from the MS4

[6] SMARTS is accessible at https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp
[7] As described in Part VI.E of the MS4 Permit

discharges to a water body subject to TMDL Provisions in Part VI.E of the MS4 Permit, or a CWA § 303(d) listed impaired water body. If the specified BMPs are not adequately protective of water quality standards, additional site-specific controls may be required. For critical sources that discharge to MS4s that discharge to SEAs, operators must implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards.

- Applicable industrial facilities identified as not having either a current WDID or No Exposure Certification are notified that they must obtain coverage under the Industrial General Permit and will be referred to the Regional Water Board per the Progressive Enforcement Policy procedures identified in Part VI.D.2 of the MS4 Permit.

Source Control BMPs

Permit § VI.D.6.f (LA)/ §VII.G.6 (LB)

Effective source control BMPs for the activities listed in Table ICF-3 are implemented at commercial and industrial facilities, unless the pollutant generating activity does not occur:

Significant Ecological Areas (SEAs)

Permit § VI.D.6.g (LA)/ §VII.H (LB)

For critical sources that discharge to MS4s that discharge to SEAs, each Permittee will require operators to implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards.

Progressive Enforcement

Permit § VI.D.6.h (LA)/ §VII.I (LB)

Each Permittee will implement its Progressive Enforcement Policy to ensure that Industrial / Commercial facilities are brought into compliance with all stormwater requirements within a reasonable time period. See Part VI.D.2 of the MS4 Permit for requirements for the development and implementation of a Progressive Enforcement Policy.

Table ICF-3: Source Control BMPs at Commercial and Industrial Facilities

Pollutant-Generating Activity	**BMP Description**	**BMP Fact Sheet***
Unauthorized Non-Storm water Discharges	Effective elimination of non-stormwater discharges	SC-10
Accidental Spills/ Leaks	Implementation of effective spills/ leaks prevention and response procedures	SC-11
Vehicle/ Equipment Fueling	Implementation of effective fueling source control devices and practices	SC-20
Vehicle/ Equipment Cleaning	Implementation of effective equipment/vehicle cleaning practices and appropriate wash water management practices	SC-21
Vehicle/ Equipment Repair	Implementation of effective vehicle/ equipment repair practices and source control devices	SC-22
Outdoor Liquid Storage	Implementation of effective outdoor liquid storage source controls and practices	SC-31
Outdoor Equipment Operations	Implementation of effective outdoor equipment source control devices and practices	SC-32
Outdoor Storage of Raw Materials	Implementation of effective source control practices and structural devices	SC-33
Storage and Handling of Solid Waste	Implementation of effective solid waste storage/ handling practices and appropriate control measures	SC-34
Building and Grounds Maintenance	Implementation of effective facility maintenance practices	SC-41
Parking/ Storage Area Maintenance	Implementation of effective parking/ storage area designs and housekeeping/ maintenance practices	SC-43
Stormwater Conveyance System Maintenance	Implementation of proper conveyance system operation and maintenance protocols	SC-44
Pollutant-Generating Activity	**BMP Description from Regional Water Board Resolution No. 98-08**	
Sidewalk Washing	1. Remove trash, debris, and free standing oil/grease spills/leaks (use absorbent material, if necessary) from the area before washing; and 2. Use high pressure, low volume spray washing using only potable water with no cleaning agents at an average usage of 0.006 gallons per square feet of sidewalk area.	
Street Washing	Collect and divert wash water to the sanitary sewer – publically owned treatment works (POTW). Note: POTW approval may be needed.	

* Source: CASQA Industrial and Commercial Stormwater BMP Handbook, 2003

Table ICF-4: Potential Pollutants from Industrial Activities*

Activity or Facility Type	Potential Pollutants								
	Sediments	Nutrients	Metals	Organics and Toxicants**	Floatable Materials	Oxygen-Demanding Substances	Oil and Grease	Bacteria	Pesticides
Vehicle & Equipment Fueling			X	X					
Vehicle & Equipment Washing and Steam Cleaning	X	X	X	X		X	X		
Vehicle & Equipment Maintenance and Repair			X	X			X		
Outdoor Loading & Unloading of Materials	X	X	X	X	X	X	X		
Outdoor Container Storage of Liquids		X	X	X		X	X		X
Outdoor Process Equipment Operations and Maintenance	X		X	X			X		
Outdoor Storage of Raw Materials, Products, and Byproducts	X	X	X	X	X	X	X		
Waste Handling & Disposal			X	X	X	X	X	X	
Contaminated or Erodible Surface Areas	X	X	X	X	X	X	X	X	
Building and Grounds Maintenance	X	X	X		X	X		X	X
Building Repair, Remodeling, and Construction	X		X		X	X			
Parking/Storage Area Maintenance			X	X	X		X		

* Source: CASQA Industrial and Commercial Stormwater BMP Handbook, 2003

** This includes all toxic pollutants other than pesticides

Table ICF-5: Potential Pollutants by Industrial/Commercial Facility Type*

Activity or Facility Type	Potential Pollutants								
	Sediments	Nutrients	Metals	Organics and Toxicants**	Floatable Materials	Oxygen-Demanding Substances	Oil and Grease	Bacteria	Pesticides
Vehicle mechanical repair, maintenance, fueling, or cleaning	×	×	×	×		×	×		
Airplane mechanical repair, maintenance, fueling, or cleaning	×	×	×	×		×	×		
Boat mechanical repair, maintenance, fueling, or cleaning	×	×	×	×		×	×		
Equipment repair, maintenance, fueling, or cleaning	×	×	×	×		×	×		
Automobile and other vehicle body repair or painting			×	×			×		
Mobile automobile or other vehicle washing	×	×	×			×	×		
Automobile (or other vehicle) parking lots and storage			×		×		×		
Retail or wholesale fueling			×	×	×		×		
Pest control services									×
Eating or drinking establishments		×		×	×	×	×	×	×
Mobile carpet, drape or furniture cleaning	×			×					
Cement mixing or cutting	×								
Masonry	×								
Painting and coating			×	×			×		
Botanical or zoological gardens and exhibits	×	×			×	×		×	×
Landscaping	×	×			×	×		×	×
Nurseries and greenhouses	×	×			×	×		×	×
Golf courses, parks and other recreational areas/facilities	×	×			×	×		×	×
Cemeteries	×	×			×	×		×	×
Pool and fountain cleaning		×	×	×	×	×		×	
Marinas			×	×	×	×	×	×	
Port-a-Potty servicing		×			×	×		×	

* Source: Orange County Drainage Area Management Plan, 2003

** This includes all toxic pollutants other than pesticides

Planning and Land Development Program

The Cities are required to implement a Planning and Land Development program that includes the provisions listed in the MS4 Permit (LA MS4 Permit §VI.D.7, LB MS4 Permit §VII.J). This document provides guidance that the participating cities can follow to implement a Planning and Land Development program in compliance with the MS4 Permit.

Introduction *Permit §VI.D.7.a (LA)/§VII.J.1 (LB)*

The Planning and Land Development Program for all New Development and Redevelopment projects subject to the MS4 Permit includes measures to:

- Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.
- Minimize the adverse impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code §21000 et seq.).
- Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing Low Impact Development (LID) design principles to mimic pre-development hydrology through infiltration, evapotranspiration and rainfall harvest and use.
- Maintain existing riparian buffers and enhance riparian buffers when possible.
- Minimize pollutant loadings from impervious surfaces such as roof tops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including Source Control BMPs such as good housekeeping practices), LID Strategies, and Treatment Control BMPs.
- Properly select, design and maintain LID and Hydromodification Control BMPs to address pollutants that are likely to be generated, reduce changes to pre-development hydrology, assure long-term function, and avoid the breeding of vectors.[1]
- Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources in the following order of preference:
    - On-site infiltration, bioretention and/or rainfall harvest and use.
    - On-site biofiltration, off-site groundwater replenishment, and/or off-site retrofit.

[1] Treatment BMPs when designed to drain within 96 hours of the end of rainfall minimize the potential for the breeding of vectors. See California Department of Public Health *Best Management Practices for Mosquito Control in California* (2012) at http://www.westnile.ca.gov/resources.php

Applicability *Permit §VI.D.7.b (LA)/§VII.J.2-3 (LB)*

New Development Projects

The New Development and Redevelopment categories below will require a Standard Urban Stormwater Mitigation Plan (SUSMP), also known as a Low Impact Development (LID) Plan, containing stormwater mitigation measures in compliance with MS4 Permit requirements. Development projects subject to conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s), are listed below:

1. All development projects (including single family hillside homes) equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious surface area
2. Industrial parks with 10,000 square feet or more of surface area
3. Commercial malls with 10,000 square feet or more surface area
4. Retail gasoline outlets with 5,000 square feet or more of surface area
5. Restaurants (SIC 5812) with 5,000 square feet or more of surface area
6. Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces
7. Automotive service facilities (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area
8. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA), where the development will:
   a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and
   b. Create 2,500 square feet or more of impervious surface area
9. Redevelopment projects in subject categories that meet Redevelopment thresholds identified below

Redevelopment Projects

Redevelopment projects subject to agency conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s), are:

1. Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on development categories identified above.
2. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.
3. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire

development.

4. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency Redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

5. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

Special Provisions

1. Street and road construction of 10,000 square feet or more of impervious surface area
   a. These projects will follow an approved green streets manual to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects. The Cities will require a Standard Urban Mitigation Plan (SUSMP), also known as a Low Impact Development (LID) Plan, containing stormwater mitigation measures in compliance with the approved green streets manual requirements.

2. Single family hillside homes will require a less extensive plan. To the extent that an agency may lawfully impose conditions, mitigation measures or other requirements on the development or construction of a single-family home in a hillside area as defined in the applicable agency's Code and Ordinances, the Cities will require that during the construction of a single-family hillside home, the following measures are implemented:
   a. Conserve natural areas
   b. Protect slopes and channels
   c. Provide storm drain system stenciling and signage
   d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability
   e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

New Development/ Redevelopment Project Performance Criteria *Permit §VI.D.7.c (LA)/§VII.J.4 (LB)*

Integrated Water Quality/Flow Reduction/Resources Management Criteria

All New Development and Redevelopment projects identified above will control pollutants, pollutant loads, and runoff volume emanating from the project site by: (1) minimizing the impervious surface area and (2) controlling runoff from impervious surfaces through infiltration, bioretention and/or rainfall harvest and use.

Projects will retain on-site the Stormwater Quality Design Volume (SWQDv) defined as the runoff from the 0.75-inch, 24-hour rain event or the 85th percentile, 24-hour rain event, as determined from the Los Angeles County 85th percentile precipitation isohyetal map[2], *whichever is greater*. Exceptions include technical infeasibility, opportunity for regional groundwater replenishment, local ordinance equivalence, or hydromodification, as described in the sections below.

When evaluating the potential for on-site retention, the Cities will consider the maximum potential for evapotranspiration from green roofs and rainfall harvest and use.

Alternative Compliance for Technical Infeasibility or Opportunity for Regional Groundwater Replenishment

In instances of technical infeasibility or where a project has been determined to provide an opportunity to replenish regional groundwater supplies at an offsite location, the Cities may allow projects to comply with the MS4 Permit through the alternative compliance measures as described below:

1. To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Conditions where technical infeasibility may result including those indicated in

[2] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

2. Table PLD- **1** below. To utilize alternative compliance measures to replenish groundwater at an offsite location, the project applicant will demonstrate *(i)* why it is not advantageous to replenish groundwater at the project site, *(ii)* that groundwater can be used for beneficial purposes at the offsite location, and *(iii)* that the alternative measures will also provide equal or greater water quality benefits to the receiving surface water than the Water Quality/Flow Reduction/Resource Management Criteria.

Table PLD- 1: Technical Infeasibility Criteria

1.	The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv on-site.
2.	Locations where seasonal high groundwater is within 5 to 10 feet of the surface,
3.	Locations within 100 feet of a groundwater well used for drinking water,
4.	Brownfield development sites where infiltration poses a risk of causing pollutant mobilization,
5.	Other locations where pollutant mobilization is a documented concern. Pollutant mobilization is considered a documented concern at or near properties that are contaminated or store hazardous substances underground.
6.	Locations with potential geotechnical hazards
7.	Smart growth and infill or Redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the on-site volume retention requirement.

Alternative Compliance Measures

When a project applicant has demonstrated that it is technically infeasible to retain 100 percent of the SWQDv on-site, or is proposing an alternative offsite project to replenish regional groundwater supplies, the agency will require one of the following mitigation options:

1. On-site Biofiltration

   If using biofiltration due to demonstrated technical infeasibility, then the project must biofiltrate 1.5 times the portion of the SWQDv that is not reliably retained on-site, as calculated by Equation 1 below.

$$B_v = 1.5 * [SWQD_v - R_V] \qquad \textit{Equation 1}$$

   Where:

   Bv = biofiltration volume

   SWQDv = the stormwater runoff from a 0.75 inch, 24-hour storm or the 85th percentile storm[3], *whichever is greater*.

   Rv = volume reliably retained on-site

   The MS4 Permit does not mention flowrate based biotreatment BMPs; however, proprietary biotreatment systems are often sized using flowrate rather than volume. Additionally, in cases where a pump is needed prior to entering the biotreatment BMP, the system requires sizing based on the controlled flow from the pump. Therefore, if it is infeasible to size a biotreatment BMP with volume-based calculations, the flowrate may be substituted in lieu of volume. Similarly, the flow rate must be determined using the design storm of 0.75 inch, 24-hour storm event or the 85th percentile storm[1], whichever is greater.

   Conditions for On-site Biofiltration include the following:

   a. Biofiltration systems will meet the design specifications provided in Attachment H to the MS4 Permit unless otherwise approved by the Regional Water Board Executive Officer.

[3] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

b. Biofiltration systems discharging to a receiving water that is included on the Clean Water Act section 303(d) list of impaired water quality-limited water bodies due to nitrogen compounds or related effects will be designed and maintained to achieve enhanced nitrogen removal capability. See Attachment H of the MS4 Permit for design criteria for underdrain placement to achieve enhanced nitrogen removal.

2. Offsite Infiltration

Offsite infiltration when implemented will use infiltration or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv, less the volume of stormwater runoff reliably retained on-site, at an approved offsite project and provide pollutant reduction (treatment) of the stormwater runoff discharged from the project site in accordance with the Water Quality Mitigation Criteria. The required offsite mitigation volume will be calculated by Equation 2 below.

$$M_v = 1.0 * [SWQD_v - R_v]$$ *Equation 2*

Where:

M_v = mitigation volume

$SWQD_v$ = runoff from the 0.75 inch, 24-hour storm event or the 85th percentile storm[4], *whichever is greater*

R_v = the volume of stormwater runoff reliably retained on-site.

3. Groundwater Replenishment Projects

Regional projects to replenish regional groundwater supplies at offsite locations may be proposed, provided the groundwater supply has a designated beneficial use in the Basin Plan. Regional groundwater replenishment projects must use infiltration, groundwater replenishment, or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv for New Development and Redevelopment projects, subject to conditioning and approval for the design and implementation of post-construction controls, within the approved project area. The projects must provide pollutant reduction (treatment) of the stormwater runoff discharged from development projects, within the project area, subject to conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution in accordance with the Water Quality Mitigation Criteria.

Regional groundwater replenishment projects being implemented in lieu of onsite controls will mitigate the volume as calculated using Equation 2 above.

Regional groundwater replenishment projects will be located in the same sub-watershed (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) as the New Development or Redevelopment projects which did not implement on-site retention BMPs. Locations outside of the HUC-12 but within the HUC-10 subwatershed area may be considered if there are no opportunities within the HUC-12 subwatershed or if greater pollutant reductions and/or groundwater

[4] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

replenishment can be achieved at a location within the expanded HUC-10 subwatershed. *The use of a mitigation, groundwater replenishment, or retrofit project outside of the HUC-12 subwatershed is subject to the approval of the Executive Officer of the Regional Water Board*.

4. Offsite Project -Retrofit Existing Development

   Use infiltration, bioretention, rainfall harvest and use and/or biofiltration BMPs to retrofit an existing development, with similar land uses as the New Development or land uses associated with comparable or higher stormwater runoff event mean concentrations (EMCs) than the new development. Comparison of EMCs for different land uses will be based on published data from studies performed in southern California. The retrofit plan will be designed and constructed to:

   a. Intercept a volume of stormwater runoff equal to the mitigation volume (Mv) as described above in Equation 2, except biofiltration BMPs will be designed to meet the biofiltration volume or flowrate as described in Equation 1, and

   b. Provide pollutant reduction (treatment) of the stormwater runoff from the project site as described in the Water Quality Mitigation Criteria.

5. Conditions for Offsite Projects

   Project applicants seeking to utilize these alternative compliance provisions may propose other offsite projects, which the agency in which the project is located may approve if they meet the requirements of this subpart.

   a. Location of offsite projects. Offsite projects will be located in the same sub-watershed (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) as the New Development or Redevelopment project. Locations outside of the HUC-12 but within the HUC-10 subwatershed area may be considered if there are no opportunities within the HUC-12 subwatershed or if greater pollutant reductions and/or groundwater replenishment can be achieved at a location within the expanded HUC-10 subwatershed. *The use of a mitigation, groundwater replenishment, or retrofit project outside of the HUC-12 subwatershed is subject to the approval of the Executive Officer of the Regional Water Board.*

   b. Project applicant must demonstrate that equal benefits to groundwater recharge can be met on the project site.

   c. A prioritized list of potential offsite mitigation, groundwater replenishment and/or retrofit projects will be developed within each agency, and when feasible, the mitigation will be directed to the highest priority project within the same HUC-12 or if approved by the Regional Water Board Executive Officer, the HUC-10 drainage area, as the New Development project.

   d. Infiltration/bioretention will be the preferred LID BMP for offsite mitigation or groundwater replenishment projects. Offsite retrofit projects may include green streets, parking lot retrofits, green roofs, and rainfall harvest and use. Biofiltration BMPs may be considered for retrofit projects when infiltration, bioretention or rainfall harvest and use is technically infeasible.

   e. The agency in which the project is located will develop a schedule for the completion of offsite projects, including milestone dates to identify, fund, design, and construct the projects. Offsite

projects will be completed as soon as possible, and at the latest, within 4 years of the certificate of occupancy for the first project that contributed funds toward the construction of the offsite project, unless a longer period is otherwise authorized by the Executive Officer of the Regional Water Board. For public offsite projects, the agency in which the project is located must provide in their annual reports a summary of total offsite project funds raised to date and a description (including location, general design concept, volume of water expected to be retained, and total estimated budget) of all pending public offsite projects. Funding sufficient to address the offsite volume must be transferred to the agency (for public offsite mitigation projects) or to an escrow account (for private offsite mitigation projects) within one year of the initiation of construction.

f. Offsite projects must be approved by the agency in which the project is located and may be subject to approval by the Regional Water Board Executive Officer, if a third-party petitions the Executive Officer to review the project. Offsite projects will be publicly noticed on the Regional Water Board's website for 30 days prior to approval.

g. The project applicant must perform the offsite projects as approved by either the agency or the Regional Water Board Executive Officer or provide sufficient funding for public or private offsite projects to achieve the equivalent mitigation stormwater volume.

6. Regional Stormwater Mitigation Program

An agency or agency group may apply to the Regional Water Board for approval of a regional or sub-regional stormwater mitigation program to substitute in part or wholly for New and Redevelopment requirements for the area covered by the regional or sub-regional stormwater mitigation program. Upon review and a determination by the Regional Water Board Executive Officer that the proposal is technically valid and appropriate, the Regional Water Board may consider for approval such a program if its implementation meets all of the following requirements:

a. Retains the runoff from the 85th percentile, 24-hour rain event or the 0.75 inch, 24-hour rain event, whichever is greater;

b. Results in improved stormwater quality;

c. Protects stream habitat;

d. Promotes cooperative problem solving by diverse interests;

e. Is fiscally sustainable and has secure funding; and

f. Is completed in five years including the construction and start-up of treatment facilities.

7. Water Quality Mitigation Criteria

All New Development and Redevelopment projects that have been approved for offsite mitigation or groundwater replenishment projects will also provide treatment of stormwater runoff from the project site. These projects will design and implement post-construction stormwater BMPs and control measures to reduce pollutant loading as necessary to:

a. Meet the pollutant specific benchmarks listed in Table PLD2 at the treatment systems outlet or prior to the discharge to the MS4, and

b. Ensure that the discharge does not cause or contribute to an exceedance of water quality standards at the agency's downstream MS4 outfall.

The project proponent may be allowed to install flow-through modular treatment systems including sand filters, or other proprietary BMP treatment systems with a demonstrated efficiency at least equivalent to a sand filter. The sizing of the flow through treatment device will be based on a rainfall intensity of 0.2 inches per hour, or the one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, *whichever is greater*.

Table PLD- 2: Benchmarks Applicable to New Development Treatment BMPs.

Conventional Pollutants					
Pollutant	Suspended Solids mg/L	Total P mg/L	Total N mg/L	TKN mg/L	
Effluent Concentration	14	0.13	1.28	1.09	
Metals					
Pollutant	Total Cd µg/L	Total Cu µg/L	Total Cr µg/L	Total Pb µg/L	Total Zn µg/L
Effluent Concentration	0.3	6	2.8	2.5	23

New developments and redevelopments will not cause or contribute to an exceedance of applicable water quality-based effluent limitations established in the MS4 Permit pursuant to Total Maximum Daily Loads (TMDLs).

8. Hydromodification (Flow/ Volume/ Duration) Control Criteria

All New Development and Redevelopment projects located within natural drainage systems will implement hydrologic control measures, to prevent accelerated downstream erosion and to protect stream habitat in natural drainage systems. The purpose of the hydrologic controls is to minimize changes in post-development hydrologic stormwater runoff discharge rates, velocities, and duration. This will be achieved by maintaining the project's pre-project stormwater runoff flow rates and durations.

Description

Hydromodification control in natural drainage systems will be achieved by maintaining the Erosion Potential (Ep) in streams at a value of 1, unless an alternative value can be shown to be protective of the natural drainage systems from erosion, incision, and sedimentation that can occur as a result of flow increases from impervious surfaces and prevent damage to stream habitat in natural drainage system tributaries[5]. Hydromodification mitigation approaches should meet the criteria below:

a. Hydromodification control may include one, or a combination of on-site, regional or sub-regional hydromodification control BMPs, LID strategies, or stream and riparian buffer restoration measures. Any in-stream restoration measure shall not adversely affect the beneficial uses of the natural drainage systems.

b. Natural drainage systems that are subject to the hydromodification assessments and controls,

[5] See Attachment J of the MS4 Permit, "*Determination of Erosion Potential*"

as described in this section, include all drainages that have not been improved (e.g., channelized or armored with concrete, shotcrete, or rip-rap) or drainage systems that are tributary to a natural drainage system, except as provided in Exemptions to Hydromodification Controls, see below. The clearing or dredging of a natural drainage system does not constitute an "improvement."

c. Until the State Water Board or the Regional Water Board adopts a final Hydromodification Policy or criteria, the Hydromodification Control Criteria described in this section will be implemented to control the potential adverse impacts of changes in hydrology that may result from New Development and Redevelopment projects located within natural drainage systems.

Exemptions to Hydromodification Controls

New Development and Redevelopment projects may be exempt from implementation of hydromodification controls where assessments of downstream channel conditions and proposed discharge hydrology indicate that adverse hydromodification effects to beneficial uses of Natural Drainage Systems are unlikely. Conditions for exemptions include the following:

a. Projects involving replacement, maintenance or repair of an agency's existing flood control facility, storm drain, or transportation network.

b. Redevelopment Projects in the center of urban areas that do not increase the effective impervious area or decrease the infiltration capacity of pervious areas compared to the pre-project conditions.

c. Projects that have any increased discharge directly or via a storm drain to a sump, lake, area under tidal influence, into a waterway that has a 100-year peak flow (Q100) of 25,000 cfs or more, or other receiving water that is not susceptible to hydromodification impacts.

d. Projects that discharge directly or via a storm drain into concrete or otherwise engineered (not natural) channels (e.g., channelized or armored with rip rap, shotcrete, etc.), which, in turn, discharge into receiving water that is not susceptible to hydromodification impacts.

e. LID BMPs implemented on single family homes are sufficient to comply with hydromodification criteria.

Hydromodification Control Criteria

The Hydromodification Control Criteria to protect natural drainage systems are as follows:

a. Except for exemptions described above, projects disturbing an area greater than 1 acre but less than 50 acres within natural drainage systems will be presumed to meet pre-development hydrology if one of the following demonstrations is made:

    i. The project is designed to retain on-site, through infiltration, evapotranspiration, and/or harvest and use, the stormwater volume from the runoff of the 95th percentile, 24-hour storm, or

ii. The runoff flow rate, volume, and velocity for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour rainfall event and the duration for the post-development condition is not less than the pre-development condition for the 2-year, 24-hour rainfall event. This condition may be substantiated by simple screening models, including those described in Hydromodification Effects on Flow Peaks and Durations in Southern California Urbanizing Watersheds (Hawley et al., 2011) or other models acceptable to the Executive Officer of the Regional Water Board, or

> The MS4 Permit states projects will meet Hydromodification Control Criteria if "*The...duration for the post-development condition* ***do[es] not exceed*** *the pre-development condition for the 2-year, 24-hour rainfall event*." The runoff duration (Tc) is generally associated with longer values resulting in lower concern for hydromodification impacts. Implementation of LID BMPs generally results in runoff not immediately (or not at all) discharging from the site, increasing the time of concentration. Thus, the interpretation presented herein is that Hydromodification Control Criteria would be met if the runoff duration for the post-development condition is **not less than** the pre-development condition for the 2-year, 24-hour rainfall event.

iii. The Erosion Potential (Ep) in the receiving water channel will approximate 1, as determined by a Hydromodification Analysis Study and the equation presented in Attachment J of the MS4 Permit. Alternatively, agencies can opt to use other work equations to calculate Erosion Potential with Executive Officer approval.

b. Projects disturbing 50 acres or more within natural drainage systems will be presumed to meet pre-development hydrology based on the successful demonstration of one of the following conditions:

i. The site infiltrates on-site at least the runoff from a 2-year, 24hour storm event, or

ii. The runoff flow rate, volume, and velocity for the post-development condition does not exceed the pre-development condition for the 2-year, 24-hour rainfall event and the duration for the post-development condition is not less than the pre-development condition for the 2-year, 24-hour rainfall event. These conditions must be substantiated by hydrologic modeling acceptable to the Regional Water Board Executive Officer, or

iii. The Erosion Potential (Ep) in the receiving water channel will approximate 1, as determined by a Hydromodification Analysis Study and the equation presented in Attachment J of the MS4 Permit.

Alternative Hydromodification Criteria

The requirement for Hydromodification Controls will be satisfied by implementing the hydromodification requirements in the County of Los Angeles Low Impact Development Manual (2009) for all projects disturbing an area greater than 1 acre within natural drainage systems.

3. Watershed Equivalence

Regardless of the methods through which applicants implement alternative compliance measures,

the subwatershed-wide (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) result of all development must be at least the same level of water quality protection as would have been achieved if all projects utilizing these alternative compliance provisions had complied with the Integrated Water Quality/Flow Reduction/Resource Management Criteria, described herein.

4. Annual Report

Annual Reports will be provided to the Regional Water Board to include a list of mitigation project descriptions and estimated pollutant and flow reduction analyses (compiled from design specifications submitted by project applicants, as approved. Within 4 years of the MS4 Permit adoption, the Annual Reports will include a comparison of the expected aggregate results of alternative compliance projects to the results that would otherwise have been achieved by retaining on site the SWQDv.

Implementation *Permit §VI.D.7.d (LA)/§VII.J.5 (LB)*

Local Ordinance Equivalence

Alternative requirements in the local ordinances for the agencies of this WMP will provide equal or greater reduction in stormwater discharge pollutant loading and volume as would have been obtained through strict conformance with the Integrated Water Quality/Flow Reduction Resources Management Criteria, Alternative Compliance Measures for Technical Infeasibility, or Opportunity for Regional Groundwater Replenishment sections herein and, if applicable, the Hydromodification (Flow/Volume Duration) Control Criteria section herein.

Project Coordination

A process for effective approval of post-construction stormwater control measures will be developed to include:

a. Detailed LID site design and BMP review including review of BMP sizing calculations, BMP pollutant removal performance, and municipal approval; and

b. An established structure for communication and delineated authority between and among municipal departments that have jurisdiction over project review, plan approval, and project construction through memoranda of understanding or an equivalent agreement.

Maintenance Agreement and Transfer

Prior to issuing approval for final occupancy, the Cities will require that all New Development and Redevelopment projects subject to post-construction BMP requirements, with the exception of simple LID BMPs implemented on single family residences, provide an operation and maintenance plan, monitoring plan, where required, and verification of ongoing maintenance provisions for LID practices, Treatment Control BMPs, and Hydromodification Control BMPs including but not limited to: final map conditions, legal agreements, covenants, conditions or restrictions, CEQA mitigation requirements, conditional use permits, and/ or other legally binding maintenance agreements (see Attachments PLD-A and PLD-B for MCA and MCA Termination sample templates, respectively). Agencies will require maintenance records be kept on site.

Verification at a minimum will include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either:

a. A signed statement from the public entity assuming responsibility for BMP maintenance; or

b. Written conditions in the sales or lease agreement, which require the property owner or tenant to assume responsibility for BMP maintenance and conduct a maintenance inspection at least once a year; or

c. Written text in project covenants, conditions, and restrictions (CCRs) for residential properties assigning BMP maintenance responsibilities to the Home Owners Association; or

d. Any other legally enforceable agreement or mechanism that assigns responsibility for the maintenance of BMPs.

All development projects subject to post-construction BMP requirements will provide a plan for the operation and maintenance of all structural and treatment controls. The plan will be submitted for examination of relevance to keeping the BMPs in proper working order. Where BMPs are transferred to agency for ownership and maintenance, the plan will also include all relevant costs for upkeep of BMPs in the transfer. Operation and Maintenance plans for private BMPs will be kept on-site for periodic review by agency inspectors.

A tracking system and an inspection and enforcement program will be maintained for New Development and Redevelopment post-construction stormwater as shown in Table PLC-3. Enforcement action will be taken per the established Progressive Enforcement Policy as appropriate based on the results of the inspection. See Section for requirements for the development and implementation of a Progressive Enforcement Policy (Appendix A-3-1_PEP).

Table PLD-3: Tracking, Inspection, and Enforcement Program Components

Program	Description	Components	
GIS or other Electronic System	A GIS or other electronic system will be implemented for tracking projects that have been conditioned for post-construction BMPs.	− Municipal Project ID − State WDID No. − Project Acreage − BMP Type and Description − BMP Location (coordinates) − Date of Maintenance Agreement − Date of Acceptance	− Maintenance Records − Inspection Date and Summary − Corrective Action − Date Certificate of Occupancy Issued − Replacement or Repair Date
Inspections[6]	Inspect all development sites upon completion of construction and prior to the issuance of occupancy	Proper installation of: − LID measures, − Structural BMPs,	

[6] The inspection may be combined with other inspections provided it is conducted by trained personnel.

	certificates.	– Treatment control BMPs, and – Hydromodification control BMPs.
Operation and Maintenance[7]	Verify proper operation and maintenance of post-construction BMPs. Inspection at least once every 2 years after project completion.	– Follow a Post-construction BMP Maintenance Inspection checklist (See Attachment PLD-C) – Assess operation and maintenance conditions relating to post-construction BMPs, including BMP repair, replacement, or re-vegetation.

Plan Certification

Each SUSMP/LID Plan should contain proper certifications. The following approach is suggested for SUSMP/LID Plan submittals:

- Form signed by the property owner/applicant stating the category in which the project falls under to easily define the NPDES requirements (see Attachment PLD-D for Form PC sample template).
- Form signed by the property owner/applicant certifying that the BMPs will be implemented, monitored, and maintained per SUSMP/LID Plan requirements (see Attachment PLD-E for Form P1 sample template).
- Form signed and stamped by a California registered civil engineer stating the proposed structural BMPs and certifying the methods and requirements are in compliance with the MS4 Permit requirements (see Attachment PLD-F for Form P2 sample template).

[7] For post-construction BMPs operated and maintained by parties other than the agency in which the BMP(s) is located, the agency will require the other parties to document proper maintenance and operations.

Development Construction Program

The Cities are required to develop, implement and enforce a construction program that includes the provisions listed in MS4 Permit §VI.D.8 (LB §VII.K). This document provides guidance to assist the Cities in implementing a construction program in compliance with the MS4 Permit.

Objectives

Permit §VI.D.8.a (LA)/§VII.K.1 (LB)

The objectives of the construction program are to:

- Prevent illicit construction-related discharges of pollutants into the MS4 and receiving waters.
- Implement and maintain structural and non-structural BMPs to reduce pollutants in stormwater runoff from construction sites.
- Reduce construction site discharges of pollutants to the MS4 to the MEP.
- Prevent construction site discharges to the MS4 from causing or contributing to a violation of water quality standards.

Erosion and Sediment Control Ordinance

Permit §VI.D.8.b (LA)/ §VII.K.1 (LB)

The construction program requires an established, enforceable erosion and sediment control ordinance for all construction sites that disturb soil.

Applicability

Permit §VI.D.8.c (LA)/ §VII.K.1.v (LB)

The construction program addresses construction activity as defined in Table DC-1.

Table DC-1: Definitions

Construction Activity	
Definition	Any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in land disturbance.
Examples	Grading, vegetation clearing, soil compaction, paving, repaving and linear underground/overhead projects (LUPs) that result in land disturbance.
Exclusions	Emergency construction required to immediately protect public health and safety, *routine maintenance* as defined below and agricultural activities.
Routine Maintenance (construction program exclusion)	
Definition	Projects required to maintain the integrity of structures, including but not limited to the following:
Examples	Maintaining the original line and grade, hydraulic capacity, or original purpose of the facility.
	Performing restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
	Performing road shoulder work, regrading dirt/gravel roadways/shoulders and cleaning out ditches.
	Update existing lines (includes replacing with new materials or pipe) and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
	Repair leaks
Exclusion	New lines (i.e. not associated with existing facilities and not part of a project to update or replace existing lines) or facilities constructed to comply with applicable codes, standards and regulations.

The greater part of the construction program is dedicated to construction sites that disturb one acre or more of soil (with the exception of agricultural activities). This coincides with the size threshold for coverage under the State Water Resources Control Board's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. The program provisions exclusive to sites less than one acre are addressed first.

Construction Sites Less than One Acre *Permit §VI.D.8.d (LA)/§VII.K.1.vi (LB)*

BMPs (< 1 acre)

Through the use of the erosion and sediment control ordinance and/or building permit, construction sites are required have in place an effective combination of erosion and sediment control BMPs from Table DC-2 to prevent erosion and sediment loss and the discharge of construction wastes.

Table DC-2: Applicable Set of BMPs for All Construction Sites

BMP Type	BMP
Erosion Controls	Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Site Entrance/Exit
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

Inventory (< 1 acre)

All construction sites with soil disturbing activities that require a permit, regardless of size, are identified and stored in an inventory. Existing permit databases or other tracking systems may be used to file this information. The list of permitted sites is provided to the Regional Water Board upon request.

Inspections (< 1 acre)

Construction sites are inspected on as needed based on the evaluation of the factors that are a threat to water quality. In evaluating the threat to water quality, the following factors are considered: soil erosion potential, site slope, project size and type, sensitivity of receiving water bodies, proximity to receiving water bodies, nonstormwater discharges, past record of noncompliance by the operators of the construction site and any water quality issues relevant to the particular MS4.

Enforcement (< 1 acre)

The Progressive Enforcement Policy (MS4 Permit §VI.D.2) is implemented to ensure that construction sites are brought into compliance with the erosion and sediment control ordinance within a reasonable time period.

Construction Sites One Acre or Greater

Operators of public and private construction sites within a city's jurisdiction are required to select, install, implement, and maintain BMPs that comply with the erosion and sediment control ordinance.

Construction Site Inventory / Electronic Tracking System *Permit §VI.D.8.g (LA)/§VII.K.1.ix (LB)*

An electronic system is used to inventory all issued grading permits, encroachment permits, demolition permits, building permits, or construction permits (and any other municipal authorization to move soil and/ or construct or destruct that involves land disturbance). A database management system or GIS system is recommended. This inventory is continuously updated as new sites are permitted and sites are completed. The inventory / tracking system contains at a minimum the items listed in Table DC-3.

Table DC-3: Inventory Information for Constructions Sites

Information Type		Information
General	Name	Project Name
	Location	Site address and/or latitude and longitude coordinates
		Receiving water
	Contact	Names of owner and contractor
		Mailing addresses of owner and contractor
		Phone numbers of owner and contractor
		Emails (if available) of owner and contractor
Status		Start and end dates
		Permit approval date and anticipated completion date
		Erosion and Sediment Control Plan (ESCP) approval date
		Status of NOI submittal and CGP coverage
		Current construction phase (where feasible)
Size		Size of project and area of disturbance
Water quality		Proximity to waterbodies listed as impaired[1] by sediment related pollutants
		Proximity to waterbodies for which a sediment-related TMDL has been adopted and approved by USEPA
		Status as a significant threat to water quality (based on a consideration of factors listed in Appendix 1 to the CGP)
Inspection		Inspection frequency
Post construction		List of post-construction structural BMPs subject to O&M requirements

Construction Plan Review and Approval Procedures *Permit §VI.D.8.h (LA)/§VII.K.1.x (LB)*

Plan review procedures are developed and implemented such that the following minimum requirements are met:

- Prior to issuing a grading or building permit, each operator of a construction activity within the city's jurisdiction of which the project is located is required to prepare and submit an ESCP prior to the disturbance of land for review and written approval. The construction site operator is prohibited from commencing construction activity prior to receipt of written approval by the city of which the project is located. An ESCP is not approved unless it contains appropriate site-

[1] CWA §303(d) listed or subject to a TMDL

specific construction site BMPs that meet the minimum requirements of the erosion and sediment control ordinance.

- ESCPs must include the elements of a Storm Water Pollution Prevention Plan (SWPPP). SWPPPs prepared in accordance with the requirements of the Construction General Permit can be accepted as ESCPs.
- At a minimum, the ESCP must address the following elements:
    - Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside of the disturbed area.
    - Methods used to protect native vegetation and trees.
    - Sediment/Erosion Control.
    - Controls to prevent tracking on and off the site.
    - Nonstormwater controls (e.g., vehicle washing, dewatering, etc.).
    - Materials Management (delivery and storage).
    - Spill Prevention and Control.
    - Waste Management (e.g., concrete washout/waste management; sanitary waste management).
    - Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
- The ESCP must include the rationale for the selection and design of the proposed BMPs, including quantifying the expected soil loss from different BMPs.
- The ESCP must be developed and certified by a Qualified SWPPP Developer (QSD).
- All structural BMPs must be designed by a licensed California Engineer.
- The landowner or the landowner's agent must sign a statement on the ESCP as follows (see Attachment DC-A for sample OC-1 template):

  "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law."

- Prior to issuing a grading or building permit, the city of which the project is located verifies that the construction site operators have existing coverage under applicable permits, including, but not limited to the State Water Board's Construction General Permit, and State Water Board 401 Water Quality Certification.
- A checklist is used to conduct and document review of each ESCP (see Attachment DC-B for the ESCP Checklist sample template).

BMP Implementation Level *Permit §VI.D.8.i (LA)/§VII.K.1.xi (LB)*

The Cities will implement technical standards for the selection, installation and maintenance of construction BMPs for all construction sites within its jurisdiction.

The BMP technical standards require:

- The use of BMPs that are tailored to the risks posed by the project. Sites are ranked from Low Risk (Risk 1) to High Risk (Risk 3). Project risks are calculated based on the potential for erosion from the site and the sensitivity of the receiving water body. Receiving water bodies that are listed on the Clean Water Act (CWA) Section 303(d) list for sediment or siltation are considered High Risk. Likewise, water bodies with designated beneficial uses of SPWN, COLD, and MIGR are also considered High Risk. The combined (sediment/receiving water) site risk is calculated using the methods provided in Appendix 1 of the Construction General Permit. At a minimum, the BMP technical standards include requirements for High Risk sites as defined in Table DC-7.
- The use of BMPs for all construction sites, sites equal or greater to 1 acre, and for paving projects per Table DC-6 and Table DC-8.
- Detailed installation designs and cut sheets for use within ESCPs.
- Maintenance expectations for each BMP, or category of BMPs, as appropriate.

Permittees are encouraged to adopt respective BMPs from latest versions of the California BMP Handbook, Construction or Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual and addenda. Alternatively, Permittees are authorized to develop or adopt equivalent BMP standards consistent for Southern California and for the range of activities presented in Tables DC-5 through DC-8.

The local BMP technical standards are readily available to the development community and are clearly referenced within the Cities' stormwater or development services websites, ordinances, permit approval processes and/or ESCP review forms. The local BMP technical standards are also readily available to the Regional Water Board upon request.

Local BMP technical standards are available for the BMPs listed in Tables DC-5 through DC-8.

Table DC-4: Minimum Set of BMPs for All Construction Sites

BMP Type	BMP
Erosion Controls	Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Site Entrance/Exit
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

Table DC-5: Additional BMPs Applicable to Construction Sites Disturbing 1 Acre or More

BMP Type	BMP
Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
Sediment Controls	Fiber Rolls
	Gravel Bag Berm
	Street Sweeping and/ or Vacuum
	Storm Drain Inlet Protection
	Scheduling
	Check Dam
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/ Exit
	Stabilized Construction Roadway
	Entrance/ Exit Tire Wash
Non-Storm Management	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Spill Prevention and Control

Table DC-6: Additional Enhanced BMPs for High Risk Sites

BMP Type	BMP
Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
	Slope Drains
Sediment Controls	Silt Fence
	Fiber Rolls
	Sediment Basin
	Check Dam
	Gravel Bag Berm
	Street Sweeping and/or Vacuum
	Sand Bag Barrier
	Storm Drain Inlet Protection
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/Exit
	Stabilized Construction Roadway
	Entrance/Exit Tire Wash
	Advanced Treatment Systems*
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations (Ground water dewatering only under NPDES Permit No. CAG994004)
	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management

*Applies to public roadway projects.

Table DC-7: Minimum Required BMPs for Roadway Paving or Repair Operation (For Private or Public Projects)

#	BMP
1.	Restrict paving and repaving activity to exclude periods of rainfall or predicted rainfall unless required by emergency conditions.
2.	Install gravel bags and filter fabric or other equivalent inlet protection at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat.
3.	Prevent the discharge of release agents including soybean oil, other oils, or diesel to the stormwater drainage system or receiving waters.
4.	Minimize non stormwater runoff from water use for the roller and for evaporative cooling of the asphalt.
5.	Clean equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
6.	Collect liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.
7.	Collect solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
8.	Cover the “cold-mix” asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
9.	Cover loads with tarp before haul-off to a storage site, and do not overload trucks.
10.	Minimize airborne dust by using water spray or other approved dust suppressant during grinding.
11.	Avoid stockpiling soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near stormwater drainage system or receiving waters.
12.	Protect stockpiles with a cover or sediment barriers during a rain.

Construction Site Inspection *Permit §VI.D.8.j (LA)/§VII.K.1.xii (LB)*

The Cities’ legal authority is used to implement procedures for inspecting public and private construction sites. The inspection procedures are implemented as follows:

Inspection Frequency

- Inspect the public and private construction sites as specified in Table DC-8.
- All phases of construction are inspected as follows:
  - Prior to Land Disturbance – Prior to allowing an operator to commence land disturbance, each Permittee shall perform an inspection to ensure all necessary erosion and sediment structural and non-structural BMP materials and procedures are available per the erosion and sediment control plan.
  - During Active Construction, including Land Development[2] and Vertical Construction[3] – In accordance with the frequencies specified in Table DC-8, inspections are performed to ensure all necessary erosion and sediment structural and non-structural BMP materials and procedures are available per the erosion and sediment control plan throughout the construction process.
  - Final Landscaping / Site Stabilization[4] – At the conclusion of the project and as a condition of approving and/or issuing a Certificate of Occupancy, the constructed site is inspected to ensure that all graded areas have reached final stabilization and that all

[2] Activities include cuts and fills, rough and finished grading; alluvium removals; canyon cleanouts; rock undercuts; keyway excavations; stockpiling of select material for capping operations; and excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer system and/or other drainage improvement.
[3] The build out of structures from foundations to roofing, including rough landscaping.
[4] All soil disturbing activities at each individual parcel within the site have been completed.

trash, debris, and construction materials, and temporary erosion and sediment BMPs are removed.

- Based on the required frequencies above, each construction project is inspected a minimum of three times.

Table DC-8: Inspection Frequencies for Sites One Acre or Greater

<table>
<tr><th>Site</th><th>Inspection Frequency Shall Occur</th></tr>
<tr><td>All sites 1 acre or larger that discharge to a tributary listed by the state as an impaired water for sediment or turbidity under the CWA §303(d)</td><td rowspan="2">(1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA[5], (2) within 48 hours of a ½-inch rain event and at (3) least once every two weeks</td></tr>
<tr><td>Other sites 1 acre or more determined to be a significant threat to water quality[6]</td></tr>
<tr><td>All other construction sites with 1 acre or more of soil disturbance not meeting the criteria above</td><td>At least monthly</td></tr>
</table>

Inspection Standard Operating Procedures

Standard operating procedures are implemented, and revised as necessary, that identify the inspection procedures followed by the Cities' inspectors (see Attachment DC-C for suggested standard operating procedures). Inspections of construction sites – and the standard operating procedures – include, but are not limited to:

1. Verification of active coverage under the Construction General Permit for sites disturbing 1 acre or more, or that are part of a planned development that will disturb 1 acre or more and a process for referring non-filers to the Regional Water Board.
2. Review of the applicable ESCP and inspection of the construction site to determine whether all BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions (see Attachment DC-B for the ESCP Checklist sample template).
3. Assessment of the appropriateness of the planned and installed BMPs and their effectiveness.
4. Visual observation and record keeping of nonstormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff.
5. Development of a written or electronic inspection report generated from an inspection checklist used in the field (see Attachment DC-D and DC-E for the Large Site and Small Site[7] Inspection Forms, respectively).
6. Tracking of the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies listed in Table DC-8.

Enforcement *Permit §VI.D.8.k (LA)/§VII.K.1.xiii (LB)*

The Progressive Enforcement Policy is implemented to ensure that construction sites are brought into compliance with all stormwater requirements within a reasonable time period.

[5] www.srh.noaa.gov/forecast

[6] In evaluating the threat to water quality, the following factors shall be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving water bodies; proximity to receiving water bodies; nonstormwater discharges; past record of non-compliance by the operators of the construction site; and any water quality issues relevant to the particular MS4.

[7] A "large site" refers to a site greater than or equal to 1 acre while a "small site" refers to a site less than one acre.

Permittee Staff Training *Permit §VI.D.8.l(LA)/§VII.K.1.xiv(LB)*

Staff whose primary job duties are related to implementing the construction stormwater program are adequately trained.

The Cities may conduct in-house training or contract with consultants. Training is provided to the following staff positions of the MS4:

- Plan Reviewers and Permitting Staff – Staff and consultants are trained as qualified individuals, knowledgeable in the technical review of local erosion and sediment control ordinance, local BMP technical standards, ESCP requirements, and the key objectives of the State Water Board QSD program. The training is provided either internally to staff or staff is required to obtain QSD certification.
- Erosion Sediment Control/Stormwater Inspectors – Inspectors are either 1) knowledgeable in inspection procedures consistent with the State Water Board sponsored program QSD, 2) a Qualified SWPPP Practitioner (QSP) or 3) a designated person on staff trained in the key objectives of the QSD/QSP programs supervises inspection operations. The training is provided either provided internally to staff or staff is required to obtain QSD/QSP certification. Each inspector is knowledgeable of the local BMP technical standards and ESCP requirements.
- Third-Party Plan Reviewers, Permitting Staff, and Inspectors – If outside parties are utilized to conduct inspections and/or review plans, these staff are trained per the requirements listed above. Outside contractors can self-certify, providing they certify they have received all applicable training required in MS4 Permit §VI.D.8 and have documentation to that effect.

Public Agency Activities Program

Each participating city is required to develop and implement a program for public agency facilities and activities that includes the requirements listed in MS4 Permit §VI.D.9 (LB §VII.L). This document provides guidance to assist the Cities in implementing a public agency activities program in compliance with the MS4 Permit.

Objectives *Permit §VI.D.9.a (LA)/§VII.L.1 (LB)*

The objectives of the Public Agency Activities program are to:

- Minimize stormwater pollution impacts from Permittee-owned or operated facilities.
- Minimize stormwater pollution impacts from public agency activities.
- Identify opportunities to reduce stormwater pollution impacts from areas of existing development.

MS4 Permit requirements for Public Agency Facilities and Activities consist of the following components which will be discussed in more detail in the sections below:

- Public Construction Activities Management
- Public Facility Inventory
- Inventory of Existing Development for Retrofitting Opportunities
- Public Facility and Activity Management
- Vehicle and Equipment Wash Areas
- Landscape, Park, and Recreational Facilities Management
- Storm Drain Operation and Maintenance
- Streets, Roads, and Parking Facilities Maintenance
- Emergency Procedures
- Municipal Employee and Contractor Training

1. Public Construction Activities Management *Permit §VI.D.9.b (LA)/§VII.L.2 (LB)*

Each participating city is required to develop and implement a Development Construction Program that meets the requirements the Development Construction Section of this WMP, and Part VI.D.8 of the LA MS4 Permit at municipally owned or operated (i.e., public or Permittee sponsored) construction projects. In addition, each participating city is required to develop and implement a Planning and Land Development Program that meets the requirements in the Planning and Land Development Section of this WMP, and the MS4 Permit at municipally owned or operated (i.e., public or Permittee sponsored) construction projects.

2. Public Facility Inventory *Permit §VI.D.9.c (LA)/§VII.L.3 (LB)*

The Public Agency Activities Program requires the maintenance of an inventory of all Permittee-owned or operated (i.e., public) facilities that are potential sources of stormwater pollution. The incorporation of facility information into a GIS is recommended. Sources that are tracked include but are not limited to the following:

- Animal control facilities
- Chemical storage facilities
- Composting facilities

- Equipment storage and maintenance facilities (including landscape maintenance-related operations)
- Fueling or fuel storage facilities (including municipal airports)
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Materials storage yards
- Pesticide storage facilities
- Fire stations
- Public restrooms
- Public parking lots
- Public golf courses
- Public swimming pools
- Public parks
- Public works yards
- Public marinas
- Recycling facilities
- Solid waste handling and transfer facilities
- Vehicle storage and maintenance yards
- Stormwater management facilities (e.g., detention basins)
- All other Permittee-owned or operated facilities or activities that are determined to contribute a substantial pollutant load to the MS4.

The following minimum fields of information are included in the inventory for each Permittee-owned or operated facility:

- Name of facility
- Name of facility manager and contact information
- Address of facility (physical and mailing)
- A narrative description of activities performed and potential pollution sources.
- Coverage under the Industrial General Permit or other individual or general NPDES permits or any applicable waiver issued by the Regional or State Water Board pertaining to stormwater discharges.

The inventory is updated at least once during the 5-year MS4 Permit term. The update are accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (e.g., property management, land-use approvals, accounting and depreciation ledger account, and similar information).

3. Inventory of Existing Development for Retrofit Opportunities

Permit §VI.D.9.d (LA)/§VII.L.4 (LB)

The Public Agency Activities Program requires the development of an inventory of retrofitting opportunities. Retrofit opportunities are identified within the public right-of-way or in coordination with a TMDL implementation plan(s). The goals of the existing development retrofitting inventory are to address the impacts of existing development through regional or sub-regional retrofit projects that

reduce the discharges of stormwater pollutants into the MS4 and prevent discharges from the MS4 from causing or contributing to a violation of water quality standards as defined in the MS4 Permit.

Existing areas of development are screened to identify candidate areas for retrofitting using watershed models or other screening level tools. The areas of existing development identified during the screening process are then evaluated and ranked to prioritize retrofitting candidates. Criteria for this evaluation may include, but is not limited to the following:

- Feasibility, including general private and public land availability;
- Cost effectiveness;
- Pollutant removal effectiveness;
- Tributary area potentially treated;
- Maintenance requirements;
- Landowner cooperation;
- Neighborhood acceptance;
- Aesthetic qualities;
- Efficacy at addressing concern; and
- Potential improvements to public health and safety.

The results of this evaluation are considered in the following programs:

- Highly feasible projects expected to benefit water quality are given a high priority to implement source control and treatment control BMPs in the WMP.
- High priority retrofit projects are considered as candidates for off-site mitigation projects per LA MS4 Permit §VI.D.7.c.iii(4)(d) (LB §VII.J.4.iii(4)).
- Where feasible, the existing development retrofit program is coordinated with flood control projects and other infrastructure improvement programs per LA MS4 Permit §VI.D.9.e.ii(2) (LB §VII.L.5.ii(2)).

Site specific retrofit projects are encouraged through cooperation with private landowners. The following practices are considered in cooperating with private landowners to retrofit existing development:

- Demonstration retrofit projects;
- Retrofits on public land and easements that treat runoff from private
- developments;
- Education and outreach;
- Subsidies for retrofit projects;
- Requiring retrofit projects as enforcement, mitigation or ordinance compliance;
- Public and private partnerships;
- Fees for existing discharges to the MS4 and reduction of fees for retrofit implementation.

4. Public Facility and Activity Management

Permit §VI.D.9.e (LA)/§VII.L.5 (LB)

4.1. Industrial General Permitted Facilities

Permit §VI.D.9.e.i & §VI.D.9.e.v (LA)/§VII.L.5.i (LB)

All Permittee owned or operated facilities where industrial activities are conducted that require coverage are required to obtain coverage under the Industrial General Permit by submitting a Notice of Intent (NOI) to the State Water Resources Control Board (State Board) and preparing a Stormwater

Pollution Prevention Plan (SWPPP). Facilities that may require coverage are listed by category in 40 Code of Federal Regulations (CFR) Section 122.26(b)(14), and include:

- Facilities subject to stormwater effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR Subchapter N)
- Manufacturing facilities
- Mining and oil and gas facilities
- Hazardous waste treatment, storage, or disposal facilities
- Landfills, land application sites, and open dumps that receive industrial waste
- Recycling facilities
- Steam electric generating facilities
- Transportation facilities
- Sewage treatment plants
- Certain facilities if materials are exposed to stormwater

Municipally owned or operated facilities that have obtained coverage under the IGP implement and maintain BMPs consistent with the associated SWPPP, and are therefore not required to implement and maintain the activity specific BMPs as described in the sections below.

4.2. Flood Management Projects *Permit §VI.D.9.e.ii (LA)/§VII.L.5.ii (LB)*

The following measures are implemented for municipally owned or operated flood management projects:

- Procedures are developed to assess the impacts of flood management projects on the water quality of receiving water bodies;
- Existing structural flood control facilities area evaluated to determine if retrofitting the facility to provide additional pollutant removal from stormwater is feasible.

4.3. Contracted Public Agency Activities *Permit §VI.D.9.e.iv (LA)/§VII.L.5.iv (LB)*

Any contractors hired to conduct Public Agency Activities, including, but not limited to the following must be contractually obligated to implement and maintain the activity specific BMPs outlined in the sections below:

- Storm and/or sanitary sewer system inspection and repair,
- Street sweeping,
- Trash pick-up and disposal, and
- Street and right-of-way construction and repair

It is the responsibility of each Permittee to ensure that these BMPs are being properly implemented and maintained through oversight of contracted activities. Example contractor/lessor contract language is provided in attachment PA-A.

4.4. BMPS for Municipal Activities

Permit §VI.D.9.e.iii & Permit §VI.D.9.e.vi (LA)/§VII.L.5.iii & VII.L.5.vi (LB)

Municipal maintenance and field staff are the ones responsible for implementing effective source control BMPs[1], such as those described in Table PA-1 (or an equivalent set of BMPs) when such activities occur at municipally owned or operated facilities and field operations (i.e. project sites). These sites include, but are not limited to the facility types identified in the Public Facility Inventory, and at any area that includes the activities described in Table PA-1, or that have the potential to discharge pollutants in stormwater. The Caltrans Stormwater Quality Handbook Maintenance Staff Guide (Caltrans Handbook)[2] is an additional resource that describes BMPs to prevent the stormwater-related pollutants most likely to come from common maintenance facility operations and field activities. It provides a straightforward working-level approach to implementing BMPs for common maintenance activities by categorizing these activities into Families, and associating each Family with certain types of BMPs in Activity Cut Sheets. The activities described in Sections 5-10 below are representative of typical municipal operations, and correspond to the activities and BMPs listed in Table PA-1. Where appropriate, each section will identify the appropriate Maintenance Activity Family and corresponding Caltrans Activity Cut Sheets from this table for ease of reference.

Although Table PA-1 and the CalTrans Handbook are excellent references for selecting BMPs for some of the most common municipal activities, they may not represent a comprehensive inventory of activities encountered by maintenance staff and field personnel. Likewise, for those BMPs that are not adequately protective of water quality standards, additional site-specific BMPS may be needed. For example, the implementation of additional BMPs is required where stormwater from the storm drain system discharges to a water body subject to a TMDL, a Clean Water Act §303(d) listed water body, or a significant ecological area (SEA). Attachment PA-B contains a map of SEAs in LA County and Attachment K of the LA MS4 Permit contains a matrix of Permittees and TMDLs.

[1] BMP is defined by the California Stormwater Quality Association as "*any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution*". Source Control BMPs are operational practices that prevent pollution by reducing potential pollutants at the source. They typically do not require maintenance or construction, and may consist of programmatic controls such as street sweeping. Treatment Control BMPs are methods of treatment to remove pollutants from stormwater, and can include constructed treatment devices such as an infiltration basin.

[2] The handbook is available at http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/management_ar_rwp/CTSW-RT-02-057.pdf and may also be found by entering the words "Caltrans Stormwater Quality Handbook Maintenance Staff Guide" in a web search engine.

Table PA-1: General and Activity Specific BMPs and Their Associated Caltrans Handbook Activity Cut Sheet

Maintenance Activity Family	BMP	Caltrans Activity Cut Sheet Number
General BMPs	Scheduling and Planning	B-4
	Spill Prevention and Control	
	Sanitary/Septic Waste Management	
	Material Use	
	Safer Alternative Products	
	Vehicle/Equipment Cleaning, Fueling and Maintenance	
	Illicit Connection Detection, Reporting and Removal	
	Illegal Spill Discharge Control	
	Maintenance Facility Housekeeping Practices	
Flexible Pavement	Asphalt Cement Crack and Joint Grinding/ Sealing	B-9
	Asphalt Paving	B-10
	Structural Pavement Failure (Digouts) Grinding and Paving	B-11
	Emergency Pothole Repairs	B-13
	Sealing Operations	B-14
Rigid Pavement	Portland Cement Crack and Joint Sealing	B-15
	Mudjacking and Drilling	B-16
	Concrete Slab and Spall Repair	B-17
Slope/ Drains/ Vegetation	Shoulder Grading	B-19
	Nonlandscaped Chemical Vegetation Control	B-21
	Nonlandscaped Mechanical Vegetation Control/Mowing	B-23
	Nonlandscaped Tree and Shrub Pruning, Removal	B-24
	Fence Repair	B-25
	Drainage Ditch and Channel Maintenance	B-26
	Drain and Culvert Maintenance	B-28
	Curb and Sidewalk Repair	B-30
Litter/ Debris/ Graffiti	Sweeping Operations	B-32
	Litter and Debris Removal	B-33
	Emergency Response and Cleanup Practices	B-34
	Graffiti Removal	B-36
Landscaping	Chemical Vegetation Control	B-37
	Manual Vegetation Control	B-39
	Landscaped Mechanical Vegetation Control/ Mowing	B-40
	Landscaped Tree and Shrub Pruning, Removal	B-41
	Irrigation Line Repairs	B-42
	Irrigation (Watering), Potable and Nonpotable	B-43
Environmental	Storm Drain Stenciling	B-44
	Roadside Slope Inspection	B-45
	Roadside Stabilization	B-46
	Stormwater Treatment Devices	B-48
	Traction Sand Trap Devices	B-49
Public Facilities	Public Facilities	B-50
Bridges	Welding and Grinding	B-52
	Sandblasting, Wet Blast with Sand Injection, Hydroblasting	B-54
	Painting	B-56
	Bridge Repairs	B-57
Other Structures	Pump Station Cleaning	B-59
	Tube and Tunnel Maintenance and Repair	B-61
	Tow Truck Operations	B-63
	Toll Booth Lane Scrubbing Operations	B-64
Electrical &	Sawcutting for Loop Installation	B-65
Traffic Guidance	Thermoplastic Striping and Marking	B-67
	Paint Striping and Marking	B-68
	Raised/ Recessed Pavement Marker Application/Removal	B-70

	Sign Repair and Maintenance	B-71
	Median Barrier and Guard Rail Repair	B-73
	Emergency Vehicle Energy Attenuation Repair	B-75
Storm Maintenance	Minor Slides and Slipouts Cleanup/ Repair	B-78
Management and Support	Building and Grounds Maintenance	B-80
	Storage of Hazardous Materials (Working Stock)	B-82
	Material Storage Control (Hazardous Waste)	B-84
	Outdoor Storage of Raw Materials	B-85
	Vehicle and Equipment Fueling	B-86
	Vehicle and Equipment Cleaning	B-87
	Vehicle and Equipment Maintenance and Repair	B-88
	Aboveground and Underground Tank Leak and Spill Control	B-90

5. Vehicle and Equipment Wash Areas

Permit §VI.D.9.f (LA)/§VII.L.6 (LB)

This section corresponds to Maintenance Activity Family Management and Support and corresponding Caltrans Activity Cut Sheet B-87.

Vehicle and equipment cleaning at a municipal facility may introduce a number of potential pollutants into the storm drain system. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1 for all fixed vehicle and equipment washing; including fire fighting and emergency response vehicles. In addition, maintenance and field staff are responsible for preventing discharges of wash water from entering the storm drain system. Table PA-2 shows the potential pollutants associated with vehicle and equipment cleaning.

Table PA-2: Potential Pollutants Generated from Cleaning Activities

Activity	**Potential Pollutants**					
Vehicle and Equipment Cleaning	Sediment	Nutrients	Trash	Metals	Oil & Grease	Organics

Discharges of wash waters to the storm drain system are prevented by implementing the following measures at existing facilities with vehicle or equipment wash areas:

- Wash water is self-contained and hauled away for proper disposal offsite.
- Wash areas are equipped with a clarifier, or an alternative pre-treatment device, and water is plumbed to the sanitary sewer in accordance with applicable waste water provider regulations.
- Wastewater from all new vehicle and equipment wash facilities, or redeveloped or replaced existing facilities is prevented from discharging to the MS4 by equipping the facility with a clarifier, or an alternative pre-treatment device, and plumbing water to the sanitary sewer in accordance with applicable waste water provider regulations, or by self-containing all water water/wash water and hauling to a point of legal disposal.

6. Landscape, Park, and Recreational Facilities Management

Permit §VI.D.9.g (LA)/ §VII.L.7 (LB)

This section corresponds to multiple Activity Cut Sheets within the Slope/Drains/Vegetation, Landscape, Environmental, and Management and Support Families.

Maintenance practices at parks and recreational facilities generally include fertilizer and pesticide applications, vegetation maintenance and disposal, irrigation, swimming pool chemical maintenance and draining, and trash and debris management. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1for all public right-of-

ways, flood control facilities and open channels, lakes and reservoirs, and landscape, park, and recreational facilities and activites. Table PA-3 shows the potential pollutants associated with recreational facilities..

Table PA-3: Potential Pollutants Generated from Recreational Facilities

Activity	Potential Pollutants				
Vehicle and Equipment Cleaning	Sediment	Nutrients	Trash	Bacteria	Pesticides

6.1 Model Integrated Pest Management Program

Permit §VI.D.9.g.ii & VI.D.9.g.iii (LA)/§VII.L.7.ii & VII.L.7.iii (LB)

An IPM policy is in place to minimize pesticide and fertilizer use, and encourage the use of IPM techniques for Public Agency facilities and activities. The attached IPM Program template (Attachment PA-C), adapted from the Orange County Drainage Area Management Plan (DAMP) IPM Policy developed by the University of California, Division of Agriculture and Natural Resources, provides an example of an effective IPM program. This IPM Program template is based on regulations, management guidelines, and research-based recommendations established by federal, state and local agencies and universities with particular expertise in pest management.

As part of the IPM policy, a commitment and schedule to reduce the use of pesticides that cause impairment t of surface waters is implemented through the following procedures:

- An inventory of all pesticides used by municipal departments, divisions, and operational units is prepared and updated annually.
- Pesticides used by staff and hired contractors are quantified.
- The use of IPM alternatives is demonstrated, where feasible, to reduce pesticide use.

Municipal maintenance and field staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation, or are under the direct supervision of a pesticide applicator certified in the appropriate category.

7. Storm Drain Operation and Maintenance

Permit §VI.D.9.h (LA)/ §VII.L.8 (LB)

This section corresponds to the Litter/Debris/Graffiti Family: Litter and Debris Removal Cut Sheet, pg. B-33, and the Environmental Family: Storm Drain Stenciling Cut Sheet, pg. B-44

The storm drain system functions primarily to collect and convey surface runoff to receiving waters during storms in order to prevent flooding. It is a common municipal activity to maintain the storm drain system so that it functions hydraulically as intended during storms. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1 for storm drain operation and maintenance, and ensuring that all material removed from the MS4 does not reenter the system by dewatering solid material in a contained area and disposing of liquid material in accordance with any of the following measures:

- Self-containing and hauling off for legal disposal; or
- Applying to the land without runoff; or
- Equipping with a clarifier or alternative pre-treatment device and plumbing to the sanitary sewer in accordance with applicable waste water provider regulations.

Table PA-4 shows potential pollutants generated during storm drain operation and maintenance.

Table PA-4: Potential Pollutants Generated from Storm Drain Operation and Maintenance

Activity	Potential Pollutants: Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Inspection and Cleaning of Conveyance Structures	×	×	×		×		×		×
Controlling Illicit Connections and Discharges	×	×	×	×	×	×	×	×	×
Controlling Illegal Dumping	×	×	×	×	×	×	×	×	×
Maintenance of Inlet and Outlet Structures	×		×		×	×			

7.1 Catch Basin Cleaning *Permit §VI.D.9.h.iii (LA)/ §VII.L.8.iii (LB)*

There is no preferred method for cleaning catch basins as long as the method used is successful in removing accumulated sediment and debris. The methods used are determined in the field with the goal of minimizing the amount of escaped material, and preventing this material from entering the storm drain system. A template catch basin cleaning log is provided in Attachment PA-D.

7.1.1 Catch Basins Cleaning in Areas not Subject to a Trash TMDL

In areas that are not subject to a trash TMDL, catch basin inlets are prioritized based on the amount of trash generated, and inspected according to the schedule in Table PA-5.

Table PA-5: Inspection Frequencies for Catch Basin Inlets

Trash Generating Frequency	Priority	Inspection Frequency
Consistently generates the highest volumes of trash and/or debris	A	A minimum of three times during the wet season (October-April) and once during the dry season every year
Consistently generates moderate volumes of trash and/or debris	B	A minimum of once during the wet season and once during the dry season every year
Generates low volumes of trash and/or debris	C	A minimum of once per year

An inventory of catch basins is maintained and updated regularly. This inventory includes the following components:

- GPS coordinates of each catch basin
- Priorities for inspection
- Rationale or data to support catch basin priority designations
- Inspection and cleaning records

Catch basins are cleaned as necessary based on the inspections conducted. At a minimum, catch basins determined to be at least 25% full of trash are cleaned out.

7.1.2 Catch Basin Cleaning in Areas Subject to a Trash TMDL

In areas subject to a Trash TMDL, all applicable provisions of LA MS4 Permit Section VI.E (LB Part Part VIII) in conformance with the appropriate TMDL implementation schedule, are implemented. This includes an effective combination of full capture, partial capture, institutional controls, or minimum frequency of assessment and collection as described in LA MS4 Permit Section VI.E (LB Part Part VIII).

7.2 Catch Basin Labels and Open Channel Signage

Permit §VI.D.9.h.vi (LA)/ §VII.L.8.vi (LB)

All municipally owned storm drain inlets are labeled with a "No Dumping, Drains to Ocean" message, and inspected for legibility prior to the wet season (October-April) every year. Catch basins with illegible labels are recorded and re-stenciled or re-labeled within 180 days of inspection. In addition, signs referencing local code(s) that prohibit littering and illegal dumping are posted at designated public access points to open channels, creeks, urban lakes, and other relevant water bodies.

7.3 Trash Management

Permit §VI.D.9.h.iv-v & Permit §VI.D.9.h.vii (LA)/§VII.L.8.iv-v (LB)

The following Trash Management BMPs described below are employed to mitigate the impacts of anthropogenic trash on receiving waters.

7.3.1 Trash Management at Public Events

The following measures are implemented for any event in the public right of way or wherever it is foreseeable that substantial quantities of trash and litter may be generated, including events located in areas that are subject to a trash TMDL:

- Proper management of trash and litter generated; and
- Arrangement for temporary screens to be placed on catch basins; or
- Provide clean out of catch basins, trash receptacles, and grounds in the event area within one business day subsequent to the event.

7.3.2 Trash Receptacles

Covered trash receptacles are located in areas identified as high trash generation areas and maintained and cleaned out as necessary to prevent trash overflow. Examples of areas that may be considered high trash generating areas include:

- High vehicle or pedestrian traffic areas
- Commercial areas
- Industrial areas
- Construction areas
- High density residential areas
- Areas adjacent to vacant lots

7.3.3 Additional Trash Management Practices

In areas that are not subject to a trash TMDL, additional trash management practices will be employed no later than five years after the effective date of the LA MS4 Permit (4 years after the effective date of the LB MS4 Permit). Trash excluders or equivalent devices must be installed on or in catch basins or outfalls to prevent the discharge of trash to the MS4 or receiving waters, unless the installation of such BMP(s) alone will cause flooding (not due to lack of maintenance). Alternatively, additional trash BMPs

that provide substantially equivalent removal of trash may be implemented. Additional BMPs may include, but are not limited to:

- Increased street sweeping
- Adding trash cans near trash generation sites
- Prompt enforcement of trash accumulation
- Increased trash collection on public property
- Increased litter prevention messages or trash nets within the MS4

The BMPs chosen will provide equivalent trash removal performance as excluders, and will be demonstrated though the annual report. When outfall trash capture is provided, revision of the schedule for inspection and cleanout of catch basins will also be reported in the annual report.

The State Water Resources Control Board (State Water Board) is considering the adoption of amendments to the Water Quality Control Plans for Ocean Waters of California and for the Inland Surface Water, Enclosed Bays, and Estuaries of California for Trash (Trash Amendments) citing a strong need for statewide consistency in trash management. The proposed Trash Amendments will include five elements: (1) Water Quality Objective, (2) Prohibition of Discharge, (3) Implementation, (4) Compliance Schedule, and (5) Monitoring, which will outline NPDES Permittee requirements for trash management. The development of the Trash Amendments will continue to be monitored, and any additional required trash management practices in areas not subject to a trash TMDL will be implemented per the guidance provided by these amendments.

7.4 Storm Drain Maintenance

Permit §VI.D.9.h.viii (LA)/ §VII.L.8.viii (LB)

The following BMPs constitute the Storm Drain Maintenance Program:

- Municipally-owned open channels and drainage structures are visually inspected for debris at least annually.
- Trash and debris from is removed from open channel storm drains a minimum of once per year, before the storm season.
- The discharge of contaminants is minimized during MS4 maintenance and clean outs;
- Material removed is properly disposed of by containing and hauling away for legal disposal

7.5 Infiltration from Sanitary Sewer to MS4/Preventive Maintenance

Permit §VI.D.9.h.ix (LA)/§VII.L.8.ix (LB)

Thorough, routine, preventive surveys and maintenance of both municipally owned and operated Storm Drain Systems as well as Sanitary Sewer Systems infiltration and seepage of contaminants from the sanitary sewer system into the storm drain system is prevented. Sanitary Sewer System routine preventative maintenance is described in the Sewer System Management Plan (SSMP), which is a component of the Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems.

Where necessary, controls implemented to limit infiltration of seepage from sanitary sewers to the MS4 include:

- Adequate plan checking for construction and new development;
- Incident response training for its municipal employees that identify sanitary sewer spills;
- Code enforcement inspections;
- MS4 maintenance and inspections;
- Interagency coordination with sewer agencies; and

- Proper education of its municipal staff and contractors conducting field operations on the MS4 or its municipal sanitary sewer (if applicable).

7.6 Permittee Owned Treatment Control BMPs *Permit §VI.D.9.h.x (LA)/§VII.L.8.x (LB)*

All municipally owned treatment control BMPs, including post-construction BMPs, are regularly inspected and maintained to ensure their proper operation.
Any residual water generated during BMP maintenance is disposed of using one of the following procedures:

- Hauled away and legally disposed of; or
- Applied to the land without runoff; or
- Discharged to the sanitary sewer system; or
- Treated or filtered to remove bacteria, sediments, nutrients, and meet the limitations set in Table PA-6 below prior to discharge to the storm drain system.

Table PA-6: Discharge Limitations for Dewatering Treatment BMPs

Parameter	Units	Limitation
Total Suspended Solids	Mg/L	100
Turbidity	NTU	50
Oil and Grease	Mg/L	10

8. Streets, Roads, and Parking Facilities Maintenance

Permit §VI.D.9.i(LA)/§VII.L.9 (LB)

This section corresponds to multiple Activity Cut Sheets within the Flexible Pavement, Rigid Pavement, Litter/Debris/Graffiti, Traffic Guidance, and Management and Support Families.

Streets and roads may collect litter and debris from nearby activities, as well as from vehicular traffic. They also require routine maintenance that may generate waste materials. Table PA-7 shows potential pollutants generated from street, road, and parking facilities maintenance.

Table PA-7: Potential Pollutants Generated from Street, Road, and Parking Facility Maintenance

	Potential Pollutants						
Activity	Sediment	Trash	Metals	Bacteria	Oil & Grease	Organics	Oxygen Demanding Substances
Street and Road Maintenance	×	×	×		×	×	
Parking Facility Maintenance	×	×	×	×	×	×	×

8.1 Street Sweeping *Permit §VI.D.9.i.i-ii(LA)/§VII.L.9.i-ii (LB)*

Streets and/or street segments are swept according to the following designations:

- Priority A: Streets and/or street segments that are designated as consistently generating the highest volumes of trash and/or debris should be swept at least two times per month.
- Priority B: Streets and/or street segments that are designated as consistently generating moderate volumes of trash and/or debris should be swept at least once per month.
- Priority C: Streets and/or street segments that are designated as generating low volumes of trash and/or debris shall be swept as necessary but in no case less than once per year.

8.2 Road Reconstruction *Permit §VI.D.9.iii (LA)/§VII.L.9.iii (LB)*

Projects that include roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces implement the following BMPS:

- Restricting paving and repaving activities to exclude periods of rainfall or predicted rainfall unless required by emergency conditions.
- Installing sand bags or gravel bags and filter fabric at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat;
- Preventing the discharge of release agents including soybean oil, other oils, or diesel into the MS4 or receiving waters.
- Preventing non-stormwater runoff from water use for the roller and for evaporative cooling of the asphalt.
- Cleaning equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
- Collecting liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.
- Collecting solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
- Covering the “cold-mix” asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
- Covering loads with tarp before haul-off to a storage site, and not overloading trucks.
- Minimizing airborne dust by using water spray during grinding.
- Avoiding the stockpiling of soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near MS4 or receiving waters.
- Protecting stockpiles with a cover or sediment barriers during a rain.

8.3 Parking Facilities Maintenance *Permit §VI.D.9.iv (LA)/ §VII.L.9.iv (LB)*

Municipally owned parking lots that are uncovered and exposed to stormwater are kept clear of debris and excessive oil buildup by inspecting lots at least 2 times per month and cleaning at least once per month.

9. Emergency Procedures *Permit §VI.D.9.j (LA)/ §VII.L.10 (LB)*

Participating Agencies may conduct repairs of essential public service systems and infrastructure in emergency situations with a self-waiver of the provisions of the MS4 Permit as follows:

- Cities will abide by all other regulatory requirements, including notification to other agencies as appropriate.
- Where the self-waiver has been invoked, Cities will submit to the Regional Water Board Executive Officer a statement of the occurrence of the emergency, an explanation of the

circumstances, and the measures that were implemented to reduce the threat to water quality, no later than 30 business days after the situation of emergency has passed.

Minor repairs of essential public service systems and infrastructure in emergency situations (that can be completed in less than one week) are not subject to the notification provisions. Appropriate BMPs to reduce the threat to water quality will be implemented.

10. Municipal Employee and Contractor Training *Permit §VI.D.9.k (LA)/Permit §VII.L.11 (LB)*

An annual training program on the requirements of the overall stormwater management program is implemented for all municipal field staff whose interactions, jobs, and activities affect stormwater quality prior to June 30 every year. The Cities also ensure that contractors performing privatized/contracted municipal services have appropriate training in the stormwater management program. The goals of the annual training are to:

- Promote a clear understanding of the potential for municipal activities to pollute stormwater
- Identify opportunities to require, implement, and maintain appropriate BMPs in their line of work

In addition to the annual stormwater program training, the Cities implement an annual training program to train all of their employees and contractors who use or have the potential to use pesticides or fertilizers (whether or not they normally apply these as part of their work). Training programs address:

- The potential for pesticide-related surface water toxicity
- Proper use, handling, and disposal of pesticides
- Least toxic methods of pest prevention and control, including IPM
- Reduction of pesticide use

Outside contractors can self-certify, providing they certify they have received all applicable training required in the MS4 Permit and have documentation to that effect.

Illicit Connections & Illicit Discharges Elimination Program

Each participating city is required to develop and implement an Illicit Connections & Illicit Discharge Elimination (IC/ID) Program that includes the requirements listed in Permit §VI.D.10.a (LB §VII.M). This document provides guidance to assist the Cities in implementing an IC/ID program in compliance with the Permit.

Introduction *Permit §VI.D.10.a (LA)/§VII.M.1 (LB)*

Illicit connections and illicit discharges (IC/IDs) as defined in Table ICID-1 are potential significant sources of pollutants into and from the MS4. The Illicit Connection and Illicit Discharge (IC/ID) Program provides a comprehensive process for detecting, investigating and eliminating IC/IDs in an efficient and timely manner. The program consists of the following components:

- Procedures for conducting source investigations for IC/IDs
- Procedures for eliminating the source of IC/IDs
- Procedures for public reporting of illicit discharges
- Spill response plan and
- IC/ID education and training for City staff.

The purpose of this program is to effectively prohibit illicit discharges into the MS4.

Table ICID-1: IC/IDs Defined

Prohibition	Definition	Examples
Illicit Connections	Any man-made conveyance that is connected to the MS4 without a permit, excluding roof drains and other similar type connections.	Unpermitted channels, pipelines, conduits, inlets or outlets that are connected directly to the MS4.
Illicit Discharges	Any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes or regulations. This includes any non-stormwater discharge, except those authorized in MS4 Permit §III.A.10.2.	Sanitary wastewater, Vehicle wash water, wash-down from grease traps, motor oil, antifreeze and fuel spills into or from the MS4.

Legal Authority

Adequate Legal Authority is required to prohibit IC/IDs to the MS4 and enable enforcement capabilities to eliminate the sources of IC/IDs.

Illicit Discharge Source Investigation and Elimination *Permit §VI.D.10.b (LA)/ §VII.M.2 (LB)*

The purpose of the IC/ID Program is accomplished in part by developing clear, step-by-step written procedures for conducting investigations of illicit discharges.

Investigation

Standardized procedures for conducting investigations to identify the source of all suspected illicit discharges are included in as an attachment (Illicit Discharge Investigation and Elimination Guidance). Procedures include the following:

- **Initiation** – Investigate the source of all observed discharges. After becoming aware of an illicit discharge, conduct an investigation to identify and locate the source within 72 hours.
- **Prioritization** – Investigate illicit discharges suspected of being sanitary sewage and/or significantly contaminated first.
- **Tracking** – Track all investigations and document the information listed in Table ICID-2.

Table ICID-2: Recorded Information for Illicit Discharge Investigations

Item	Information
1	Date(s) the illicit discharge was observed
2	Results of the investigation
3	Follow-up of the investigation
4	Date the investigation was closed

Elimination

Standardized procedures to eliminate illicit discharges once the sources are located are included as an attachment. Procedures include the following:

- **Notification** – Immediately notify the responsible party (RP)/parties of the problem and require the responsible party to initiate all necessary corrective actions to eliminate the illicit discharge.
  - If it is determined that an illicit discharge originates within an upstream jurisdiction, notify the upstream jurisdiction and the Regional Board. The Notification is conducted within 30 days of determination and information is collected regarding combined efforts to identify the source.
- **Spill response** – The Spill Response Plan is implemented when the source for illicit discharges cannot be traced to a suspected RP. Permanent solutions to such discharges are described in the following section (Flow Diversion).
- **Follow-up** – Conduct and document follow-up investigations upon notification that an illicit discharge has been eliminated to verify that it has been satisfactorily eliminated and cleaned-up.
- **Enforcement** – Enforcement procedures are included in the Progressive Enforcement Policy. The Progressive Enforcement Policy includes a list of enforcement actions.

Progressive Enforcement Policy

The Progressive Enforcement Policy is implemented to ensure that illicit discharges/ illicit connections are eliminated within a reasonable time period. The procedures are followed when the source of the nature of the discharges is known. Procedures typically include:

- Written warnings for minor violations
- Formal notice of violation with specific actions and time frames for compliance
- Compensation from the RP for any costs related to remediation, inspection, investigation, clean-up and oversight activities
- Cease and desist orders

- Civil penalties (infractions), or referral for criminal penalties or further legal action.

Flow Diversion

In the event that an ongoing illicit discharge cannot be eliminated (following the full execution of legal authority and in accordance with the Progressive Enforcement Policy) or the RPs cannot be identified, the discharge is either treated or diverted to the sanitary sewer. In either instance, the Regional Board is notified within 30 days of such determination. Notification includes the following information:

- Written plan that describes the efforts that have been undertaken to eliminate the discharge.
- Description of actions to be undertaken.
- Anticipated cost and
- Schedule for completion.

Identification and Response to Illicit Connections *Permit §VI.D.10.c (LA)/§VII.M.3 (LB)*

Illicit connections can be concentrated sources of pollutants either through direct discharge or infiltration of sewage or other prohibited discharges into the MS4. To reduce this source of pollutants, the following program is implemented for the identification of illicit connections. Key components of this program include investigating and responding in order to actively prevent and eliminate illicit connections.

Investigation

Standardized procedures for identifying illicit connections are included as an attachment (Illicit Connection Investigation Guidance). Procedures include the following:

- **Initiation** – Investigate within 21 days from the discovery or upon receiving a report of a suspected illicit connection. The elements of the investigation are listed in Table ICID-3.
- **Tracking** – Track all investigations and document the information listed in Table ICID-3.

Response

If the source investigation concludes that a connection to the MS4 is both 1) permitted or documented and 2) discharging only stormwater or nonstormwater allowed under WMP NSWD SECTION or other individual or general NPDES Permits/WDRs, then the investigation is closed and no further action is taken. Upon confirmation of a connection to the MS4 is illicit, one of two options is taken:

1. **Permit or document the connection.** The permitted or documented connection may only discharge stormwater and nonstormwater allowed under WMP NSWD SECTION or other individual or general NPDES Permits/WDRs. Retaining a record of the connection and its investigation qualifies as documentation.
2. **Eliminate the connection.** The connection is eliminated within 180 days of completion of the investigation, using formal enforcement authority if necessary.

Table ICID-3: Recorded Information for Illicit Connection Investigations

Item	Information
1	Any relevant illicit discharge information from Table ICID-2
2	Source of the connection
3	Nature and volume of the discharge through the connection
4	RP for the connection (if identified)
5	Response including any formal enforcement taken

Public Reporting of Non-Stormwater Discharges and Spills *Permit §VI.D.10.d (LA)/§VII.M.4 (LB)*

Central Point of Contact

Public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s through a central contact point are promoted, publicized, and facilitated. This includes phone numbers and an internet site for complaints and spill reporting. The reporting hotline is provided to staff to leverage the field staff that has direct contact with the MS4 in detecting and eliminating illicit discharges.

The LACFCD, in collaboration with the County, provides the central point of contact and through the 888-CLEAN-LA reporting hotline and internet site.

Open Channels

Signage is posted adjacent to open channels (see MS4 Permit IV.D.9.h.vi.(4)). The signage includes information regarding dumping prohibitions and public reporting of illicit discharges.

Complaints

Written procedures are maintained that document how complaint calls are received, and tracked to ensure that all complaints are adequately addressed in the attached form (Record Keeping & Documentation). Following the adaptive management process outlined in the MS4 Permit, the procedures are periodically evaluated to determine whether changes or updates are needed to ensure that the procedures accurately document the employed methods. After the evaluation, any identified changes will be made to the procedures.

Documentation is maintained for all complaint calls. This includes recording the location of the reported spill or IC/ ID and the actions undertaken in response the complaint, including referrals to other agencies.

Spill Response Plan *Permit §VI.D.10.e (LA)/§VII.M.5 (LB)*

A spill response plan (Attachment ICID-E) is implemented for all sewage and other spills that may discharge into its MS4. The spill response plan identifies agencies responsible for spill response and cleanup, telephone numbers and e-mail address for contacts, and contains the following:

- **Agency Coordination** – Coordinate with spill response teams throughout all appropriate departments, programs and agencies so that maximum water quality protection is provided.
- **Spill Response** – Respond to spills for containment within 4 hours of becoming aware of the

spill, except where such spills occur on private property, in which case respond within 2 hours of gaining legal access to the property. Initiate investigation of all public and employee spill complaints within one business day of receiving the complaint to assess validity.

- **Reporting** – Spills that may endanger health or the environment are reported to appropriate public health agencies and the California Emergency Management Agency (Cal EMA).

Illicit Connection and Illicit Discharge Education and Training *Permit §VI.D.10.f (LA)/§VII.M.6 (LB)*

A training program regarding the identification of IC/IDs is implemented for all municipal field staff, who, as part of their normal job responsibilities (e.g., street sweeping, storm drain maintenance, collection system maintenance, road maintenance), may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4. Contact information, including the procedure for reporting an illicit discharge, is readily available to field staff.

Applicable Staff

Table ICID-4 is a list of field programs where program staff may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4. Appropriate field staff, supervising staff and contractors involved in these programs require training in IC/ID identification and reporting following the schedule provided in Table ICID-5.

<u>Contracted Staff</u>
Contractors that provide these municipal services may attend city training or certify to the participating city and retain documentation that staff has received applicable training. Otherwise this provision is accomplished through a contractual requirement for contracted staff to receive the training.

Table ICID-4: Municipal Field Programs

Main Field Program Types	Sub-Category Types/Activities
Lake Management	Fertilizer & Pesticide Management
	Mowing, Trimming/Weeding, Planting
	Managing Landscape Waste
	Controlling Litter
	Erosion Control
	Controlling Illegal Dumping
	Bacteria Control
	Monitoring
Landscape Maintenance	Mowing, Trimming/Weeding, Planting
	Irrigation
	Fertilizer & Pesticide
	Managing Landscape Waste
	Erosion Control
Roads, Streets, and Highways Operations and Maintenance	Sweeping & Cleaning
	Street Repair & Maintenance
	Bridge & Structure Maintenance
Fountains, Plazas, and Sidewalk Maintenance and Cleaning	Surface Cleaning
	Graffiti Cleaning
	Sidewalk Repair
	Controlling Litter
	Fountain Maintenance
Solid Waste Handling	Solid Waste Collection
	Waste Reduction & Recycling
	Hazardous Waste Collection
	Litter Control
Water and Sewer Utility O&M	Water Line Maintenance
	Sanitary Sewer Maintenance
	Spill/Leak/Overflow Control
Fire Department Activities	Emergency/Post-Emergency Fire Fighting Activities
	Fire Fighting Training
	Fire Station Activities

Training Schedule

The training schedule for all applicable staff is listed in Table ICID-5.

Table ICID-5: IC/ID Program Training Schedule

Category	Schedule
Current Staff	Twice during the term of the MS4 Permit
New Staff	Within 180 days of starting employment

Training Elements

The IC/ID elements addressed by the training program are listed in Table ICID-6.

Table ICID-6: Minimum IC/ID Training Program Elements

Item	Information
1	IC/ID identification, including definitions and examples
2	Investigation
3	Elimination
4	Clean-up
5	Reporting
6	Documentation

Documentation

Documentation of training program activities and training modules are retained and made available for review by the Regional Board.

PROGRESSIVE ENFORCEMENT POLICY

2014 Stormwater Enforcement Guide

Insert City Seal

RB-AR14852

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PROGRESSIVE ENFORCEMENT POLICY

STORMWATER ENFORCEMENT GUIDE

INTRODUCTION

This Stormwater Progressive Enforcement Policy (PEP) provides procedures to enforce provisions of the Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4 Order No. R4-2012-0175. Pursuant to Section VI.D.2.a of the Order, Permittees are required to develop and implement a PEP to ensure that (1) regulated Industrial/ Commercial facilities, (2) construction sites, (3) development and redevelopment sites with post-construction controls, and (4) illicit discharges are each brought into compliance with all storm water and non-storm water requirements. The PEP provides the City with a guidance for enforcing the MS4 Permit Provisions and identifies enforcement procedures designed to encourage a timely response.

PROGRESSIVE ENFORCEMENT

Progressive enforcement is an escalating series of actions that allows for the efficient and effective use of enforcement. In some situations, an informal response (written warning/inspection report) is sufficient to inform the responsible party that there is a deficiency and to require the responsible party to return to compliance. If violations continue, the enforcement response should be quickly escalated to increasingly more formal and serious actions until compliance is achieved. Progressive enforcement is not appropriate in all circumstances. For example, where there is a situation needing immediate response, immediate issuance of a cleanup and abatement order may be appropriate.

COMPLIANCE CRITERIA

The City conducts on-site compliance inspections and conducts investigations, in response to complaints, under their authority provided in their municipal code and ordinances to verify compliance. Typical noncompliance issues related to stormwater may include:

- Prohibited discharges to the storm drain system.
- Site's existing condition is likely to result in exposure of pollutants to stormwater contact and possible pollutant discharge to the storm drain system such as:
    - Poor housekeeping activities that results in pollutant exposure.
    - Unattended spills and leaks.
    - Uncovered or improperly stored wastes, materials, or other items of concern.
    - Open waste receptacles such as tallow bins, compactors, and trash bins.
    - Leaky or contaminated equipment stored or used outdoors.
    - Track-out of dirt and sediment or other materials to street or outdoor areas.
- Illicit connections to the storm drain system.
- Best Management Practices (BMPs) are not in place to address pollutant generating activities, which may include erosion and sediment controls and post construction controls.

Complaint Response

The City may receive complaints regarding stormwater ordinance from their staff members, public, local agencies, or the Regional Water Board. The City initiates, within one business day,[1] investigation of complaints from facilities within its jurisdiction. The initial investigation includes, at minimum, a limited inspection of the facility to confirm validity of the complaint and to determine if the facility is in compliance with municipal storm water ordinance and, if necessary, to oversee corrective action. Emergency complaints are investigated immediately.

PROGRESSIVE ENFORCEMENT GUIDELINES

Informal Enforcement

The City implements professional judgment regarding the circumstances surrounding an enforcement action and chooses to resolve routine noncompliance quickly and efficiently through informal means that are not accompanied by sanctions (*e.g.*, civil charges or penalties). When deemed appropriate, the City employs the procedures described below to correct noncompliance informally.

Written Warning/ Inspection Report

Under circumstances where an inspection reveals routine noncompliance that can be corrected within a reasonably short time, staff may choose to issue a written warning/inspection report that describes the minor deficiencies/violations and includes a schedule for correcting the noncompliance[2]. The purpose of the written warning is to give the responsible party an opportunity to comply voluntarily and thus avoid sanctions that might be imposed by an escalated enforcement response.

For residential zones, the City employs an informal enforcement process and escalates to formal enforcement actions for those residents that do not comply with stormwater regulations.

Formal Enforcement / Administrative Enforcement

In the event that the City determines, based on an inspection or illicit discharge investigation conducted, that a responsible party has failed to adequately comply with the informal enforcement process within the required timeframe, the City may initiate administrative enforcement actions or will implement enforcement actions as established through authority in its municipal code. The City's goal is to achieve compliance through an extensive inspection program, educational outreach efforts and, if necessary, the initiation of appropriate enforcement action(s). The goal of any enforcement action is to: (1) return the facility to compliance in a timely manner; (2) eliminate economic benefit realized by the noncompliant facility; and (3) punish violators and prevent future noncompliance.

Notice of Violations

Under circumstances where the responsible party has failed to comply with the informal enforcement process or where the violations are significant, the City may choose to issue a Notice of Violation (NOV). The purpose of an NOV is to inform the responsible party of the observed violations, the applicable stormwater municipal codes that the responsible party has failed to comply with and the

[1] The City may comply with the Permit by taking initial steps (such as logging, prioritizing, and tasking) to "initiate" the ingestigation within that one business day. However, the Regional Water Board would expect that the initial investigation, including a site visit, to occur within four business days (per MS4 Order No.R4-2012-0175 Section VI.D.2.b)
[2] The City may choose to issue/write inspection report on site or provide to the responsible party at a later time.

potential consequences of failing to correct the violations. The NOV also gives the responsible party an opportunity to correct the violations described in the NOV within a specified time. Under circumstances where the responsible party fails to adequately respond to the NOV by failing to address or correct the violations noted in the NOV, the severity of the enforcement response will continue to escalate as described below.

Failure to Return to Compliance/ Second Notice of Violation

The City's municipal code stormwater ordinance authorizes assessment of administrative penalties which can be carried out by issuing a Failure to Return to Compliance Notice or second NOV . The second NOV is a stronger enforcement option which may be used in circumstances where the responsible party has failed to comply with the requirements as indicated on the first NOV.

Cease and Desist Order

In the event the City's municipal code stormwater ordinance authorizes a Cease and Desist Order (CDO), the City may issue a CDO, as an alternative to the second NOV, when immediate action by the responsible party is necessary to eliminate a continuing or threatened serious violation of the stormwater ordinance.

Misdemeanors

The City's may escalate enforcement when evidence of noncompliance indicates that the violator of the stormwater ordinance has acted intentionally with intent to cause, allow to continue or conceal a discharge in violation of the ordinance.

Issuance of Citation/Infractions

At the discretion of the City's, and as established through authority in its municipal code, the City may issue citations and/or infractions.

Cost Recovery

In the event that a complaint response or violation requires clean-up and or extensive investigation, the City has the authority, as established in the municipal code, to require the responsible party to reimburse the city or County for all costs incurred by the related violation. Cost recovery fees that may be collected include, but are not limited to, investigation, enforcement, compliance assistance, damage, control, and clean-up.

Abatement

When a responsible party fails to cease or control a nuisance condition that results in or is likely to result in further or continuing violations, the City's may request abatement of conditions on private property if necessary, or in the event of imminent danger to public safely or the environment, the City itself may abate the nuisance condition.

Permit Revocation

Sites violating the stormwater permit may be subject to permit revocation procedures as authorized in the City's municipal code.

City's/District Attorney

Severe or continuing violations should be referred to the City's or District Attorney for consideration of criminal charges.

TIMEFRAMES FOR CORRECTING DEFICIENCIES/VIOLATIONS

Depending upon the nature of the deficiencies/violations observed, City's may specify compliance deadlines for the responsible party in the inspection report or NOV.

- Prohibited discharges: discharges are to be stopped immediately and up to two weeks. The City may require the responsible party to provide a written description of correction, long-term compliance plan.
- Illicit connection: discharge via the illicit connection are to be stopped immediately and up to two weeks. The City may require the responsible party to provide proof that connection was permanently terminated. Re-inspection typically is required.
- Pollutant exposure/prohibited conditions violations: Up to two weeks to correct violations. The City may require the responsible party to provide proof of compliance for the observed violations.

EXTENSIONS OF COMPLIANCE DEADLINES

There are instances when a responsible party is not able to comply with requirements within the time frame specified. The City may grant a reasonable extension to the responsible party if the City determines that an extension is warranted, as follows:

- A request for extension must be received in writing (mail, e-mail, fax, hand delivered, etc.) by the City no later than the last day of the initial specified compliance deadline date.
- The extension request must explain why the extension is needed and warranted, as well as include a summary of actions taken to date by the responsible party to comply with requirements of the NOV.
- No more time is provided than should reasonably be needed for the responsible party to competently correct the noted deficiencies/violations. The City grants shorter extensions during the wet season.

Appropriate reasons to grant an extension may include, but are not limited to:

- Confirmed delays due to contractor or other service provider outside of responsible party's control.
- Extensive corrections involving work that would conceivably take longer than the time frame provided.
- In general, extensions should not be granted to allow the continuation of unauthorized non-storwater discharges.

The City may require an action plan or statement to be submitted by the responsible party within the initial compliance time frame, as a condition of granting an extension. The action plan or statement should specify the corrections that are to be made and specify an anticipated time frame for completion. The action plan or statement should be signed and dated by the responsible party.

REFERRALS TO THE REGIONAL BOARD

The City may refer violations of its municipal storm water ordinance and/or California Water Code section 13260 by industrial and commercial facilities and construction site operators to the Regional Water Board provided that the City has made a good faith effort of applying enforcement procedures to achieve compliance with its own ordinance. At a minimum, the City's good faith effort must be documented with:

- Two follow-up inspections, and
- Two warning letters or notices of violation.

Referral of Violations of the General Industrial/Construction Permits

For those facilities or site operators in violation of municipal stormwater ordinances and subject to the Industrial and/or Construction General Permits (IGP/CGP), the City may escalate referral of such violations to the Regional Water Board (promptly via telephone or electronically) after one inspection and one written notice of violation (copied to the Regional Water Board) to the facility or site operator regarding the violation. In making such referrals, the City shall include, at a minimum, the following documentation:[3]

- Name of the facility or site,
- Operator of the facility or site,
- Owner of the facility or site,
- WDID Number (if applicable),
- Records of communication with the facility/site operator regarding the violation, which shall include at least one inspection report,
- The written notice of violation (copied to the Regional Water Board),
- For industrial sites, the industrial activity being conducted at the facility that is subject to the Industrial General Permit, and
- For construction sites, site acreage and Risk Factor rating.

RECORDS RETENTION

City shall maintain records, per their existing record retention policies, and make them available on request to the Regional Water Board, including inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating a good faith effort to bring facilities into compliance.[4]

[3] Pursuant to Order No. R4-2012-0175 Section VI.D.2.a.v
[4] Pursuant to Order No. R4-2012-0175 Section VI.D.2.a.iii

Sources

Los Angeles County Stormwater Quality Management Program (2001)

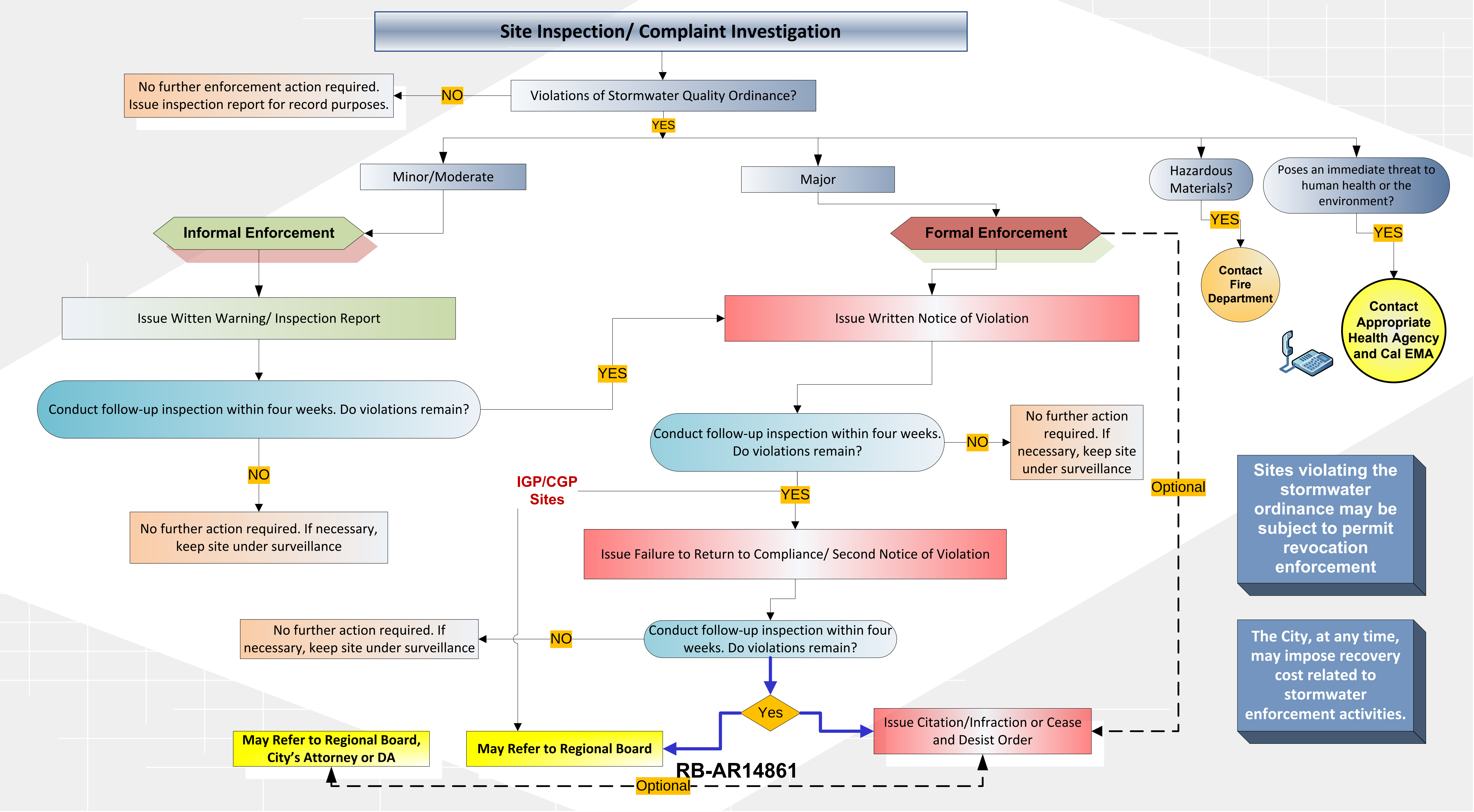
Orange County Municipal Storm Water Drainage Area Management Plan (2003)

Sacramento County Environmental Management Department. Inspection & Enforcement Policy - Commercial/Industrial Stormwater Compliance Program (2012).

Deficiencies/ Violation Degrees

Minor	Moderate	Major
Typically involves conditions that threaten to result in pollutant discharge to the storm system and/or waterways, if not corrected. The immediate threat to human health or the environment is low. **Examples:** **1.** Unattended automotive fluid drips and spills likely to result in moderate discharges to the storm drain system. **2.** Discharge of a moderate amount of car body wet sanding effluent from a single vehicle to outdoor pavement that has not yet impacted the storm drain system. **3.** Unattended spilled restaurant grease on outdoor pavement. Spill appears to be recent, is less than a quart, has not yet impacted the storm drain system and poor housekeeping do not appear to be habitual. **4.** Oily, uncovered engines, or other oily, possibly leaky items stored outside. **5.** Open and missing dumpster and tallow bin lids.	Typically involves less significant pollutant discharges to the storm system and/or receiving waters or conditions that threaten to result in minor to moderate pollutant discharges to the storm system and/or receiving waters. May include small or incidental discharges of hazardous or toxic substances. The violation does not present a major threat to human health and safety, but is likely to result in degradation of receiving water quality. **Examples:** **1.** Discharge of moderate amounts of automotive fluids to storm drain system results from neglected spills and poor housekeeping. **2.** Discharge of moderate amount (less than 20 gallons of diluted effluent) of auto body wet sanding effluent to storm drain system. **3.** More than a quart of spilled restaurant grease on outdoor pavement is neglected, possibly getting tracked out of trash enclosure. Neglect appears to be habitual but so far, impact to storm drain is moderate. **4.** Moderate amount of Oil/fluids leaking from improperly stored engines and parts discharge to storm drain system. **5.** Repeat minor violations may be considered moderate.	Includes significant pollutant discharges to the storm system and/or receiving waters as well as creation of conditions that threaten imminent discharge of significant pollutants to the storm system and/or receiving waters. This also includes, but is not limited to, significant discharges of hazardous or toxic substances. Major violations have the potential to present a major threat to human health or safety and/or the environment. The intent of the violator should be considered: Patterns of willful disregard for safety and the environment, recalcitrance, and repeat violations should contribute to designation of a violation as major, but are not necessary. **Examples:** **1.** Intentional discharge of waste oil to the storm drain. **2.** Discharge of significant volumes of auto body wet sanding effluent to storm drain from work on multiple vehicles, as practice. Especially where repeat violations or evidence of habitual discharge is evident. **3.** Significant amount of spilled restaurant grease is intentionally washed into storm drain, especially if hazardous degreasing agent is used. **4.** Significant amount of Oil/fluids leaking from improperly stored engines and parts discharge to storm drain system, especially if repeat violation. **5.** Repeat moderate violations may be considered major.

PROGRESSIVE ENFORCEMENT FLOW CHART



Watershed Management Program Appendix 3

Attachments to MCM Guidance

Insert City Seal

CITY STORMWATER PROGRAM INDUSTRIAL/COMMERCIAL FACILITY INSPECTION REPORT

Facility:	Address:
Contact:	Title:
Email:	Phone:
Inspector:	Date:
Inspection Type: ☐ Routine ☐ Follow-up ☐ Response to Complaint	BMP materials provided and explained: ☐ Yes ☐ No
SIC/NAICS code and/or business type:	

Industrial Facilities Only

(1) Covered under IGP (WDID is current) or other NPDES Permit: ☐ Yes ☐ No | (2) NEC filed: ☐ Yes ☐ No | SWPPP on-site: ☐ Yes ☐ No

If (1) and (2) above are "No", notified contact of need for IGP coverage and will refer facility to Regional Board: ☐ Yes ☐ No

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

	BMP	Yes	No	N/A
Vehicle & Equipment Maintenance	**Fueling** - Effective fueling source control devices & practices	☐	☐	☐
	Cleaning – Effective cleaning practices & wash water management practices	☐	☐	☐
	Repair – Effective repair practices & source control devices	☐	☐	☐
Equipment Operations	**Outdoor equipment operations** – Effective source control devices & practices	☐	☐	☐
Storage & Handling	**Outdoor liquids** – Effective source controls & practices	☐	☐	☐
	Outdoor raw materials – Effective source control practices & structural devices	☐	☐	☐
	Solid waste – Effective storage & handling practices & appropriate control measures	☐	☐	☐

	BMP	Yes	No	N/A
Facility Maintenance	**Building & grounds maintenance** – Effective maintenance practices	☐	☐	☐
	Parking & storage area maintenance – Effective designs & housekeeping/maintenance practices	☐	☐	☐
	Stormwater conveyance system maintenance – Proper operation & maintenance protocols	☐	☐	☐
	Sidewalk washing – Remove debris & free standing oil/grease. Use high pressure/low volume spray washing with potable water, no cleaning agents & average rate of 0.006 gal/ft^2.	☐	☐	☐
Spills, Leaks & Discharges	**Accidental spills/leaks** – Effective spill/leak prevention & response procedures	☐	☐	☐
	Unauthorized nonstormwater discharges – Effective elimination	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED)

Include description of activities performed and/or principal products produced

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this ordinance if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

____________________	____________________	______________
Site Representative Signature	Printed Name	Date

Recording requested by and mail to:

Name: City of [Insert City]
Department of Public Works
ATTN: Director of Public Works

Address: [Insert City Address Line1]
[Insert City Address Line2]

Insert City Seal

********************************** Space Above This Line For Recorder's Use ***********************************

MASTER COVENANT AND AGREEMENT

REGARDING ON-SITE BMP MAINTENANCE

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City of [Insert City], County of Los Angeles, State of California (please give legal description: assessor's ID, tract no., lot no., etc.):

____

Site Address ____

Owner(s) do hereby covenant and agree to and with the City of [Insert City]to maintain all on-site structural Best Management Practices (BMPs) in accordance with the Site Map and the Operations & Maintenance (O&M) Plan set forth in Attachment 1 hereto and incorporated herein by this reference. The specific structural BMPs are listed as follows:

____

____

Owner(s) shall maintain the listed drainage devices above on the property indicated and as shown on plans permitted by the City of [Insert City]in a good and functional condition to safeguard the property owners and adjoining properties from damage and pollution.

Owner(s) hereby consent to inspection of the Property by an inspector authorized by the City Manager, or his or her designee, for the purpose for verifying compliance with the provisions of this Agreement.

Owner(s) shall provide printed educational materials with any sale of the property which provide information on what stormwater management facilities are present, the type(s) and location(s) of maintenance signs that are required, and how the necessary maintenance can be performed.

Owner(s) shall provide actual notice of this Agreement and its terms to any respective successor(s) in interest to the Property prior to transfer of said interest to such successor(s) in interest. This covenant and agreement shall run with the land and shall be binding upon any future owners, encumbrances, their successors, heirs or assigns and shall continue in effect until the City of [Insert City] approves its termination.

______________________________	______________________________
(Print Name of Property Owner)	(Print Name of Property Owner)
______________________________	______________________________
(Signature of Property Owner)	(Signature of Property Owner)

Dated this __________ day of __________ 20 _____.

************************************ Space Below This Line For Notary's Use ************************************

ALL PURPOSE ACKNOWLEDGEMENT

State of ______________________________ }
}
County of ______________________________ }

On ______________________ before me, _____________________________________ personally appeared
(Insert Name of Notary Public and Title)
____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf on which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature ________________________ (Seal)

RB-AR14864

Recording requested by and mail to:

Name: City of [Insert City]
Public Works Department
ATTN: Director of Public Works

Address: [Insert City Address Line1]
[Insert City Address Line2]

Insert City Seal

*********************************** Space Above This Line For Recorder's Use ***********************************

MASTER TERMINATION OF COVENANT AND AGREEMENT

REGARDING ON-SITE BMP MAINTENANCE

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City of [Insert City], County of Los Angeles, State of California (please give legal description: assessor's ID, tract no, lot not, etc.):

____

Site Address ____

We do hereby, with approval of the City of [Insert City], Engineering Division, terminate the covenant and agreement entered into with the City of [Insert City]as recorded on the ___________ day of __________________________20_______, as Document No.

____

____

This covenant and agreement is terminated for the reason that:

____

____

______________________________	______________________________
(Print Name of Property Owner)	(Print Name of Property Owner)
______________________________	______________________________
(Signature of Property Owner)	(Signature of Property Owner)

Dated this __________ day of __________ 20 _____.

Termination approved by: ____ Date: __________________________
(Authorized City Representative)

************************************ Space Below This Line For Notary's Use ************************************

ALL PURPOSE ACKNOWLEDGEMENT

State of ______________________________ }
}
County of ______________________________ }

On ______________________ before me, _____________________________________ personally appeared
(Insert Name of Notary Public and Title)
____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf on which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _________________________ (Seal)

RB-AR14865

Insert City Seal

City of [Insert City]NPDES Program

POST-CONSTRUCTION BMP VERIFICATION & INSPECTION FORM

PROJECT INFORMATION	
Facility/Project Name:	Inspection Date:
Address:	Inspector:
Contact Name:	Contact Phone:

Project Category

☐ Priority Project ☐ Small Site LID Project ☐ Single Family Residence ☐ Green Street
☐ Public Project ☐ Private Project

Project Type:

☐ Commercial ☐ Industrial ☐ Residential ☐ Multi-Use
☐ Road/Street ☐ Parking Lot ☐ Automotive repair ☐ Restaurant ☐ Other:

Operation/Maintenance:

☐ Reviewed ☐ Not Reviewed ☐ Not Available
Preparer's Name: Preparer's Title:
Address: City: Zip: Phone:

Inspection Type

☐ Prior to Certificate of Occupancy ☐ Special Investigation ☐ Response to Complaint
☐ Routine Inspection (Annual) ☐ Follow-up Inspection

CHECKLIST FOR ROUTINE SOURCE CONTROL BMPs

Requirement	No. of BMPs (if Applicable)	BMP in place per approved LID Plan/SUSMP?	Corrective Action Required
Storm Drain System Stenciling/Signage		☐ Yes ☐ No	☐ Yes ☐ No
Outdoor Material Storage Areas		☐ Yes ☐ No	☐ Yes ☐ No
Trash Storage Areas		☐ Yes ☐ No	☐ Yes ☐ No
Efficient Irrigation Systems & Landscape Design		☐ Yes ☐ No	☐ Yes ☐ No
Protect Slopes & Channels		☐ Yes ☐ No	☐ Yes ☐ No
Loading Dock Areas		☐ Yes ☐ No	☐ Yes ☐ No
Maintenance Bays		☐ Yes ☐ No	☐ Yes ☐ No
Vehicle Wash Areas		☐ Yes ☐ No	☐ Yes ☐ No
Outdoor Process Areas		☐ Yes ☐ No	☐ Yes ☐ No
Equipment Wash Areas		☐ Yes ☐ No	☐ Yes ☐ No
Fueling Areas		☐ Yes ☐ No	☐ Yes ☐ No
Hillside Landscaping		☐ Yes ☐ No	☐ Yes ☐ No
Wash-water Controls for Food Prep Areas		☐ Yes ☐ No	☐ Yes ☐ No
Community Car Wash Racks		☐ Yes ☐ No	☐ Yes ☐ No

CHECKLIST FOR STRUCTURAL BMPs

Requirement	No. of BMPs (if Applicable)	BMP in place per approved LID Plan/SUSMP?	Corrective Action Required
Infiltration Trench/Basin		☐ Yes ☐ No	☐ Yes ☐ No
Infiltration Well/Dry Well		☐ Yes ☐ No	☐ Yes ☐ No
Detention Basin		☐ Yes ☐ No	☐ Yes ☐ No
Porous Pavement		☐ Yes ☐ No	☐ Yes ☐ No
Bio-infiltration		☐ Yes ☐ No	☐ Yes ☐ No
Vegetated Swale		☐ Yes ☐ No	☐ Yes ☐ No
Bio-filtration		☐ Yes ☐ No	☐ Yes ☐ No
Proprietary Control Measure (describe):		☐ Yes ☐ No	☐ Yes ☐ No
Media Filtration		☐ Yes ☐ No	☐ Yes ☐ No
Filter Insert		☐ Yes ☐ No	☐ Yes ☐ No
Regional or Watershed BMPs		☐ Yes ☐ No	☐ Yes ☐ No
Other (describe):		☐ Yes ☐ No	☐ Yes ☐ No

INSPECTION RESULTS:
☐ Visible / No Apparent Problems ☐ BMP Failure ☐ Significant Engineering / Design Flaws ☐ Unauthorized Modifications ☐ BMP Missing / Removed / Not Located ☐ Trash / Debris Exceeding Cap. (bypass) ☐ Evidence of Pollution / Dumping ☐ Vector Control Issues (Mosquitoes) ☐ Inadequate Maintenance
DESCRIPTION OF CORRECTIVE ACTION(S) REQUIRED:

CORRECTIVE ACTION NOTICE (IF REQUIRED)
If any corrective actions have been noted above, then based on this verification inspection, you are in noncompliance with Municipal Code Chapter [-]. You must implement the required corrective action(s) by: _________________________ Corrective Action Due Date **After this date, your facility will be re-inspected to verify that all necessary corrective measures have been taken. FAILURE TO IMPLEMENT THE CORRECTIVE ACTION(S) WILL SUBJECT YOU TO ELEVATED ENCORCEMENT, WHICH CAN INCLUDE INFRACTION OR MISDEMEANOR PENALTIES.**
ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE _____________________________ Contact Signature _____________________________ Printed Name ____________________ Date

Insert City Seal

STORMWATER PLANNING PROGRAM PRIORITY PROJECT CHECKLIST

FORM PC

Project Name	Owner Name	Developer Name
Project Address	Owner Address	Developer Address
Plan Check #	Owner Phone	Developer Phone

TYPE OF PROJECT

Does the proposed project fall into one of the following categories? Please check Yes/No	YES	NO
PRIORITY PROJECTS		
1. A new project equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious* surface area		
2. A new industrial park with 10,000 square feet or more of surface area		
3. A new commercial mall with 10,000 square feet or more surface area		
4. A new retail gasoline outlet with 5,000 square feet or more of surface area		
5. A new restaurant (SIC 5812) with 5,000 square feet or more of surface area		
6. A new parking lot with either 5,000 ft^2 or more of impervious* surface or with 25 or more parking spaces		
7. A new automotive service facility (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area		
8. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA)*, where the development will: a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and b. Create 2,500 square feet or more of impervious surface area		
9. Redevelopment*		
SPECIAL PROVISION PROJECTS		
10. Green street* project		
11. Single family hillside* home		

If checked YES, numerical criteria will apply to items 1,2,6-9 and items 3-5 (for project areas of 5,000 ft^2 or more of surface area.) If any of the boxes are checked YES, this project will require the preparation of a Low Impact Development (LID) Plan and a Maintenance Agreement Transfer*

* Defined on back.

Applicant Name

Applicant Signature

Applicant Title

Date

DEFINITIONS:

Impervious are those surfaces that do not allow stormwater runoff to percolate into the ground. Typical impervious surfaces include: concrete, asphalt, roofing materials, etc. However, some specially designed concrete/asphalt do allow water to percolate (pervious).

Hillside means property where the slope is 25% or greater and where grading contemplates cut or fill slopes. Single family hillside homes will require a less extensive plan. During the construction of a single-family hillside home, the following measures are implemented:

a. Conserve natural areas

b. Protect slopes and channels

c. Provide storm drain system stenciling and signage

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability

e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

Green Streets means any street and road construction of 10,000 square feet or more of impervious surface area

a. These projects will follow an approved green streets manual to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects. Stormwater mitigation measures must be in compliance with the approved green streets manual requirements.

Redevelopment means land-disturbing activities that result in the creation, addition, or replacement of 5,000 ft^2 or more of impervious surface area on an already developed site.

Redevelopment does not include routine maintenance activities that are conducted to maintain the original line and grade, hydraulic capacity, or original purpose of facility, nor does it include modifications to existing single family structures, or emergency construction activities required to immediately protect public health and safety.

Significant Ecological Area means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and would be disturbed or degraded by human activities and developments. Also, an area designated by the City as approved by the Regional Water Quality Control Board.

Maintenance Agreement and Transfer: All developments subject to LID and site specific plan requirements provide verification of maintenance provisions for Structural and Treatment Control BMPs, including but not limited to legal agreements, covenants, CEQA mitigation requirements, and/or conditional use permits. Verification at a minimum shall include:

- The developer’s and/or owner's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and
- A signed statement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance and conduct a maintenance inspection at least once a year; or
- Written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or
- Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the Structural and Treatment Control BMPs; or
- Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction Structural or Treatment Control BMPs.

Insert City Seal

STORMWATER PLANNING PROGRAM

PRIORITY DEVELOPMENT & REDEVELOPMENT PROJECTS

PLAN CHECK # ______________________

FORM **P1**

Project Name	______________________
Project Location	______________________
Company Name	______________________
Address	______________________
Contact Name / Title	______________________
Phone / FAX / Email	______________________

GENERAL PROJECT CERTIFICATION

A completed original of this form must accompany all LID Plan submittals.

Best Management Practices (BMPs) have been incorporated into the design/maintenance/construction of this project to accomplish the following:

1. Minimize impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100), CWC § 13369, CWA § 319, CWA § 402(p), CWA § 404, CZARA § 6217(g), ESA § 7, and local government ordinances.

2. Maximize the percentage of pervious surfaces to allow more percolation of stormwater into the ground.

3. Minimize the amount of stormwater directed to impermeable surfaces and to the MS4.

4. Minimize pollution emanating from parking lots through the use of appropriate Treatment Control BMPs and good housekeeping practices.

5. Minimize breeding of Vectors

6. Reduce pollutant loads in stormwater from the development site.

I certify that this Low Impact Development Plan and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered/evaluated the information submitted.

Post Construction / Maintenance Certification

As the responsible party, I certify that the proposed BMPs will be implemented, monitored and maintained to ensure their continued effectiveness. In the event of a property transfer, the new owner/lessee will be notified of the BMPs in use at this site and I will include written conditions in the sales or lease agreement, which requires the new owner (or lessee) to assume responsibility for maintenance and conduct a maintenance inspection at least once a year. The information contained herein is, to the best of my knowledge and belief, true, accurate, and complete.

In consideration of the execution of City of [Insert City] approval of the proposed Low Impact Development (LID) Plan including any proposed treatment system, the applicant hereby agrees to indemnify, save and keep the City of [Insert City], its officers, agents and employees free and harmless from and against any and all claims for injury, damage, loss, liability, cost and expense of any nature whatsoever, which the City of [Insert City], its officers, agents, or employees may suffer, sustain, incur, pay out as a result of any and all actions, suits, proceedings, claims and demands which may be brought, made, or filed against the City of [Insert City], its officers, agents or employees by reason of or arising out of, or in any manner connected with any and all operations permitted by this approval. This indemnification extends to further agree that the City of [Insert City]is not responsible for any additional requirements or restrictions due to changes in regulations, policies or enforcement practices of the California Regional Water Quality Control Board, or any other applicable regulatory agencies.

______________________	______________________
Property Owner Name	Property Owner Signature
______________________	______________________
Applicant Title	Date

PLANNING BEST MANAGEMENT PRACTICES

BMP Name	BMP Identification Number and Name	✓ if to be used
Car Wash Facility	SC-21: Vehicle and Equipment Cleaning	
Constructed Wetlands	MP-20: Wetlands	
Control of Impervious Runoff	-N/A-	
Efficient Irrigation	-N/A-	
Energy Dissipaters	EC-10: Velocity Dissipation Devices	
Extended Detention Basins	TC-22: Extended Detention Basin	
Infiltration Basins	TC-11: Infiltration Basins	
Infiltration Trenches	TC-10: Infiltration Trenches	
Inlet Trash Racks	-N/A-	
Landscape Design	EC-2: Preservation of Existing Vegetation EC-4: Hydro seeding EC-6 & EC-8: Straw & Wood Mulching	
Linings for Urban Runoff Conveyance Channels	-N/A-	
Materials Management	SC-30: Outdoor Loading/Unloading	
Media Filtration	TC-40: Media Filter	
Motor Fuel Concrete Dispensing Areas	SC-20: Vehicle and Equipment Fueling	
Motor Fuel Dispensing Area Canopy	SC-20: Vehicle and Equipment Fueling	
Water Quality Inlets	TC-50: Water Quality Inlet	
Outdoor Storage	SC-31: Outdoor Liquid Container Storage SC-33: Outdoor Storage of Raw Materials	
Porous Pavement and/or Alternative Surfaces	-N/A-	
Protect Slopes and Channels	EC-11: Slope Drains EC-12: Streambank Stabilization	
Self-Contained Areas for Vehicle or Equipment Washing, Steam Cleaning, Maintenance, Repair, or Material Processing	SC-21: Vehicle and Equipment Cleaning SC-22: Vehicle and Equipment Repair SC-32: Outdoor Equipment Operations	
Storm Drain System Stenciling and Signage	SC-34: Waste Handling and Disposal (Signage Section)	
Trash Container Areas	SC-34: Waste Handling and Disposal	
Vegetated Swales and Strips	TC-32: Bioretention	
Wet Ponds	TC-20: Wet Ponds	
Other:	• • • • •	

Please refer to the California Storm Water Best Management Practice Handbooks for more information.

Insert City Seal

STORMWATER TREATMENT CERTIFICATION

FORM P2

SITE NAME and ADDRESS

____

____

____

____

____

Plan Check #____________________

Planning #____________________

APPROXIMATE PROJECT CHARACTERISTICS

Roofed Area	________ ft^2
Roadway/Parking Area (exposed)	________ ft^2
Landscaped/Vegetation	________ ft^2
Other Ground Level Impervious Areas (Ex: Outdoor work or storage areas)	________ ft^2
Other: ____________	________ ft^2
TOTAL	________ ft^2

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary) or see back

Area Designation (must correspond with plans)	**Tributary Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rate or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include size, make, and model, if any)	**BMP Location** (briefly describe)	**Design Treatment Flow Rate or Volume Capacity**

By stamping this form, I acknowledge that each treatment BMP is provided with adequate bypass or overflow so as not to contribute to localized flooding or soil instability.

*Flow rates and volumes based on the 0.75 inch, 24-hour rain event or the 85th percentile, 24-hour rain event, whichever is greater.

I certify that I am a Professional Civil Engineer registered in the State of California, and that the treatment methods and capacities herein comply with the requirements established by the California Regional Water Quality Control Board, Los Angeles Region, and the State Water Resources Control Board for Low Impact Development (LID) Plans.

Affix Registered Engineer Wet Ink Stamp Here:

Print Name | **Signature** | **Date**

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary)

Area Designation (must correspond with plans)	**Tributary Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rate or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include size, make, and model, if any)	**BMP Location** (briefly describe)	**Design Treatment Flow Rate or Volume Capacity**

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OWNER'S CERTIFICATION
MINIMUM BMPs FOR ALL CONSTRUCTION SITES

FORM **OC1**

PLAN CHECK #________________________

Project Name	______________________	BUILDING/GRADING PERMIT NUMBER	
Project Location	______________________		
Owner Name	______________________	Contractor Name	______________________
Address	______________________	Address	______________________
Phone	______________________	Phone	______________________
FAX/Email	______________________	FAX/Email	______________________

The National Pollutant Discharge Elimination System (NPDES) is the portion of the Clean Water Act that applies to the protection of receiving waters. Under permits from the Los Angeles Regional Water Quality Control Board (RWQCB), certain activities are subject to RWQCB enforcement. To meet the requirements of the Los Angeles County Municipal Stormwater Permit (CAS004001), minimum requirements for sediment control, erosion control and construction activities must be implemented on each project site. Minimum requirements include:

- **EROSION CONTROL:** Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs, such as the limiting of grading activities during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.
- **SEDIMENT CONTROL:** Eroded sediments from areas disturbed by construction and from stockpiles of soil shall be retained on site to minimize sediment transport from the site to streets, drainage facilities and/or adjacent properties via runoff, vehicle tracking or wind.
- **NON-STORMWATER MANAGEMENT:** Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site.
- **WASTE MANAGEMENT:** Construction related materials, wastes, spills or residues shall be retained on site to minimize transport from the site to streets, drainage facilities or adjoining properties by wind or runoff. Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to remove sediment and pollutants.

Examples of Minimum BMPs include: (1) Soil piles must be covered with tarps or plastic, (2) leaking equipment must be repaired immediately, (3) refueling must be conducted away from catch basins, (4) catch basins must be protected when working nearby, (5) vacuum all concrete saw cutting, (6) never wash concrete waste into the street, (7) keep the site clean, sweep the gutters at the end of each working day and keep a trash receptacle on site.

As the architect/engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project's construction activities on stormwater quality. The project owner and contractor are aware that the selected BMPs shall be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity.

Architect/Engineer of Record Name	Architect/Engineer of Record Signature
Title	Date

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law.

Landowner or Landowner's Agent Name	Landowner or Landowner's Agent Signature
Title	Date

Insert City Seal

EROSION AND SEDIMENT CONTROL PLAN (ESCP) REVIEW CHECKLIST

These requirements apply to all activities involving soil disturbance with the exception of agricultural activities. Applicable activities include but are not limited to grading, vegetation clearing, soil compaction, paving, re-paving and linear underground/overhead projects (LUPs).

Prior to issuing a grading or building permit, each operator of a construction activity within its jurisdiction must prepare and submit an ESCP prior to the disturbance of land.

Contact Name:	Tracking #:
Contact Title:	Site Name:
Company Name:	Site Address:
Mailing Address:	Type of Facility:
City, State, Zip:	Submittal Date:
Phone Number:	Plan Return Date:
Fax Number:	Disturbed Area:

<u>First Review</u>
ESCP Received on:

Review Completed on:

<u>Second Review</u>
ESCP Received on:

Review Completed on:

<u>Third Review</u>
ESCP Received on:

Review Completed on:

<u>Fourth Review</u>
ESCP Received on:

Review Completed on:

<u>Fifth Review</u>
ESCP Received on:

Review Completed on:

<u>Sixth Review</u>
ESCP Received on:

Review Completed on:

ESCP REQUIREMENT	SATISFACTION			COMMENTS
	YES	NO	N/A	
General Information				
Contact information (e.g., name, address, phone, email, etc.) provided for the owner and contractor.	☐	☐	☐	
Basic site information including location, status, size of the project and area of disturbance is provided.	☐	☐	☐	
Proof of existing coverage under applicable permits, including, but not limited to the State Water Board's Construction General Permit, and State Water Board 401 Water Quality Certification.	☐	☐	☐	
Meets the minimum requirements of the jurisdictional erosion and sediment control ordinance.	☐	☐	☐	
Includes the elements of a Storm Water Pollution Prevention Plan (SWPPP) prepared in accordance with the requirements of the Construction General Permit.	☐	☐	☐	
Developed and certified by a Qualified SWPPP Developer (QSD).	☐	☐	☐	
Identifies the proximity all water bodies, water bodies listed as impaired by sediment-related pollutants, and water bodies for which a sediment-related TMDL has been adopted and approved by the USEPA.	☐	☐	☐	
Identifies any significant threat to water quality status, based on consideration of factors listed in Appendix 1 to the Construction General Permit.	☐	☐	☐	
The project start date and anticipated completion date is provided.	☐	☐	☐	
Includes Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.	☐	☐	☐	
Contains a language signed by the landowner or the landowner's agent stating as follows: *"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law."*	☐	☐	☐	

ESCP REQUIREMENT	SATISFACTION			COMMENTS
	YES	NO	N/A	
Best Management Practices				
All structural BMPs are designed by a licensed California Engineer.	☐	☐	☐	
Includes Sediment/Erosion Control.	☐	☐	☐	
Includes controls to prevent tracking on and off the site.	☐	☐	☐	
Includes non-stormwater controls (e.g., vehicle washing, dewatering, etc.).	☐	☐	☐	
Includes Materials Management (delivery and storage).	☐	☐	☐	
Includes Spill Prevention and Control.	☐	☐	☐	
Includes Waste Management (e.g., concrete washout/waste management; sanitary waste management).	☐	☐	☐	
Includes methods to minimize the footprint of the disturbed area and to prevent soil compaction outside of the disturbed area.	☐	☐	☐	
Includes methods used to protect native vegetation and trees.	☐	☐	☐	
Includes the rationale for the selection and design of the proposed BMPs, including quantifying the expected soil loss from different BMPs.	☐	☐	☐	
Post-Construction Structural BMPs subject to Operation and Maintenance Requirements are identified.	☐	☐	☐	
Site Plan				
Full sized plans showing the site with all proposed BMPs and water quality notes have been signed and stamped with wet ink application by the appropriate individual.	☐	☐	☐	
Plan includes a title block containing at least the project name, address, and owner.	☐	☐	☐	
All figures, maps, plot plans, etc. have a legend, including a North arrow and scale.	☐	☐	☐	
All facilities are labeled for the intended function.	☐	☐	☐	
All areas of outdoor activity are labeled.	☐	☐	☐	
All structural BMPs are indicated.	☐	☐	☐	
Drainage flow information depicted.	☐	☐	☐	
Project location shown.	☐	☐	☐	
Site boundary indicated.	☐	☐	☐	

Agency Standard Operating Procedures

Each agency will use the suggested language below to develop, implement, and revise as necessary agency-specific Standard Operating Procedures (SOPs) that identify the procedures each agency will follow.

CGP Coverage Verification

- Verification of active coverage under the Construction General Permit for sites disturbing 1 acre or more, or that are part of a planned development that will disturb 1 acre or more and a process for referring non-filers to the Regional Water Board.

Prior to releasing any permits relating to and/or allowing for construction activities on a site resulting in one (1) acre or more of soil disturbance, a Notice of Intent (NOI), a Storm Water Pollution Prevention Plan (SWPPP), and all other Permit Registration Documents (PRDs) must be filed with the Regional Water Resources Control Board (Regional Board) through the State Water Board’s Storm water Multi-Application and Report Tracking System (SMARTS) website and a Waste Discharge ID (WDID) number must be obtained from the Regional Board. This requirement will be included as a condition of approval. In cases where construction activities have commenced on a qualifying site and the project has not yet filed all PRDs (along with an explanation for filing late) with the Regional Board, a Notice of Violation (NOV) will be sent to the responsible person. Any work orders released will be stopped and fines may be enforced. The Regional Board will be notified of the discharger’s non-compliance. Work will not be allowed to commence until the NOI has been accepted by the Regional Board and WDID number issued.

ESCP Review

- Review of the applicable ESCP and inspection of the construction site to determine whether all BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions.

Prior to issuing a grading or building permit, each operator of a construction activity within its jurisdiction must prepare and submit an Erosion and Sediment Control Plan (ESCP) prior to the disturbance of land. The ESCP Requirement Checklist will be used to ensure required information is submitted by the responsible person. These requirements apply to all activities involving soil disturbance with the exception of agricultural activities. Applicable activities include but are not limited to grading, vegetation clearing, soil compaction, paving, re-paving and linear underground/overhead projects (LUPs).

BMP Assessment

- Assessment of the appropriateness of the planned and installed BMPs and their effectiveness.

Prior to releasing any permits relating to and/or allowing for construction activities on a site resulting in one (1) acre or more of soil disturbance a Qualified SWPPP Practitioner (QSP) must be identified by the developer. Prior to beginning any construction activities, the QSP must review the ESCP and determine if the following requirements are being met:

1. Erosion and sediment controls are incorporated to provide effective reduction or elimination of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges from the site.

2. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.
3. Non-stormwater control BMPs are selected to control sediment on the construction site.
4. Materials and waste management pollution control BMPs are incorporated to minimize stormwater contact with construction materials, wastes and service areas; and to prevent materials and wastes from being discharged off-site.

If the QSP identifies potential problematic areas of the ESCP, a revision to the ESCP must be submitted for review and approval.

Once the BMPs are installed, inspections must be conducted at the frequency identified in the Watershed Management Program (WMP). All BMPs not functioning as intended must be repaired, replaced, or changed to a more effective BMP. Inspection and maintenance procedures must be in accordance with the CASQA handbook.

Discharge Reporting

- Visual observation and record keeping of non-stormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff.

Any non-stormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff will be tracked and kept on record.

Public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s within this jurisdiction will be conducted. Multiple modes of communication are in place to allow for complaints and spill reporting. When a complaint is received it will be documented and tracked to ensure that all complaints are adequately addressed.

A Spill Response Plan will be implemented for all sewage and other spills that may discharge into the MS4 within this jurisdiction. Coordination with spill response teams will be observed throughout all appropriate departments, programs, and agencies so that maximum water quality protection is provided. All spill complaints will be investigated within one business day of receiving the complaint and a response to spills for containment will be conducted within 4 hours of becoming aware of the spill, except where such spills occur on private property, in which case the response should be within 2 hours of gaining legal access to the property. Spills that may endanger health or the environment will be reported to appropriate public health agencies and the Office of Emergency Services (OES).

A training program regarding the identification of illicit connections/illicit discharges (IC/IDs) for all municipal field staff, who, as part of their normal job responsibilities (e.g., street sweeping, storm drain maintenance, collection system maintenance, road maintenance), may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4 will be provided.

Construction Inspection Reporting and Tracking

- Development of a written or electronic inspection report generated from an inspection checklist used in the field.
- Tracking of the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required.

Inspections will be conducted at a frequency listed in the Watershed Management Program (WMP). Inspection checklists and/or reports will be utilized to determine and keep record of whether or not all

BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions. These checklists/reports will be retained for at least three (3) years following NOT approval.

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(CITY NAME) STORMWATER INSPECTION REPORT FOR CONSTRUCTION SITES

SITES ONE ACRE OR GREATER

Project Name:	Address:
Area disturbed:	WDID: SWPPP on-site: ☐ Yes ☐ No
Risk level: ☐ Low (Risk 1) ☐ Medium (Risk 2) ☐ High (Risk 3)	Erosion & Sediment Control Plan (ESCP) on-site: ☐ Yes ☐ No
Phase: ☐ Prior to Land Disturbance ☐ Active construction ☐ Site stabilization	
Developer/Contractor:	Phone number:
Contact:	Title:
Inspector:	Date:
Inspection: ☐ Routine (monthly and for each phase of construction) ☐ Follow-up ☐ Response to complaint	*For sites discharging to a waterbody impaired for sediment/turbidity*[i] ☐ *Routine biweekly* ☐ *Predicted rainfall* ☐ *Recent rainfall*

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

PHASE 1 AND 2: PRIOR TO LAND DISTURBANCE AND DURING ACTIVE CONSTRUCTION

	Comment	Yes	No	N/A		Comment	Yes	No	N/A
Erosion Control	1. Erosion controls are implemented in accordance with the ESCP	☐	☐	☐	Waste Management	9. Effective material delivery and storage practices are implemented	☐	☐	☐
Erosion Control	2. Erosion observed	☐	☐	☐	Waste Management	10. Spill prevention and control practices are implemented	☐	☐	☐
Sediment Control	3. Sediment controls are implemented in accordance with the ESCP	☐	☐	☐	Waste Management	11. Stockpile controls are implemented in accordance with the ESCP	☐	☐	☐
Sediment Control	4. Sediment discharge observed	☐	☐	☐	Waste Management	12. Solid waste controls are implemented in accordance with the ESCP	☐	☐	☐
Additional Controls	5. Tracking controls (tire washout, stabilized entrances, exits and roadways) are implemented in accordance with the ESCP	☐	☐	☐	Nonstormwater Management	13. Vehicle and equipment washing, fueling and maintenance controls are implemented in accordance with the ESCP	☐	☐	☐
Additional Controls	6. Sediment in roads observed	☐	☐	☐	Nonstormwater Management	14. Nonstormwater discharges observed	☐	☐	☐
Additional Controls	7. Wind erosion controls are implemented in accordance with the ESCP	☐	☐	☐	Nonstormwater Management	15. Dewatering operations covered under NPDES Permit CAG994004	☐	☐	☐
Additional Controls	8. Wind erosion observed	☐	☐	☐	Nonstormwater Management	16. Water conservation practices are implemented	☐	☐	☐

PHASE 3: FINAL LANDSCAPING/SITE STABILIZATION

Comment	Yes	No	N/A	Comment	Yes	No	N/A
1. Graded areas have reached final stabilization	☐	☐	☐	3. Temporary erosion and sediment BMPs are removed	☐	☐	☐
2. Trash, debris and construction materials are removed	☐	☐	☐	4. Post-construction BMPs are installed	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED):

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this program if the corrective actions are not implemented by:

____

Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

Site Representative Signature	Printed Name	Date

[i] For sites discharging to a tributary listed by the state as an impaired waterbody for sediment or turbidity under CWA § 303(d), or determined to be a threat to water quality, inspections must be conducted (1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA and (2) within 48 hours of a ½-inch rain event and (3) at least once every two weeks.

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CITY STORMWATER QUALITY PROGRAM
CONSTRUCTION SITE INSPECTION REPORT

FOR SITES LESS THAN ONE ACRE

Project:	Address:
Contact:	Title:
Contractor:	Phone:
Inspector:	Date:

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

	Question	Yes	No	N/A		Question	Yes	No	N/A
Erosion Control	1. Effective erosion controls implemented.	☐	☐	☐	Non-Stormwater Management	5. Water conservation practices are implemented.	☐	☐	☐
	2. Erosion observed.	☐	☐	☐		6. Dewatering operations covered under NPDES Permit CAG994004	☐	☐	☐
Sediment Control	3. Effective sediment controls implemented.	☐	☐	☐	Waste Management	7. Effective material delivery/storage practices and spill prevention/control practices are implemented.	☐	☐	☐
	4. Sediment discharge observed.	☐	☐	☐		8. Effective waste management controls are implemented.	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED):

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this program if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

______________________	______________________	______________
Site Representative Signature	Printed Name	Date

Example Lease Language for Fixed Facilities

The following is example language that can be inserted into municipal leases:

The Los Angeles Regional Water Quality Control Board (RWQCB) has issued permits which govern stormwater and non-stormwater discharges resulting from municipal activities performed by or for the Coastal Watersheds of Los Angeles County, including the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County with the exception of Long Beach (collectively referred to as Permittees). The RWQCB Permit is a National Pollutant Discharge Elimination System (NPDES) Permit No. R4-2023-0175. A Copy of the RWQCB Permit is available for review.

In order to comply with the Permit requirements, the Permittees have developed a Watershed Management Program (WMP) which contains Public Agency Facilities and Activities Maintenance Procedures (Maintenance Procedures) with Best Management Practices (BMPs) adopted from the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (Caltrans Handbook) that parties leasing municipally owned properties must adhere to. These Maintenance Procedures contain pollution prevention and source control techniques to minimize the impact of those activities upon dry-weather urban runoff, stormwater runoff, and receiving water quality.

Activities performed at the facility leased under this agreement shall conform to the RWQCB NPDES Permit, the WMP, and the CalTrans Handbook, and must be performed as described within all applicable Maintenance Procedures. The holder of this agreement shall fully understand the Maintenance Procedures applicable to activities conducted at the facility leased under this agreement prior to conducting them and maintain copies of the Maintenance Procedures at the leased facility throughout the agreement duration. The applicable Maintenance Procedures are included as Exhibit ___ of this agreement.

Evaluation of activities subject to WMP requirements performed at the facility leased under this agreement will be conducted by the city to verify compliance with Maintenance Procedures, and may be required through lessor self-evaluation as determined by the city.

Example Contract Language for Field Programs

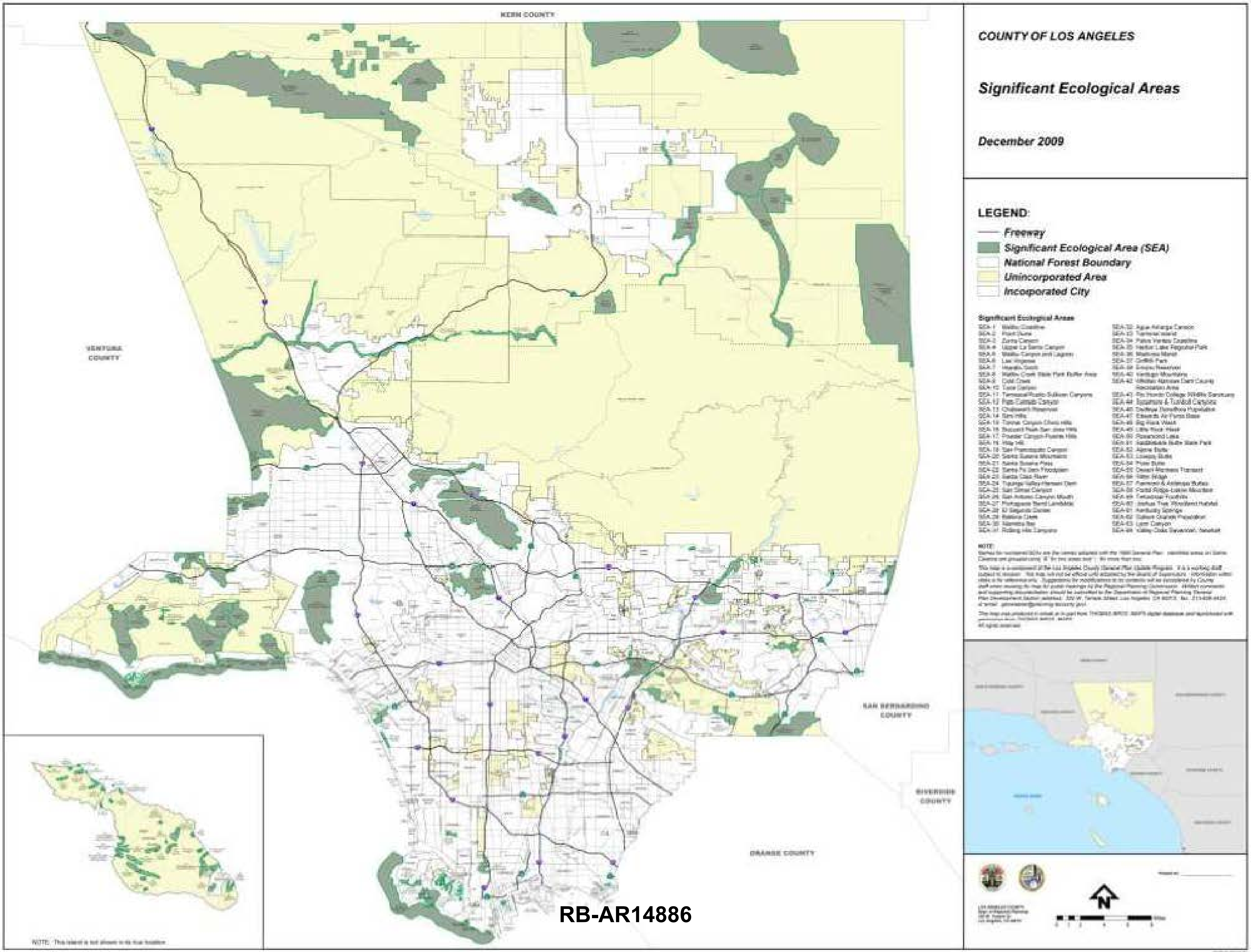
The following is example language that can be inserted into municipal field program contracts:

The Los Angeles Regional Water Quality Control Board (RWQCB) has issued permits which govern stormwater and non-stormwater discharges resulting from municipal activities performed by or for the Coastal Watersheds of Los Angeles County, including the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County with the exception of Long Beach (collectively referred to as Permittees). The RWQCB Permit is a National Pollutant Discharge Elimination System (NPDES) Permit No. R4-2023-0175. A Copy of the RWQCB Permit is available for review.

In order to comply with the Permit requirements, the Permittees have developed a Watershed Management Program (WMP) which contains Public Agency Facilities and Activities Maintenance Procedures (Maintenance Procedures) with Best Management Practices (BMPs) adopted from the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (Caltrans Handbook) that parties leasing municipally owned properties must adhere to. These Maintenance Procedures contain pollution prevention and source control techniques to minimize the impact of those activities upon dry-weather urban runoff, stormwater runoff, and receiving water quality.

Work performed under this CONTRACT shall conform to the RWQCB NPDES Permit, the WMP, and the CalTrans Handbook, and must be performed as described within all applicable Maintenance Procedures. The CONTRACTOR shall fully understand the Maintenance Procedures applicable to activities that are being conducted under this CONTRACT prior to conducting them and maintain copies of the Maintenance Procedures throughout the CONTRACT duration. The applicable Model Maintenance Procedures are included as Exhibit ___ of this CONTRACT.

Evaluation of activities subject to WMP requirements performed under this CONTRACT will be conducted to verify compliance with the Maintenance Procedures, and may be required through CONTRACTOR self-evaluation as determined by the city.


KERN COUNTY
VENTURA COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
ORANGE COUNTY
COUNTY OF LOS ANGELES
Significant Ecological Areas
December 2009
LEGEND:
Freeway
Significant Ecological Area (SEA)
National Forest Boundary
Unincorporated Area
Incorporated City
Significant Ecological Areas

RB-AR14886

2014

Integrated Pest Management Program

Developed for the City of

____

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INTEGRATED PEST MANAGEMENT (IPM) PROGRAM IMPLEMENTATION GUIDELINES[1] FOR THE CITY OF ______________

General IPM Policy

For the past few decades, the trend in pest management has been to increasingly rely on synthetic chemical pesticides. This management strategy results in the increased use of dangerous chemicals, an increase in the number of pests that can become resistant to the pesticides, as well as lead to new organisms becoming pests. Additionally, some pesticides used for terrestrial pest management have been found in waterways causing problems in the aquatic environment.

Pest control managers are now moving away from their reliance on pesticides and toward an integrated approach that combines limited pesticide use with more environmentally friendly pest control techniques. This system is known as integrated pest management (IPM), a strategy that focuses on the long-term prevention of pests through a combination of techniques, including preventative, cultural, mechanical, environmental, biological, and chemical control tactics (**Figure 1**). Multiple IPM techniques can be utilized simultaneously to control pest populations in the most effective manner possible.

A comprehensive IPM Program and Approach allows for primary focus on pollution prevention by monitoring and preventing pests as well as minimizing heavy pest infestations, which reduces the need for chemicals and/or multiple applications. The goal of the IPM Program is not to eliminate all pests, but to keep their populations at tolerable levels. In an IPM program, pesticides should be applied only when it is determined that pests are approaching damaging levels. Because this requires early detection of the pests, IPM programs utilize monitoring techniques and economic thresholds to determine when to implement control strategies. If possible, a person should be trained and assigned to scout the sites on a regular basis. Pesticides may be part of an IPM program, but they should preferably be used only after pests exceed established thresholds and applied only to the affected area (in the case of disease prevention, some modifications may be allowed). In general, all pest control strategies should be those that are least disruptive to biological control organisms (natural enemies), least hazardous to humans and the environment (including non-target organisms), and have the best likelihood of long-term effectiveness.

[1]Adapted from the Orange County Drainage Area Management Plan Integrated Pest Management Policy Developed by the University of California, Division of Agriculture and Natural Resources

IPM practices are encouraged over the sole use of pesticides as the primary means of pest management (**Table 1**). As a part of their Municipal Activities Program, public agencies and their contractors evaluate the ability to use non-chemical IPM techniques before intensive use of pesticides. This IPM Program template outlines baseline IPM procedures that are required by the Los Angeles County Municipal Separate Storm System Permit (MS4 Permit)[2] along with additional optional IPM techniques that can be employed to implement an effective IPM program.

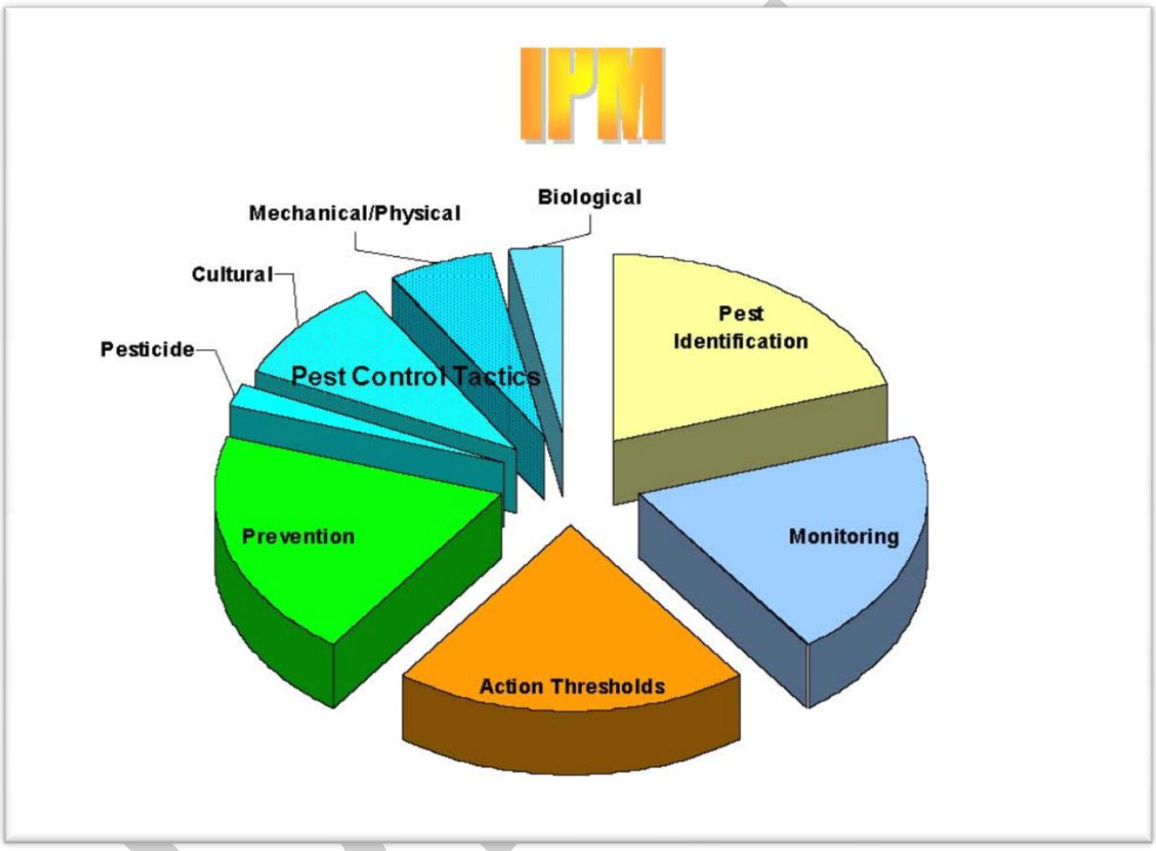

Figure 1 Components of an Integrated Pest Management Program

[2]California Regional Water Quality Control Board Los Angeles Region. 2012. Order No. R4-2012-0175 NPDES Permit No. CAS004001 Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4.

Table 1 Advantages and Disadvantages of a Pesticide-Based Program Versus An IPM-Based Pest Control Program

Pesticide Based Pest Control		IPM Based Pest Control	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
Quick suppression of pests	Not long-term	Long-term control	It may take longer to see results
	Pest control is reactive	Can be proactive in pest control actions.	Must establish thresholds
	Loss of natural controls. Often get outbreaks of other pests	Reduces disruption of natural enemies	
		Pesticides can be used (only used as a last resort)	Must have knowledge of pesticides and their effects on other organisms.
Labor is only for spraying	Extra work in cleanup	Staff becomes more knowledgeable of pests and injury symptoms	Labor is required for monitoring and regular scouting Training is required to identify pests and natural enemies
Not much preparation or follow-up needed	Need a PCA recommendation	Pest management is more organized	Must maintain a record-keeping system.
	Pesticide safety issues for applicators, public, animals More pesticides in environment Contamination of water bodies from runoff	Less exposure to pesticides Safer to the environment Reduces contamination from runoff	

Implementation Guidelines

Enter Designated IPM Coordinator or IPM Contact Information in Box Below:

IPM Coordinator: Contact Info:

Personnel responsible for the care and maintenance of facilities under the City of ______ agree to implement a suite of basic integrated pest management procedures to meet MS4 Permit requirements[3]. The fundamental basis for the IPM program must include the following as outlined in Permit Part VI.D.9.g:

1. **Pesticides are to be used if monitoring indicates they are needed, and pesticides are applied according to applicable permits and established guidelines.**
2. **Treatments are made with the goal of removing only the target organism.**
3. **Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial non-target organisms, and the environment.**
4. **The use of pesticides, including Organophosphates and Pyrethroids, does not threaten water quality.**
5. **Partnerships with other agencies and organizations are established to encourage the use of IPM.**
6. **A standardized protocol is to be used for the routine and non-routine application of pesticides (including pre-emergents), and fertilizers.**
7. **There is to be no application of pesticides or fertilizers (1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA34, (2) within 48 hours of a ½-inch rain event, or (3) when water is flowing off the area where the application is to occur. This requirement does not apply to the application of aquatic pesticides or pesticides which require water for activation.**
8. **No banned or unregistered pesticides are stored or applied.**
9. **All staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation, or are under the direct supervision of a pesticide applicator certified in the appropriate category.**
10. **Procedures to encourage the retention and planting of native vegetation to**

[3] In addition to MS4 Permit compliance, there are extensive federal and state laws and regulations that all public agencies must be in compliance with at all times, including the California Food and Agricultural Code (FAC) and the California Code of Regulations, Title 3 (3CCR).

reduce water, pesticide and fertilizer needs are implemented; and

11. Pesticides and fertilizers are stored indoors or under cover on paved surfaces, or use secondary containment.
    a. The use, storage, and handling of hazardous materials are reduced to decrease the potential for spills.
    b. Storage areas are regularly inspected.

In order to implement the above required minimum practices, the following section describes components of an effective IPM Program that can be employed:

- Pest and Symptom Identification
- Prevention
- Monitoring
- Injury Levels and Action Thresholds
- Pest Control Tactics

A number of useful IPM techniques are outlined under each component and further described in Appendix A. These techniques are known to be effective and methods can be selected from each component as necessary to achieve the IPM goals and meet MS4 Permit requirements.

Additional information on the latest IPM techniques including management of new pests in the landscape can be obtained from local UC Cooperative Extension Advisors, UC IPM Regional Advisor, or the Statewide UC IPM Web Site at www.ipm.ucdavis.edu.

Components of an Effective IPM Program

An IPM program is a long-term, multi-faceted system to manage pests (**Figure 1**). Use of pesticides is a short-term solution to pest problems, and should be used only when the other components fail to maintain the pests or their damage below an acceptable level. Successful IPM practitioners are knowledgeable about the biology of the plants and pests, and successful IPM programs primarily use combinations of cultural practices as well as a combination of physical, mechanical and biological controls.

Pest Identification

It is important to learn to identify all stages of common pests at each site. For example, if you can identify weed seedlings, you can control them before they become larger and more difficult to control and before they flower, disseminating seeds throughout the site. It is also important to be sure that a pest is actually causing the problem. Often damage such as wilting is attributed to root disease but may actually be caused by under watering or wind damage. Appendix A lists specific techniques that can be employed to identify pests.

Prevention

Good pest prevention practices are critical to any IPM program, and can be very effective in reducing pest incidence. Numerous practices can be used to prevent pest incidence and reduce pest population buildup such as the use of resistant varieties, good sanitary practices and proper plant culture. Examples of prevention include choosing an appropriate location for planting, making sure the root system is able to grow adequately and selecting plants that are compatible with the site's environment. Appendix A lists specific techniques that can be employed to achieve pest prevention.

Monitoring

The basis of an effective IPM Program is the development and use of a regular monitoring or scouting program. Monitoring involves examining plants and surrounding areas for pests, examining tools such as sticky traps for insect pests and quantitatively or qualitatively measuring the pest population size or injury. This information can be used to determine if pest populations are increasing, decreasing, or staying the same and to determine when to use a control tactic. Weather and other environmental conditions may also play a factor in whether a pest outbreak may occur so it is important to monitor temperature and soil moisture as well.

It is important to use a systematic approach when monitoring, for example you should examine leaves of a similar age each time you check for pests, rather than looking at the older leaves on some plants and younger ones on others. Randomly looking at a plant and its leaves does not allow you to track changes in pest population or damage over time.

It is important to establish and maintain a record-keeping system to evaluate and improve your IPM program. Records should include information such as date of examination, pests found, size and extent of the infestation, location of the infestation, control options utilized, effectiveness of the control options, labor and material costs. Appendix A lists specific techniques that can be employed to in the monitoring of pests.

Injury Levels and Action Thresholds

In order to have a way to determine when a control measure should be taken, injury levels and action thresholds must be set for each pest. An injury level is the level of unacceptable damage. For example, the injury level for a leaf-feeding beetle may be set at 30% of the leaves being damaged. Action thresholds are the set of conditions required to trigger a control action. An example of this would be finding an average of 5 or more beetles on 10 shrubs in a location. Action thresholds are set from previous experience or published recommendations and based on expected injury levels. Injury levels are often set by the public's comments. Appendix A lists specific techniques that can be employed to determine injury levels and action thresholds.

Pest Control Tactics

Integrated pest management programs use a variety of pest control tactics in a compatible manner that minimizes adverse effects to the environment. A combination of several control tactics is usually more effective in minimizing pest damage than any single control method. The type of control that an agency selects will likely vary on a case-by-case basis due to the varying site conditions.

The primary pest control tactics to choose from include:

- Cultural
- Mechanical/Physical
- Biological
- Pesticide

Appendix A lists specific pest control techniques that can be employed.

Cultural Controls

Cultural controls are modifications of normal plant care activities that reduce or prevent pests. In addition to those methods used in the pest preventions, other cultural control methods include adjusting the frequency and amount of irrigation, fertilization, and mowing height. For example, spider mite infestations are worse on water-stressed plants, over-fertilization may cause succulent growth which then encourages aphids, too low of a mowing height may thin turf and allow weeds to become established.

Mechanical/Physical Controls

Mechanical control tactics involve the use of manual labor and machinery to reduce or

eliminate pest problems using methods such as handpicking, physical barriers, or machinery to reduce pest abundance indirectly. Examples include hand-pulling or hoeing and applying mulch to control weeds, using trap boards for snails and slugs, and use of traps for gophers.

The use of physical manipulations that indirectly control or prevent pests by altering temperature, light, and humidity can be effective in controlling pests. Although in outdoor situations these tactics are difficult to use for most pests, they can be effective in controlling birds and mammals if their habitat can be modified such that they do not choose to live or roost in the area. Examples include removing garbage in a timely manner and using netting or wire to prevent bird from roosting.

Biological Controls

Biological control practices use living organisms to reduce pest populations. These organisms are often also referred to as beneficials, natural enemies or biocontrols. They act to keep pest populations low enough to prevent significant economic damage. Biocontrols include pathogens, parasites, predators, competitive species, and antagonistic organisms. Beneficial organisms can occur naturally or can be purchased and released.

The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.

- <u>Predators</u> are organisms that eat their prey (e.g. Ladybugs).
- <u>Parasites</u> spend part or all of their life cycle associated with their host. Common parasites lay their eggs in or on their host and then the eggs hatch, the larvae feed on the host, killing it (e.g. Tiny stingless wasps for aphids and whiteflies).
- <u>Pathogens</u> are microscopic organisms, such as bacteria, viruses, and fungi that cause diseases in pest insects, mites, nematodes, or weeds (e.g. Bacillus thuringiensis or BT).
- <u>Herbivores</u> are insects or animals that feed on plants. These are effective for weed control. Biocontrols for weeds eat seeds, leaves, or tunnel into plant stems (e.g. goats and some seed and stem borers).

In order to conserve naturally occurring beneficials, broad-spectrum pesticides should be avoided since the use of these types of pesticides may result in secondary pest outbreak due to the mortality of natural enemies that may be keeping other pests under control (Figure 2).

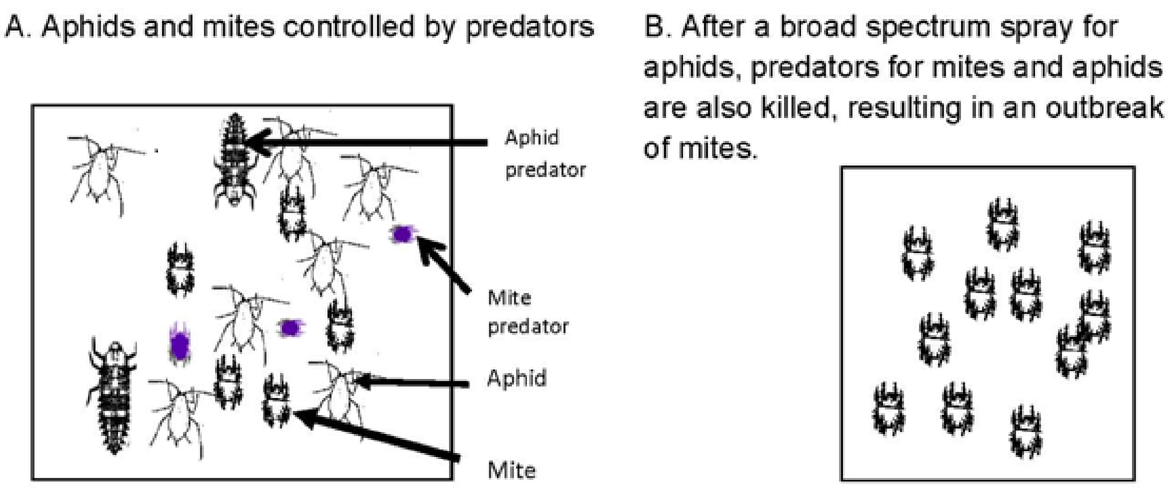

Figure 2 Example of Secondary Pest Outbreak Caused By Use of a Broad Spectrum Insecticide

Pesticide Controls

Any substance used for defoliating plants, regulating plant growth or preventing, destroying, repelling or mitigating any pest, is a pesticide. Insecticides, miticides, herbicides, fungicides, rodenticides and molluscides are all pesticides. Anything with an EPA or DPR registration number on the label is a non-exempt pesticide.

Pesticides should only be used when other methods fail to provide adequate control of pests and just before pest populations cause unacceptable damage. The overuse of pesticides can cause beneficial organisms to be killed and pest resistance to develop. When pesticides must be used, considerations should be made for how to use them most successfully. Avoid pesticides that are broad-spectrum and relatively persistent since these are the ones that can cause the most environmental damage and increase the likelihood of pesticide resistance. Always choose the most specific but least toxic to non-target organisms method.

In addition, considerations should be given to the proximity to water bodies, irrigation schedules, weather (rain or wind), etc. that are secondary factors that may result in the pesticide being moved off-site into the environment. Consideration should be made of the temporary loss of use of an area (application in a park may result in the area being sectioned off).

Appendix A: Optional IPM Techniques to Integrate into IPM Program

The following practices are generally accepted to be effective IPM techniques. These procedures increase the long-term prevention and suppression of pest problems (insects, weeds, diseases, and vertebrates) with the minimum impact on human health, the environment, and non-target organisms. Emphasis is placed on improving cultural practices to prevent problems and utilize alternative control measures instead of broad spectrum pesticides. The following IPM techniques are divided into the following categories:

- General Pesticide Management Practices
- Pest and Symptom Identification
- Prevention
- Monitoring
- Injury Levels and Action Thresholds
- Pest Control Tactics

GENERAL PESTICIDE MANAGEMENT PRACTICES

- Maintain a complete inventory of all pesticides used and the use sites. This inventory should be updated annually.
- If pesticides are necessary, CAUTION-labeled pesticides should be considered before more toxic alternatives.
- Ensure that no banned or unregulated pesticides are stored or applied.
- Restricted use pesticides should only be used when no other alternatives are practical.
- Only small quantities of pesticides should be purchased eliminating the need for stockpiling.
- MSDSs should be regularly updated to reflect new pesticides or label changes to pesticides in storage.
- Pesticides should be used only according to label instructions.
- Weather conditions that could affect application should be considered. For example, wind conditions affect spray drift; rain may wash pesticide off of leaves.
- Pesticides should not be applied where there is a high chance of movement into water bodies; for example, they should not be applied near wetlands, streams, lakes, ponds or storm drains unless it is for an approved maintenance activity.
- In most cases, empty pesticide containers should be triple-rinsed before disposal. Particular information on the proper disposal of the pesticide and its container can be found on the label.

- Pesticide equipment and containers should not be cleaned or rinsed in the vicinity of storm drains or other open water areas.
- Pesticides should be stored in covered areas with cement floors and in areas insulated from temperature extremes.
- Chemicals and equipment should be secured during transportation to prevent tipping or excess jarring.
- Pesticides should be transported completely isolated from people, food and clothing, for example, in the bed of the truck rather than in the passenger compartment.
- Pesticide equipment, storage containers and transportation vehicles should be inspected frequently.
- A plan for dealing with pesticide spills and accidents should be developed.
- Unless their safety is compromised, workers should immediately clean up any chemical spills according to label instructions and notify the appropriate supervisors and agencies.
- Pesticide applications on public property, which take place on school grounds, parks, or other public rights-of-way where public exposure is possible, should be posted with warning signs. The specific criteria for the signage can be found in FAC, section 12978. Pesticide applications by the Department of Transportation on public highway rights-of-way are exempt.

PEST AND SYMPTOM IDENTIFICATION

Insects, Mites, and Snails and Slugs

- Field personnel should be trained to recognize basic pests found in the landscape in the following groups: insects, mites, and mollusks.
- A licensed Pest Control Adviser can be on staff or hired to properly identify a pest and the symptoms caused by the pest.
- Field personnel can be trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.
- Field personnel can be trained to distinguish between beneficial insects and actual pests found in the landscape (e.g. parasitizing wasps).
- Unknown samples can be submitted to the Orange County Agricultural Commissioner for identification by the county entomologist or plant pathologist.
- Abiotic or nonliving factors (wind, sunburn, air pollution, etc…) should be considered as possible causes of observed symptoms as well as biotic (living) factors.

Weeds

- Field personnel can be trained to identify common weeds in the landscape.
- Field personnel can be trained to utilize weed life cycles to properly control

weeds such as controlling crabgrass utilizing a pre-emergent herbicide applied in mid-January.

- A licensed Pest Control Adviser can be on staff or contracted to properly identify the pest.

Diseases

- Field personnel can be trained to recognize common diseases or their signs/symptoms in the landscape.
- Field personnel can be trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.
- Field personnel can be trained to recognize the difference between biotic and abiotic problems.
- Field personnel can be trained to understand how common diseases are spread throughout the landscape.
- Disease signs and symptoms can be sampled and submitted to the Orange County Agricultural Commissioner for identification by the county plant pathologist.
- A licensed Pest Control Adviser can be on staff or contracted to properly identify the pest.
- Photographs of disease signs and symptoms can be taken and compared to reference guides such as UC IPM's *Pests of Landscape Trees and Shrubs*.

Vertebrates

- Field personnel can be trained to recognize vertebrate pests and the damage they cause in the landscape.
- Field personnel can be trained to utilize vertebrate behavior to properly control the pest most effectively.
- Field personnel can be trained in vertebrate baiting and trapping.
- A licensed Pest Control Adviser can be on staff or contracted to properly identify vertebrate pest.

PREVENTION

Landscape Design Procedures

- Drainage, soil characteristics, water quality and availability should be considered during plant selection.
- Sun exposure, heat, and high temperature conditions should be considered during plant selection.
- Plant material should be selected based on adaptability to local climate conditions, such as those conditions common to a Mediterranean climate.
- Adequate space should be allowed for root growth, especially trees.

- Nursery stock should be inspected and rejected if not healthy (injuries, diseased, circling roots/potbound, poor staking and/or pruning).
- Pest resistant species and cultivars should be selected.
- Plants with similar growth characteristics and irrigation requirements should be grouped together.
- Landscape design should match available irrigation technology to avoid excess water use and to minimize surface runoff.

Site Preparation and Planting Procedures

- Soil drainage properties can be assessed and compacted soils improved prior to planting.
- A soil analysis can be conducted to determine the chemical and physical properties of the existing soil and then appropriate amendments such as organic matter can be added.
- Irrigation should be installed as designed in order to avoid poor uniformity once plants are in place.
- Proper planting procedures should be followed for particular plant species to avoid planting too deeply or too shallow.
- Nursery tree stakes can be removed at planting and replaced with staking that allows trunk to flex; removing these stakes after 1 to 1.5 years.
- A soil probe or other soil moisture measurement device can be utilized to monitor soil moisture levels in existing root ball and surrounding soil during establishment period.

Water Management

- Plants should be examined weekly for symptoms of water stress and to assist in determining irrigation scheduling.
- Soil moisture can be monitored with a soil probe or soil moisture sensors to assist in scheduling irrigation.
- Evapotranspiration (ET) data or 'smart' clock technology can be utilized to schedule irrigation.
- Cyclic irrigation (short-multiple run times) can be employed to minimize surface runoff.
- Low precipitation sprinklers or low-volume systems can be utilized to reduce surface runoff.
- Systems should be inspected monthly to check for leaks, broken pipes, and clogged or broken sprinkler heads.
- Adjust sprinklers to avoid application of water directly to the trunk of trees (can promote disease) or on to concrete surfaces where it can enter storm drains.
- A hotline, email, or other dedicated method can be established for citizens to

report leaks and broken sprinkler heads

Fertilizing Procedures

- To avoid nutrient losses below the root zone, fertilize only when plants are actively growing.
- Fertilizer should not be applied within 48 hours of a rain event to avoid losses below the root zone and in surface runoff.
- Soil analyses can be conducted in order to determine existing nutrient levels in the soil prior to fertilizing.
- Turf grass fertilizer maintenance schedules can be based on UC recommendations found online at UC Guide for Healthy Lawns: http://www.ipm.ucdavis.edu/TOOLS/TURF/MAINTAIN/fertilize.html
- Sports turf grass fertilizer maintenance guidelines can be based on UC recommendations found in *Establishing and Maintaining the Natural Turf Athletic Field (UCR ANR Publication Number: 21617)*.
- Overfertilization, especially of trees and shrubs, should be avoided to ensure plant growth is not excessively succulent making it more susceptible to pest infestations.
- Off-target fertilizer applications or spills should be cleaned up immediately by sweeping up and applying to landscape or turf or replacing in spreader or bag to ensure material does not enter storm drains.

Pruning Procedures

- Damaged or diseased wood should be regularly pruned from landscape plants.
- Trees should be pruned according to standards set forth by a professional tree care organization such as the International Society of Arboriculture.
- Plants too large for a space should be replaced instead of pruning them severely.
- Unnecessary pruning should be avoided as wounds are entry sites for decay and disease organisms.
- The age and species of the plant should be taken into account when determining the time of year to prune. For example, eucalyptus should be pruned in December and January when long-horned beetles are not active.
- Tree height reduction should be discouraged. When deemed necessary by a licensed arborist, the crown reduction method approved by a professional tree care organization should be utilized. Topping should not be done to reduce tree size.

MONITORING FOR PESTS AND PROBLEMS

Insect/Mollusk Monitoring Procedures

- Monthly visual inspections of plants for insects, mites, snail and slug damage,

and recording results is an effective method for tracking changes and easy recall of data.

- Yellow sticky traps can be utilized to assess populations of insects.
- Insects can be dislodged from plants by shaking over a collection surface usually consisting of a clipboard with a white sheet of paper.
- If available for a particular insect, pheromone-baited traps can be utilized.
- Soil-dwelling turf insects can be brought to the surface for monitoring by flushing a specific area of soil (i.e. 2′ x 2′ grid) with plain water or a soapy water mixture.
- The amount of honeydew (aphids) and frass (caterpillars) present can be utilized as an indicator of population levels.

Weed Monitoring Procedures

- Landscapes can be inspected at least 4 times a year (early winter, early spring, summer and early fall) for weeds in order to determine if and when a weed problem exists.
- Site surveys can be utilized to record the location, date, and severity of weed problem for an effective method of tracking changes and easy recall of data.
    - The number of weeds encountered at periodic intervals (e.g. every 1 to 2 feet) can be counted and recorded along a straight line transecting a landscaped, area or within a selected area, for example 4 sq. ft. samples done in random places in a bed or turf area.

Disease Monitoring Procedures

- Landscapes should be regularly checked for conditions, such as overwatering and injuries, which promote disease.
- Landscapes should checked monthly for disease symptoms and signs. Disease prone plants should be checked more frequently.
- Landscape inspections should note date when disease signs and symptoms were first noticed and the current environmental conditions and soil moisture levels as an effective method of tracking changes and easy recall of data.

Vertebrate Monitoring Procedures

- Landscapes can be regularly inspected for vertebrate presence either by damage caused by animal, actual animal sightings, and/or droppings.
- Records can be kept of the absence or presence of actual vertebrates, the damage caused, and/or the presence or absence of droppings.
- Maps can be created and updated at least twice a year, recording areas of high vertebrate damage or signs (such as gopher mounds).

INJURY LEVELS AND ACTION THRESHOLDS

Insect/Mollusk Thresholds and Guidelines

- Insect tolerance levels can be established based on the public's acceptance of damage to the landscape or a certain level of nuisance pests (i.e. ants), the actual plant species in the landscape, and long-term monitoring and knowledge of pests causing the damage.
- Thresholds can be based on levels where reasonable control of the pest can be achieved with minimum impact on the environment.
- Insect monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of aphids on a rose garden at City Hall is low, while in a native shrub border it might be considerably higher.

Weed Thresholds and Guidelines

- Weed tolerance levels can be established based on public safety or the public's acceptance and the resources available to manage the landscape at that level.
- Weed monitoring records can be utilized to rank the percentage of the landscape area infested (none, light, moderate, heavy, or very heavy) with weeds.
- Public areas can be ranked according to high, medium, or low level of weed control and management conducted according to levels set for each rank (see Appendix B)

Disease Thresholds and Guidelines

- Disease tolerance levels can be established based on the public's acceptance and the resources available to manage the landscape at the level required.
- Disease monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of powdery mildew on roses at City Hall is much lower than the threshold for its presence on Euonymus in a parking lot at a city sports park.

Vertebrate Thresholds and Guidelines

- Vertebrate tolerance levels can be established based on public safety, the public's acceptance and the resources available to manage the landscape at the level required.
- Vertebrate monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of gopher mounds in a sport field is zero, while in a native shrub border it might be two before a trapping strategy is implemented.

PEST CONTROL TACTICS

Insect/Mollusk Management Methods

Cultural/Mechanical/Physical Control Methods

- Sticky barriers can be applied to trunks of trees and large shrubs to prevent ants and other wingless invertebrates from plant canopies.
- Small insect infestations can be removed by pruning infested plant parts.
- Copper bands can be installed around base of trees or planting areas where snail and slug infestations are prevalent.
- Plant canopies can be thinned to increase light penetration to expose certain soft-bodied insects (soft-scale) as well as snails and slugs to heat.
- Strong streams of water can be used to dislodge insects such as aphids and whiteflies, from leaves.
- The use of plants that snails and slugs use for shelter should be avoided.
- Avoid irrigating between 5pm and 5am when moisture remains on plant material for several hours.

Biological Control Methods

- Persistent broad-spectrum pesticides should be avoided, especially if biological control of an insect has been established by UC researchers. Examples include parasitoid wasps controlling Eugenia Psyllids, Giant Whitefly, and Ash Whitefly.
- Natural predators (beneficial insects) can be augmented with purchases of additional predators from commercially available resources.

Pesticide Control Methods

- The most selective, rather than broad-spectrum, pesticide should be used.
- If available for controlling a particular insect, biological and botanical pesticides should be selected.
- Insecticidal soaps can be utilized to control infestations of soft-bodied insects such as aphids, thrips, and immature scales.
- Horticultural oils (neem oil and narrow-range refined oils) can be utilized to control infestations of soft-bodied immature and adult insects such as aphids, scales, and whiteflies.
- Pesticides should only utilized when the potential for impacts to the environment, especially water quality, are minimized.
- Equipment should be calibrated prior to the application of the insecticide to avoid excess material being applied to the landscape environment.
- Applicators should be trained to not apply pesticides to hard surfaces and to not allow any pesticide to enter the storm drain system.
- Spot treatments should be utilized rather than broadcast methods.
- Insecticide/fertilizer combinations should only used if it is appropriate timing for BOTH the insecticide application and the fertilizer application.

Weed Management Methods

Cultural, Mechanical, and Physical Control Methods

- Timers can be set to avoid overwatering as weeds establish in areas where soil moisture is excessive.
- Drainage can be managed to avoid wet areas.
- Weeds can be removed from a site prior to planting.
- Mower height can be adjusted to turf species and time of year.
- Mower should be washed after mowing a weedy site.
- Hand-pulling, mowing, trimmers/brushcutters, flaming, hoeing, and rototilling around landscape plants should be the main methods utilized to control annual weeds and young perennial weeds.
- Soil solarization can be utilized to control some annual and perennial weed species.
- Bare soil areas can be covered with a thick layer of mulch to suppress weeds and conserve soil moisture.
- Soil, mulch, and plant material should be weed-free before it is introduced into the landscape.

Pesticide Control Methods

- Spot treatments can be utilized rather than broadcast methods.
- Herbicide/fertilizer combinations should only used if it is appropriate timing for BOTH the herbicide application and the fertilizer application.
- Herbicides should be utilized according to established thresholds (see Appendix B).
- Organically acceptable herbicides (shown to be effective through science-based research) should be used where appropriate.
- Herbicides can be applied to the stage of weed growth most susceptible to the chemical.
- Equipment should be calibrated prior to the application of the herbicide to avoid excess material being applied to the landscape environment.

Disease Management Methods

Cultural, Mechanical, and Physical Control Methods

- Localized areas of diseased plants should be pruned out and disposed of.
- Pathogen-infested plant parts can be removed from the soil surface area to reduce certain pathogens (e.g. Camellia Petal Blight).
- Pruning tools can be sterilized (e.g. a diluted bleach solution) between plants to prevent the spread of pathogen to other plants.
- Proper irrigation and fertilization can be maintained to prevent plant stress, waterlogging, and subsequent susceptibility to disease.
- Soil solarization can be utilized to control soil pathogens in annual beds where it

is most effective.

- Mulch can be kept at least 6” from base of plants to avoid excessive moisture around crown possibly resulting in crown rots and is no deeper than 4”
- Disease-prone plants can be replaced with non-susceptible species.

Pesticide Control Methods

- Preventative fungicides and bactericides should only used where diseases can be predicted from environmental conditions and applied prior to infection or the appearance of symptoms.
- Synthetic fungicides should be used sparingly in the landscape and only in high visibility areas in order to minimize development of resistance.
- Organic fungicides and bactericides should be utilized in combination with cultural, mechanical, and physical control methods in order to improve their effectiveness.
- Copper-based fungicides should only be utilized in situations where its entry into surface runoff and storm drains is virtually impossible and after consultation with PCA and IPM coordinator.
- Mycopesticides, commercially available beneficial microorganisms, should be used where appropriate.
- Fungicides classes can be rotated to avoid resistance.

Vertebrate Management Methods

Cultural and Physical Control Methods

- Groundcovers can be maintained such that they do not harbor rats.
    - Shrubs pruned at least 1 foot from the ground (rats).
    - Sources of drinking water removed (leaky faucets, puddles).
    - Trash cans have lids and are emptied daily (rats).
    - Screens or other barriers installed under structures that have a space between soil and floor (rabbits).
- Habitat modification, based on pest biology can be used to reduce shelter. Trapping can be used for gophers when safe and practical.
- Kill traps used for ground squirrels and rabbits, should be checked daily, and put in places not accessible by children or non-target animals.
- Gas cartridges can be used for ground squirrels according to UC recommendations.

Pesticide Control Methods

- Anti-coagulant baits can be used and applied according to label and UC recommendations.
- Bait should be applied in a manner that non-target animals do not have access to

it.

- Restricted use pesticides should only be applied by or under the direct supervision of an individual with a qualified applicators certificate (QAC). To receive a QAC, a person must take a test administered by Department of Pesticide Regulation (DPR). To obtain test materials, test schedules, and an application, see http://www.cdpr.ca.gov/docs/license/liccert.htm.

Appendix B

Ranking public areas for weeds (or other pest) management:

Areas ranked as **HIGH** may include areas that the public sees and expects to be well-maintained. Examples are entrances to public buildings such as city hall and libraries.

These areas are allowed to use pesticides based on established thresholds.

Areas ranked as **MEDIUM** may include areas the public sees but does not expect a high level of maintenance. Examples are landscaped areas away from the entrance, recreational and picnic areas. These areas can tolerate a higher lever of weeds.

These areas are allowed to use pesticides but the threshold is much higher and pesticides are used infrequently and only after consultation with IPM coordinator.

Areas ranked as **LOW** may include areas the public rarely sees or does not expect a high level of maintenance. Examples are medians, landscaped areas in parking lots, wildlands. These areas can tolerate a higher lever of weeds.

These areas are not allowed to use pesticides except in extreme cases and only after consultation with IPM coordinator.

Insert City Seal

Example Catch Basin Cleaning Log

Catch Basin Cleaning Log			
Date	Location	Number of Catch Basins Cleaned	Total Amount Removed
Notes:			

Example of Completed Catch Basin Cleaning Log

Catch Basin Cleaning Log			
Date	Location	Number of Catch Basins Cleaned	Total Amount Removed
7/1/13	Street #1	20	55 cu. ft.
	Intersection #1	10	
	Street #2	5	
Notes:			

Drainage Inlet/Catch Basin Information		
Location		
Street:	Cross Street:	Side (N,S,E,W)
Distance:	Direction (N,S,E,W):	Inlet #:
Map #:	Grid:	
Condition		
Length of Opening:	Height of Opening:	Stencil Legible (Y/N):
Bicycle Bars (Y/N):	Grate Size:	Inlet Protection Bar (Y/N):
Treatment Control BMP (Y/N):	Type of BMP:	
Repairs Required:		

Illicit Connection Investigations Guidance

Field Screening Techniques

If evidence of an illicit discharge is detected, as described in Section 2, and the source does not appear to be evident or above ground, investigations will be conducted to determine if the discharge is being conveyed through an illicit connection. A good source of information includes *Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems* (EPA/600/R-92/238.1993, Pitt et al). General guidance follows below. These techniques can also be used if a Permittee elects to survey sections of their system for illicit connections.

Document Research

Maps of drainage facilities can be reviewed to locate upstream connections and drainage basins as an initial step to locate potential illicit connections. Other records, such as connection permits and discharge permits, can also be reviewed to determine if legal connections may be the source.

Physical Inspections

Catch basins, manholes and other facilities that can be safely investigated from the surface should be physically checked for evidence of connections. This may be a hard pipe connection, or could be a hose or other conveyance that directs a discharge into the storm drain facility. Identification of connections that exhibit evidence of suspected illicit discharges during routine site inspection (e.g., industrial, commercial or construction). Investigation is conducted to determine if the discharge is being conveyed through an illicit connection when evidence of illicit discharge is detected, and the source does not appear to be evident or above ground.

Facilities that are large enough for personnel to enter can also be physically inspected, however, entry into facilities requires strict adherence to health and safety procedures, including confined space entry procedures. In general, a space is “confined” if it is not intended for human occupancy, has limited openings for entry or exit, and has insufficient natural or mechanical ventilation. Information on safety procedures can be found in many documents, including the *Occupational Safety and Health Guidance Manual*, National Institute for Occupational Safety and Health; *OSHA Safety and Health Standards 29 CFR 1910 (General Industry)*, US Department of Labor, and *Title 8 of the California Code of Regulations, General Industry Safety Order*.

Dye Tests

Dye tests can reveal illicit connections in areas where storm drain flows are unexplained and the Permittee has access to suspect facilities. Typical dye tests consist of the addition of fluorescent dye to a floor drain or waste line from a domestic, commercial or industrial process, followed by monitoring for the dye in downstream storm drains. Permittees should conduct dye testing facility by facility (in each area where unexplained flow exists) until all facilities in the area are tested.

Smoke Tests

Smoke tests can reveal if illicit connections exist, and can reveal their source. Storm drains are sealed via sandbags or other sealing devices (plugs, etc.) and smoking incendiary devices are ignited upstream of the seal. Simultaneous inspections inside area facilities should reveal illicit connections even in the

absence of flow. As illicit discharges are intermittent, smoke tests offer real advantages over other types of illicit discharge source identification methods. However, as many legitimate connections to a storm drain may exist (roof drains, street drains, etc.) smoke may be observed extensively. This may cause some illicit connections to be missed, and create a problem with area businesses and residents as excessive smoke begins to enter private property.

T.V. Inspections

T.V. inspections can reveal if illicit connections exist, but cannot be used to view up the connection to determine the source. Robotized or otherwise mobile television cameras allow visual inspection of storm drains (pipes) too small or dangerous for personnel to enter. Although an excellent method of identifying and documenting illicit connections, T.V. inspections have high costs unless the equipment is already owned or can be borrowed from neighboring agencies.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Illicit Discharge Investigation and Elimination Guidance

Introduction

Once illicit discharges/disposal are detected and identified, they must be eliminated. Sometimes the source of the spill or discharge/disposal is apparent. The incident can be removed through voluntary cleanup/termination or enforcement procedures, and steps can be taken to prevent its recurrence. These prevention methods can include education and outreach materials for residents and businesses, preventive maintenance practices for infrastructure, vehicles and equipment or additional enforcement.

When the source of the discharge is not apparent, further investigation will be necessary to eliminate it and prevent it from recurring. The following discusses methods that can be used to document the incident, determine the nature of the material, and investigate the source.

Advance Planning

An effective investigation program requires good advance planning. Sufficient staff should be trained to conduct investigations so that qualified staff are available whenever investigations are necessary. Staff should become familiar with illicit discharge investigation and sampling procedures. General guidance follows below to assist with overall planning, but should not be considered complete for proper sampling quality assurance purposes.

Equipment

Appropriate equipment for field investigations may include:

Table 1: Typical Equipment for Investigations

Equipment Type	Equipment
General	Inspection checklist
	Field data log book
	Camera
	Tape measure
	Storm drain system map
	Flashlight
Flow measurement	Ping pong ball or other light floatable
	Stopwatch
Laboratory	Graduated container
	Temperature/pH/conductivity (EC) probe
	Field test kits (e.g., Lamotte test kit)
	12 1-liter amber glass sample bottles
	12 1-liter HDPE sample bottles
	Cooler with ice for sample preservation
	Gloves
	Splash goggles/safety glasses
	Deionized water in wash bottle
First Aid	First aid kit

Data Collection

Before entering the field, the inspection crew should locate information such as the following on a storm drain/street map for areas that will be investigated:

- All known or suspected pollutant generating activities
- Locations of NPDES dischargers
- All locations where storm drains enter open channels
- Catch basins and storm drain manholes

Visual Observation

Visual observation of the storm drain system and/or of activities on the surface can provide information on the source of illicit discharges. It is the simplest method to begin with and the least costly. Evidence of illicit discharges may only consist of visual observations because most illicit discharges are intermittent and will probably not be flowing when inspected. A field inspection crew should investigate the surface drainage system in the vicinity of suspected illicit discharges. This may include accessible areas in the public right-of-way adjacent to residences and businesses, catch basins, open channels near known points of discharge, and upstream manholes.

Photos of visual observations should be taken to aid subsequent data analysis and follow up planning. The following types of visual observations should be recorded on an investigation checklist, such as the one attached:

- Location
- General site description
- Amount, appearance of discharge/disposal
- Stains
- Structural cracking and corrosion
- Vegetative growth
- Nearby facilities with poor outside housekeeping practices
- Pipes/hoses connected to/directed toward drainage system

If the source of the discharge is determined, appropriate methods should be used to eliminate it through voluntary cleanup/termination or enforcement procedures, and steps should be taken to prevent its recurrence.

Sampling and Testing

If flow is observed, and the source of the discharge is not apparent, the crew should collect a sample and measure flow. Several tests should be conducted to determine the nature of the material. This can be compared to records of local facilities and possible pollutant generating activities as an aid in determining the possible sources of the flow.

The sample should be measured for pH, temperature and conductivity (EC). If any of these parameters are abnormal, or strong odors or flow discoloration are detected, the sample should be analyzed. This can be done with a field test kit, which will detect the presence of copper, phenols, detergents, and chlorine. Findings should be recorded on the inspection checklist.

If visual observations are abnormal and/or the field tests detect high concentrations of any constituent, the crew should consider collecting samples for laboratory analysis. The laboratory can usually supply properly cleaned sample bottles and specify either amber glass or plastic (HDPE) bottles depending on the analyses required. If there is enough flow, the field crew should fill several of each type of bottle to obtain enough sample volume for a range of analyses. If there is a limited quantity or sampling is difficult, the field crew should collect as much sample as possible so that the laboratory can run a limited set of analyses. The samples should be placed in a cooler filled with ice and transported to the lab(s) on the same day. Arrangements should be made prior to the field inspection with an analytical laboratory capable of performing the required analyses.

The laboratory analyses run on each sample should be carefully considered. Given the potential high cost for laboratory work, it is prudent to limit the number of analytical parameters (or analytes) tested for each sample. Tests may be selected based on the findings of indicator analyses, visual observations, field tests, and information collected about the types of materials processed, stored and/or spilled within each drainage area.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Insert City Seal

ILLICIT CONNECTION/ ILLICIT DISCHARGE INVESTIGATION REPORT

Response Time:
☐ 1-6 hrs. ☐ 13 hrs. ☐ 24 hrs. ☐ 48 hrs.

RESPONSE

Date:	Time:	Inspector:

INVESTIGATION

Location/ Address:	
Reason for Investigation: ☐ Complaint ☐ Discharge/Spill Response ☐ Visual Monitoring ☐ Other: ___________________________________	
Type of Material: ☐ Hazardous ☐ Wastewater ☐ Oil/Grease ☐ Soil/ Sediment ☐ Trash ☐ Sewage ☐ Fuel (Gas/Diesel) ☐ Chemicals ☐ Other _________________________	
Estimated Quantity: ☐ Gallons ☐ Lbs.	
Entered Storm Drain System: ☐ Yes ☐ No Storm Drain Location: ________________________	Entered Receiving Waters: ☐ Yes ☐ No Name of Receiving Water: ___________________________
Observations	
Field Testing: ☐ Yes ☐ No Details:	Sample Collected: ☐ Yes ☐ No Details:
Direct/ Constructed Connections Found: ☐ Yes ☐ No Details:	

RESPONSIBLE PARTY

Name:	
Address:	Phone/ email:
Repeat Violation? ☐ Yes ☐ No	

OUTREACH MATERIAL

Outreach Material Distributed: ☐ None ☐ General Information ☐ BMP Brochure ☐ Other ________________

ENFORCEMENT

Enforcement: ☐ None ☐ Written Warning ☐ Notice of Violation ☐ Citation/Infraction ☐ Cease and Desist Order	
Other Actions	

FOLLOW-UP VISIT

Date:	Time:	Inspector:
Discharge Stopped? ☐ Yes ☐ No		Proper Clean-Up Action Taken: ☐ Yes ☐ No
Further Action Required: ☐ Yes ☐ No Details:		

RB-AR14916

Insert City Seal

ILLICIT CONNECTION/ ILLICIT DISCHARGE REPORTING & RESPONSE

Received by:	
Date:	Time Received:

REPORTING PARTY

Name:	Anonymous: ☐ Yes ☐ No
Address:	Phone/email:

INCIDENT

Date:	Time:
Location/ Address:	
Land Use: ☐ Residential ☐ Commercial ☐ Industrial ☐ Public	
Type of Material: ☐ Hazardous ☐ Wastewater ☐ Oil/Grease ☐ Sediment ☐ Trash ☐ Other _____________ ☐ Unknown	
Estimated Quantity: ☐ Gallons ☐ Lbs.	
Entered Storm Drain System/ Receiving Waters? ☐ Yes ☐ No	
Description / Details	
Agencies Contacted: ☐ Office of Emergency Services ☐ HazMat Team ☐ LA County ☐ Regional Board ☐ Other	
Source Investigation Conducted? ☐ Yes ☐ No	Source Identified? ☐ Yes ☐ No
Direct/ Constructed Connections Found? ☐ Yes ☐ No	

ALLEGED RESPONSIBLE PARTY

Name:	
Address:	Phone/ email:
Vehicle License No:	

ACTION & CLOSURE

Referred to:	Date:
Department:	Phone/ email:
Actions Taken/ Details	

Date Closed:

RB-AR14917

Spill Prevention Coordination

Procedures

This attachment discusses spill prevention coordination procedures that identify:

- Divisions or sections responsible for responding to reports of spills
- General and specific spill response procedures including responsible division or section
- Spill response training activities
- Activities conducted to improve spill response procedures and equipment

Divisions or Sections Responsible for Responding to Reports of Spills

Identify the divisions or sections responsible for responding to reports of spills and note divisions or sections that respond to specific types of spills such as hazardous materials spills or sewage spills. Also indicate the specific field staff who respond to spills and the level of support they provide to lead emergency response agencies and source of spill investigations.

General and Specific Spill Response Procedures

Describe or reference general spill response procedures involved in responding to complaints and identifying spills through inspections. Include the spill response process from the spill identification stage through clean up and report preparation. Copies of the forms and reports prepared to document spills should also be included. Specific procedures for hazardous materials spills, floods, and sewage spills should be referenced. Contractor support for spill events, if applicable, should also be noted.

Spill Response Training Activities

Provide an overview of all spill response training that is conducted within the various divisions and sections of the agencies.

Activities to Improve Spill Response Procedures and Equipment

List all activities conducted within the implementing agency to improve spill response procedures and update equipment. Explain how improvements are identified, prioritized, and implemented. Include a schedule of how often spill response procedures and equipment are evaluate.

Spill Investigation, Containment and Cleanup

Investigation

Depending on the location of the spill and the type of material, the appropriate department/ agency should be notified. This may include:

- Storm drain maintenance, if the spill reaches the storm drain system
- Street and road maintenance, if the spill is in the public right-of-ways
- Sewer system maintenance, if the material is from the sewage system
- Industrial waste inspection, if the material is from industrial facilities
- Fire Departments/"first responders," if the material may be hazardous
- Contractors for hazardous materials, if the material is hazardous

These departments/agencies should determine the nature of the material and the extent of the spill. If any agency determines there is a chance that the spill involves hazardous materials, then the local Administering Agency will be notified. An example of spill investigation procedures is depicted in Figure D-1. Reporting procedures for hazardous substances are discussed further in Section 5 of this Illicit Connection/Illicit Discharge Elimination model program.

Containment and Cleanup

Once the nature and extent of the spill is determined, the appropriate departments and field superintendents will be notified to contain and clean up the spill. The three types of cleanup scenarios are (1) hazardous, (2) wastewater, and (3) other non-hazardous materials.

Hazardous

Handling procedures regarding releases of hazardous or potentially hazardous substances into the environment are covered in a number of federal and state regulations, including: Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); Superfund Amendments and Reauthorization Act (SARA); Resource Conservation and Recovery Act (RCRA); and multiple bills codified under Division 20 of the California Health and Safety Code. These procedures are well established and are practiced by local hazardous materials response teams - generally a local Fire Department.

Material determined to be hazardous will be contained by the appropriate hazardous material response team. The team will contact an approved contractor for cleanup. Details are contained in the local *Emergency Response Procedures* manual.

Wastewater

Field crews responding to a sewage spill or overflow should contain the spill to prevent entry of the sewage into the storm drain system or natural watercourse. This will involve a coordinated effort between the sewer, street, and storm drain maintenance crews.

To the maximum extent possible, sewage should be prevented from entering the storm drain system by covering or blocking storm drain inlets and catch basins or by containing or diverting the overflow away from open channels and other storm drain fixtures (using sandbags, inflatable dams, etc.).

In the event that raw sewage enters a storm drain catch basin, where possible the sewage should be vacuumed or pumped out of the catch basin. If a sewage overflow enters a storm drain channel, where possible the downstream channel area should be blocked, flushed with potable water and the captured water pumped to a nearby sewer manhole. Any time a sewage spill enters the storm drain system and has the potential to reach coastal waterways, the local agency and L.A. County Dept. of Health Services, Bureau of Environmental Protection must be notified (323) 881-4147.

Once the spill is contained, it should be removed and the area disinfected. Every effort should be made to ensure that the disinfectant is not discharged to the storm drain system, using methods such as those described above.

Other Non-hazardous Materials

Non-hazardous materials should generally be removed by appropriate crews with knowledge of or jurisdiction over the location of the spill, as indicated in Section D.1. Because the situations and materials will vary widely, procedures will vary as well.

All materials should be prevented from entering waterways to the maximum extent possible. Many materials in sufficient quantities can deplete the oxygen level in receiving waters, or smother benthic communities. Typical examples of these materials include landscape waste, milk, flour, and many other organic liquids and solids or fine powders. These materials should generally be removed by first collecting and/or sweeping up all solids and disposing them in a landfill or other approved location. Liquids should be diverted to an area away from waterways where they may be removed with a vacuum truck or can soak into the ground.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Watershed Management Program Appendix 3

A-3-2 Example Vacant Lot Ordinance

For the TSS Reduction Strategy

EXAMPLE VACANT LOT ORDINANCE

For the TSS Reduction Strategy (City of Whittier Municipal Code § 8.08.026)

8.08.026 VACANT LOTS

For the purpose of this section, a vacant lot shall mean any property which is either undeveloped or has an existing on-site building/structure that is either abandoned, vacant and/or is un-leased by the property owner for more than thirty days.

All vacant lots within the city (except those that do not immediately front onto a public street, are less than five feet wide in width or depth, are identified on the city's zoning map as "open space," are used as designated habitat conservation or for active agricultural production) shall be maintained in accordance with the following provisions of this section within thirty days of becoming vacant:

A. Unimproved Vacant Lot Types. Lots that are unimproved due to never having been developed or having become vacant subsequent to the removal of any pre-existing buildings, structures or impervious surfaces shall be subject to the approval of a vacant lot landscape and irrigation plan by the director of parks, recreation and community services and shall be improved and maintained at all times in accordance with the following provisions:

   1. Lots That Are Less Than One-Half Acre. For unimproved vacant lots that are less than one-half acre in size (21,780 square feet), the entire lot shall be improved and maintained in the following manner:

      a) The property owner shall landscape the entire lot using drought tolerate or xeriscape material that requires little to no water after the first three years of growth. Durable, high quality, synthetic turf may also be used as an alternative. The landscape material selected shall be reviewed and approved to the satisfaction of the director of parks, recreation and community services prior to installation, per Section 13.42.120 of the Whittier Municipal Code. The ground cover shall be maintained in good condition at all times.

      b) The lot shall be improved with an operable automatic irrigation system for the ground cover which shall be installed and maintained in good condition by the property owner at all times.

      c) The lot shall be maintained free of litter, weeds, graffiti, debris, including the stockpiling of any material, at all times. Any on-site litter, weeds, debris or stockpiling of material shall be immediately removed by the property owner, upon discovery. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals or take other steps to reasonably ensure that no litter, weeds, graffiti, debris or material stockpiling collects or is maintained on the lot.

d) Any dead or dying vegetation as well as any broken, malfunctioning or non-functioning irrigation components on the lot shall be replaced by the property owner within seventy-two hours of their discovery or notification. The property owner shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that there is no dead or dying vegetation nor any broken, malfunctioning or non-functioning irrigation components on the lot.

e) At the discretion of the director of parks, recreation and community services the standards contained in Section 8.08.026(A)(2) (Lots that are one-half acre or greater) may be applied to vacant lots that are one-half acre or less if deemed appropriate to mitigate any one or more of the following circumstances:

   i. To adequately secure the property from illegal dumping or other such illicit activities.
   ii. Because of public safety concerns or hazards associated with the property.
   iii. A declared state or regional drought.

2. Lots That Are One-Half Acre or Greater. For unimproved vacant lots that are one-half acre (21,780 square feet) or greater in size, the entire lot shall be improved and maintained in the following manner:

   a) The property owner shall provide a minimum five-foot wide landscape planter adjacent to all public rights-of-way (except those property lines located immediately adjacent to an alley) that abut their vacant lot.

   b) All landscape planters shall be improved with an operable automatic irrigation system. The landscape material selected shall consist of drought tolerate or xeriscape material that requires little to no water after the first three years of growth. Durable, high quality, synthetic turf may also be used as an alternative. The landscape material selected shall be reviewed and approved to the satisfaction of the director of parks, recreation and community services prior to installation, per Section 13.42.120 of the Whittier Municipal Code. The ground cover shall be maintained in good condition at all times.

   c) All on-site landscaping and irrigation shall be maintained in good condition at all times by the property owner of the lot. Any dead or dying landscaping shall be replaced by the property owner within seventy-two hours of their discovery or notification, including any broken, malfunctioning or non-functioning irrigation components. The property owner shall be responsible for inspecting the property at reasonable intervals or take other steps to reasonably ensure that all of the landscaping and irrigation on the lot is maintained in good condition and there are no broken, malfunctioning or non-functioning irrigation components on the lot.

   d) A six-foot high, view obscuring, decorative perimeter barrier shall be erected around the entire vacant lot, with a minimum five-foot wide perimeter

landscape planter in front of the fencing. In circumstances where the director of parks, recreation and community services finds that a higher perimeter barrier is warranted for adequate security of the site and/or because of unusual topographical circumstances associated with the vacant lot, the perimeter barrier may be constructed up to a maximum of eight feet high. All perimeter barriers shall include a gravel pathway leading to a security gate to provide accessibility to the interior of the lot for the police department or other emergency personnel. A key or security code for the gate shall be provided to the Whittier Police Department by the property owner upon installation and shall be kept up-to-date at all times.

e) All decorative, view obscuring, perimeter barriers shall consist of either painted wood, redwood, woodcrete, green vinyl chain-link fencing with a green windscreen securely attached (along the interior of the fence), or any other durable, aesthetically attractive, material deemed acceptable to the director of parks, recreation and community services. On corner or reversed corner lots, all fencing shall comply with Section 18.64.050 for visual safety.

f) All perimeter barriers shall be maintained in good condition at all times by the property owner. Any on-site graffiti shall be removed by the property owner within seventy-two hours of its discovery or notification. The property owner shall be responsible for inspecting the property at reasonable intervals.

B. Improved Vacant Lots. Vacant lots improved with existing on-site buildings or structures that are vacant, abandoned, or un-leased for thirty days or more (as determined by the director of parks) shall be maintained by the property owner as follows:

1. All existing on-site landscaping and irrigation shall be maintained in good condition at all times and in accordance with the provisions contained in Chapters 8.08, 8.22 and8.24 of this code, including any conditions of approval applied to the site as part of the approved vacant lot landscape and irrigation plan under Section 8.08.026(C).
2. Any dead or dying vegetation as well as any broken, malfunctioning or non-functioning irrigation components for the lot shall be replaced by the property owner within seventy-two hours of their discovery or notification. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that there is no dead or dying vegetation nor any broken, malfunctioning or non-functioning irrigation components on the lot.
3. The lot shall be maintained free of litter, weeds, and debris, including the stockpiling of any material, at all times. Any on-site litter, debris or stockpiling of material shall be immediately removed by the property owner, upon discovery or notification. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that no litter, weeds, graffiti, debris or material stockpiling collects or is maintained on the lot.

4. All on-site structures shall be maintained in good condition at all times. Damage to any on-site buildings or structures shall be abated within ten days by the property owner upon discovery. An alternative abatement period shall be required, if deemed necessary by the building official, to protect the public health, safety and welfare.
5. The lot shall be adequately secured at all times to prevent illegal dumping, criminal activity, vandalism, graffiti, on-site loitering by the homeless and any/all other attractive nuisances to the satisfaction of the director of parks, recreation and community services and the chief of police.

C. Vacant Lot Landscape and Irrigation Plan. Prior to the issuance of a demolition permit on any lot in which the construction of a new building, structure, parking lot, or impervious surface will not commence within thirty days after demolition, the property owner shall submit a vacant lot landscape and irrigation plan for review and approval of the director of parks, recreation and community services (with the appropriate plan check fees). The director of parks, recreation and community services may impose any reasonable conditions of approval on the vacant lot landscape and irrigation plan to ensure that the lot will be adequately maintained during the time that it is vacant. Upon approval of the plan, the landscape and irrigation improvements to the lot, as specified in the plan, shall be completed to the satisfaction of the director of parks, recreation and community services within thirty days after demolition. A reasonable extension of time may be granted by the director of parks, recreation and community services in those situations when the director, in his or her sole discretion, determines that a good faith effort is being made by the property owner to comply with the provisions of this section.

1. Appeal of Decision.
    a) The decision of the director of parks, recreation and community services to approve, conditionally approve or deny any vacant lot landscape and irrigation plan may be appealed in writing to the city manager within fifteen calendar days. The decision of the city manager shall be final, unless appealed in writing to the city council within fifteen calendar days of the city manager's decision. All decisions of the city council shall be final.
    b) At the sole discretion of the city council, the provisions contained within this ordinance may be made modified, as deemed appropriate, if a finding is made that the legal property owner has demonstrated an extreme financial hardship such as, but not limited to, the filing of bankruptcy, property tax default, their exists over six months of outstanding arrears to the monthly mortgage payment on the property, or any other extreme/unique hardship the city council believes is contrary to the purpose and intent of this ordinance.

D. View Obscuring Barriers and Fencing on Vacant Lots. There shall be no on-site fencing or view obscuring perimeter barriers that screen any vacant lot in any manner that obstructs vehicular and/or pedestrian visibility of the public right-of-way, or interferes with the public's use of the public right-of-way, as determined by the director of public works. The directors of public works and parks, recreation and community services shall approve the location and design of all vacant lot fencing and perimeter barriers prior to the construction of any such fencing or barriers on a vacant lot.

E. The director of parks, recreation and community services shall implement all applicable sections of Chapter 13.42 (Water Conservation in Landscaping), regardless of the size of the vacant lot, to ensure that the approved vacant lot landscape and irrigation plan conserves water to greatest extent possible, while preserving the health of the landscaping approved on the vacant lot.

F. Where a recorded easement on vacant lot exists, the director of parks, recreation and community services may require and/or permit the property owner to use an appropriate ground cover over the easement (i.e., gravel, turf block, paving or some other acceptable material) that would enable a vehicle to drive over the easement. Any impervious surface approved over an easement shall be subject to the prior written approval of the easement holder.

G. Implementation. All vacant lots, regardless of how they became vacant, that are existing at the time of the adoption of the ordinance shall be brought into immediate compliance with all applicable provisions of this section, unless currently landscaped and irrigated under a previously approved vacant lot and landscape and irrigation plan approved by the director of community development or director of parks, recreation and community services prior to the adoption of this current ordinance. A reasonable extension of time may be granted by the director of parks, recreation and community services in those situations when the director, at his or her sole discretion, determines that a good faith effort is being made by the property owner to comply with this section.

H. Noncompliance Declared Nuisance. Failure to comply with any of the applicable requirements in this section shall constitute a public nuisance, as designated in Section 8.08.030, and the city attorney or the district attorney may commence an action or proceeding for civil abatement, removal and enjoinment thereof, in the manner proscribed by law; and shall take other steps and apply to such courts as may have jurisdiction to grant such relief as well as abate or remove the nuisance, including abatement in accordance with the provisions of this chapter.

(Ord. 2906 § 1, 2008)

(Ord. No. 2928, § 1, 6-23-09; Ord. No. 2958, § 3, 10-12-10)

Watershed Management Program Appendix 3

A-3-3 Example Street Sweeping Municipal Code

For the TSS Reduction Strategy

EXAMPLE MUNICIPAL CODE LANGUAGE FOR PRIVATE PARKING LOT SWEEPING

For the TSS Reduction Program (City of Signal Hill Municipal Code § 12.16.060)

12.16.060 ILLICIT DISCHARGES

A. Except as otherwise permitted herein, all non-storm water discharges to the municipal storm drain system are prohibited.
B. No person shall cause, facilitate or permit any illicit discharge to the municipal storm drain system.
C. No person shall cause, facilitate or permit a discharge into an MS4 that causes or contributes to an exceedence of any water quality standard.
D. No person shall cause, facilitate or permit any discharge into an MS4 that causes or threatens to cause a condition of pollution, contamination, or nuisance (as defined in California Water Code § 13050).
E. No person shall cause, facilitate or permit any discharge into an MS4 containing pollutants which have not been reduced to the Maximum Extent Practicable.

⋮ ⋮ ⋮ ⋮ ⋮ ⋮

Q. All owners and operators of industrial and/or commercial motor vehicle parking lots containing more than twenty-five parking spaces shall conduct regular sweeping and other similar measures to minimize the discharge of pollutants and other debris in the municipal storm drain system.

⋮ ⋮ ⋮ ⋮ ⋮ ⋮

V. Any person who violates the terms of this section shall immediately commence all appropriate response action to investigate, assess, remove and/or remediate any pollutants discharged as a result of such violation, and shall reimburse the City or other appropriate governmental agency, for all costs incurred in investigating, assessing, monitoring and/or removing, cleaning up, treating or remediating any pollutants resulting from such violation, including all reasonable attorneys' fees and environmental and related consulting fees incurred in connection therewith.

⋮ ⋮ ⋮ ⋮ ⋮ ⋮

(Ord. 2013-11-1462 § 1; Ord. 2003-02-1316 § 1; Ord. 2002-07-1304 § 2; Ord. 96-12-1215 § 1)

Watershed Management Program Appendix 4

A-4-1 Reasonable Assurance Analysis

Reasonable Assurance Analysis for Lower Los Angeles River, Los Cerritos Creek, and Lower San Gabriel River

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

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January 15, 2015

RB-AR14930

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1. Introduction

The Municipal Separate Storm Sewer System Permit (Permits) for Los Angeles County[1] and the City of Long Beach[2] includes optional provisions for a Watershed Management Program (WMP) that allows permittees the flexibility to customize their stormwater programs to achieve compliance with applicable receiving water limitations (RWLs) and water quality based effluent limitations (WQBELs) through implementation of control measures. A key element of each WMP is the Reasonable Assurance Analysis (RAA), which is used to demonstrate "that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term" (NPDES Permit Order No. R4-2012-0175, Section C.5.b.iv.[5], page 64; NPDES Permit Order No. R4-2014-0024, Section C.5.h.vii.[2]). This report presents the Reasonable Assurance Analysis (RAA) for the Lower Los Angeles River (LLAR), Los Cerritos Channel (LCC), and Lower San Gabriel River (LSGR) WMPs.

While the Permits prescribe the RAA as a quantitative demonstration that control measures (best management practices [BMPs]) will be effective, the RAA also promotes a modeling process to identify and prioritize potential control measures to be implemented by the WMP. In other words, the RAA not only demonstrates the cumulative effectiveness of BMPs to be implemented, it also supports their *selection*. Furthermore, the RAA incorporates the applicable compliance dates and milestones for attainment of the WQBELs and RWLs, and therefore supports BMP scheduling.

On March 25, 2014, the Los Angeles Regional Water Quality Control Board (Regional Board) issued "RAA Guidelines" (LARWQCB 2014) to provide information and guidance to assist permittees in development of the RAA. The approach herein is consistent with the RAA Guidelines.

This report is organized in nine sections, as follows:

- Section 1: Introduction
- Section 2: Applicable Interim and Final Requirements
- Section 3: Modeling System to be used for the RAA
- Section 4: Current/Baseline Pollutant Loading
- Section 5: Estimated Required Pollutant Reductions
- Section 6: Determination of BMP Capacity for RAA
- Section 7: Cumulative Volume Reduction Goals to Achieve Required Reductions
- Section 8: Pollutant Reduction Plan
- Section 9: References

[1] National Pollutant Discharge Elimination System Permit Order No. R4-2012-0175

[2] National Pollutant Discharge Elimination System Permit Order No. R4-2014-0024

2. Applicable Interim and Final Requirements

The WMPs for LLAR, LCC, and LSGR follow the process in the Permits and identify the Water Quality Priorities (WQ Priorities) including the highest (Category 1) Water Quality Priorities which are subject to Total Maximum Daily Loads (TMDLs) and WQBELs. Practically all of these TMDLs include associated compliance schedules that are considered in this RAA. The TMDL and WMP milestones/compliance dates establish the pace at which BMPs must be implemented. Traditionally, the approach of TMDL implementation plans has been focused on *final* TMDL compliance, whereas the Permit compliance paths offered to WMPs increase emphasis on *milestones*. In line with the RAA Guidelines, for all final TMDL and TMDL/WMP milestones that occur in the next two Permit cycles, the combination of BMPs expected to result in attainment of the corresponding Permit limits are identified.

The TMDL milestones for the LLAR, LCC, and LSGR WMP areas are shown in Table 2-2 through Table 2-4. The Permits require each WMP to provide reasonable assurance for the TMDL milestones that occur in the current Permit term. If applicable TMDLs do not prescribe a milestone in the current Permits, a milestone must be established. The array of TMDLs creates a potentially complicated sequence based on multiple pollutants, and thus this RAA includes a limiting pollutant analysis. As described in Section 5, the identified limiting pollutant for wet weather is zinc for LLAR, LCC, and LSGR. As such, the wet weather milestones for the Los Angeles River, Los Cerritos Channel, and San Gabriel River Metals TMDLs establish the pace of stormwater BMP implementation. The wet weather milestones established for the current Permits include the following:

- **Lower Los Angeles River:** Achieve 31% of the required reduction by September 30, 2017. This milestone was created for the WMP, as the metals TMDL includes a 25% milestone in 2012 (prior to the current Permit term) and a 50% milestone in 2024 (beyond the current Permit term). Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.
- **Los Cerritos Channel:** Achieve 10% of the required reduction[3] by September 30, 2017. This milestone is directly from the metals TMDL. Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.
- **Lower San Gabriel River:** Achieve 10% of the required reduction by September 30, 2017. This milestone is directly from the metals TMDL. Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.

The pollutant reduction plan to achieve these milestones is described in Section 8, along with the plan to achieve the milestones for the next Permit term (achieve 35% of the required reduction in LCC and LSGR and achieve 50% of the required reduction in LLAR). A summary of the milestones within the current and next Permit terms and final milestone based on final TMDLs are summarized in Table 2-1. The required reductions that form the basis of the milestones are calculated in Section 5.

[3] The interim milestones are expressed in terms of the *required* reduction not total reduction (e.g., if the required reduction to attain final limits is 50%, then the 10% milestone equates to a 5% reduction). These reductions are calculated in Section 5.

Table 2-1. Summary of schedule for interim and final milestones

WMP Area	Milestone 1 (2017)	Milestone 2 (interim date of applicable metals TMDL)	Milestone 3 (final date of applicable metals TMDL)
LLAR	31%	50%	100%
LCC	10%	35%	100%
LSGR	10%	35%	100%

Table 2-2. Schedule of TMDL milestones for the Lower LA River

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term)[1]									
				2012	**2013**	**2014**	**2015**	**2016**	2020	2024	2028	2032	2037
LAR Nutrients	Ammonia-N, Nitrate-N, Nitrite-N, Nitrate-N+Nitrite-N	Meet WQBELs	All	Pre 2012									
				Final									
LAR Trash	Trash	% Reduction	All	9/30	9/30	9/30	9/30	9/30					
				70%	80%	**90%**	**96.70%**	**100%**					
LAR Metals	Copper, Lead	% of MS4 area Meets WQBELs	Dry	1/11					1/11	1/11			
				50%					75%	100%			
	Copper, Lead, Zinc, Cadmium	% of MS4 area Meets WQBELs	Wet	1/11						1/11	1/11		
				25%						50%	100%		
LA River Bacteria	*E. coli*	Meet WQBELs	Wet and Dry[2]										3/23
													Final
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28								3/23	
				Interim								Final	
Long Beach City Beaches and LAR Estuary Bacteria	Total Coliform, Fecal Coliform, Enterococcus	Meet WLAs	All	USEPA TMDLs, which do not contain interim milestones or implementation schedule. The Permits allow MS4 Permittees to propose a schedule in a WMP.									

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

[2] The schedule for attaining the dry weather Bacteria TMDL is not shown in Table 3-2, which is stepwise by reach/segment and depends on whether a Load Reduction Strategy is developed for implementation.

Table 2-3. Schedule of TMDL milestones for Los Cerritos Channel WMP

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term) [1]									
				2012	**2013**	**2014**	**2015**	**2016**	2017	2020	2023	2026	2032
Los Cerritos Channel Metals	Copper	% Load Reduction or % of MS4 area Meets WQBELs	Dry						9/30	9/30			
									30%	70%	100%		
	Copper, Lead, Zinc	% Load Reduction or % of MS4 area Meets WQBELs	Wet						9/30	9/30			
									10%	35%	70%	100%	
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28									3/23
				Interim									Final

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

Table 2-4. Schedule of TMDL milestones for the Lower San Gabriel River WMP

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term) [1]									
				2012	**2013**	**2014**	**2015**	**2016**	2017	2020	2023	2026	2032
San Gabriel River Metals	Copper, Selenium	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Dry						9/30	9/30			
									30%	70%	100%		
	Copper, Lead, Zinc	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Wet						9/30	9/30			
									10%	35%	70%	100%	
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28									3/23
				Interim									Final

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

3. Modeling System used for the RAA

The Watershed Management Modeling System (WMMS) was used to develop this RAA. WMMS is specified in the Permits as a potential tool to conduct the RAA. The Los Angeles County Flood Control District (LACFCD), through a joint effort with U.S. Environmental Protection Agency (USEPA), developed WMMS specifically to support informed decisions associated with managing stormwater. The ultimate goal of WMMS is to identify cost-effective water quality improvement projects through an integrated, watershed-based approach. The WMMS encompasses Los Angeles County's coastal watersheds of approximately 3,100 square miles, representing 2,566 subwatersheds (Figure 3-1). As described in the following subsections, WMMS is a modeling system that incorporates three tools: (1) the watershed model for prediction of long-term hydrology and pollutant loading, (2) a BMP model, and (3) a BMP optimization tool to support regional, cost-effective planning efforts. A version of WMMS is available for public download from LACFCD.

The version of WMMS to be used for the RAA in the LLAR, LLC, and LSGR WMPs is customized from the public download version, including the following modification/enhancements:

- Updates to meteorological records to represent the last 10 years (per the RAA Guidelines) and to allow for simulation of the design storm;
- Calibration adjustments to incorporate the most recent 10 years of water quality data collected at the nearby mass emission station;
- Application of a second-tier of BMP optimization using System for Urban Stormwater Treatment and Analysis INtegration (SUSTAIN), which replaces the Nonlinearity-Interval Mapping Scheme (NIMS) component of WMMS.
- Optimization of BMP effectiveness for removal of bacteria pollutants (rather than metals only); and
- Updates to Geographic Information System (GIS) layers, as available.

The subwatersheds in the LLAR, LLC, and LSGR WMP areas that are represented by WMMS are shown in Figure 3-2 through Figure 3-4, which include modifications to confine to jurisdictional boundaries included in these WMP areas. Also shown are the "RAA assessment points", which are used to calculate required load reductions (described in Section 5).

3.1. Watershed Model - LSPC

The watershed model included within WMMS is the Loading Simulation Program C++ (LSPC) (Shen et al. 2004; Tetra Tech and USEPA 2002; USEPA 2003). LSPC is a watershed modeling system for simulating watershed hydrology, erosion, and water quality processes, as well as in-stream transport processes. LSPC also integrates a geographic information system (GIS), comprehensive data storage and management capabilities, and a data analysis/post-processing system into a convenient PC-based Windows environment. The algorithms of LSPC are identical to a subset of those in the Hydrologic Simulation Program–FORTRAN (HSPF) model with selected additions, such as algorithms to dynamically address land use change over time. Another advantage of LSPC is that there is no inherent limit to the size and resolution of the model than can be developed, making it an attractive option for modeling the Los Angeles region watersheds. USEPA's Office of Research and Development (Athens, Georgia) first made LSPC available as a component of USEPA's National TMDL Toolbox (http://www.epa.gov/athens/wwqtsc/index.html). LSPC has been further enhanced with expanded capabilities since its original public release.

The WMMS development effort culminated in a comprehensive watershed model of the Los Angeles County Flood Control District that includes the unique hydrology and hydraulics of the system and characterization of water quality loading, fate, and transport for all the key TMDL constituents (LACDPW 2010a, 2010b). Since the original development of the WMMS LSPC model, Los Angeles County personnel have independently updated the model with meteorological data through April 2012.

To support the objectives of the WMPs, jurisdictional boundaries were also intersected with the WMMS LSPC model subwatersheds resulting in a finer resolution spatial unit for modeling. Model land use was then resampled using this subwatershed-jurisdiction intersect, properly distributing land use categories at the jurisdictional level for attributing sources, while maintaining hydrologic connectivity within the watershed model. This refinement introduced a new layer of resolution, facilitating the rollup of modeled results by jurisdiction to better support source attribution and implementation responsibilities among the participating entities.

Figure 3-1. WMMS model domain and represented land uses and slopes by subwatershed

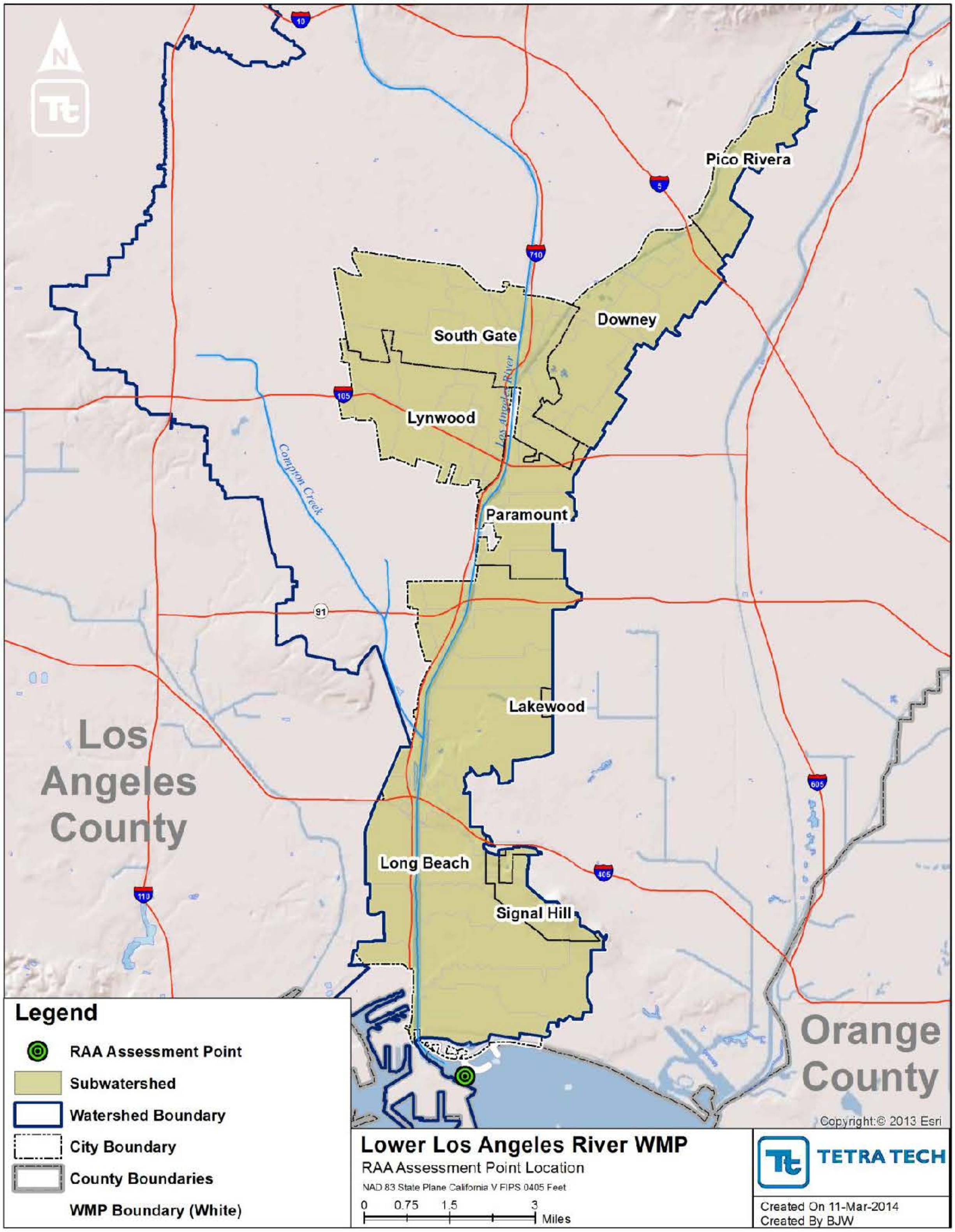

Figure 3-2. Lower LA River WMP Area subwatersheds represented by WMMS

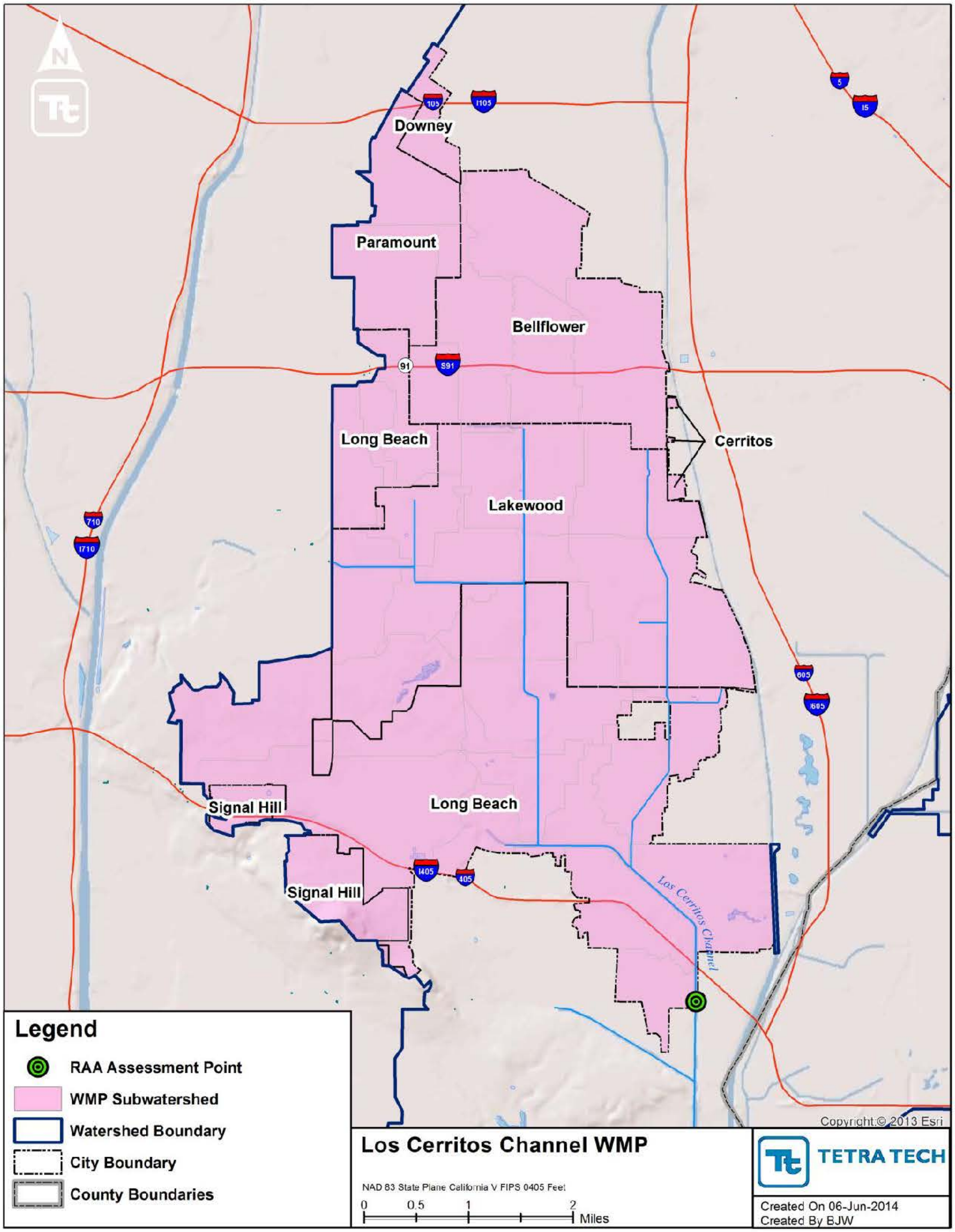

Figure 3-3. Los Cerritos WMP Area subwatersheds represented by WMMS

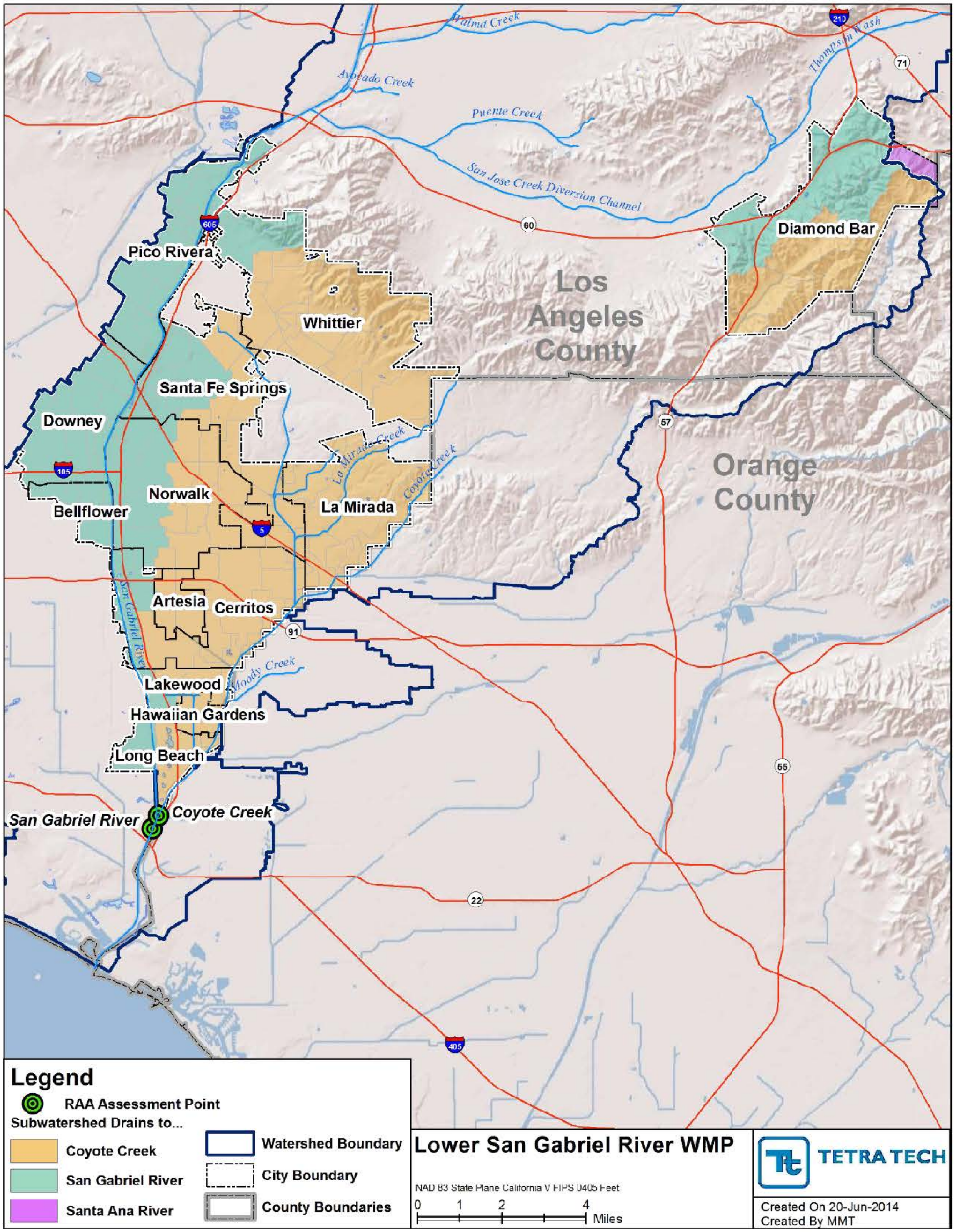

Figure 3-4. Lower San Gabriel River WMP Area subwatersheds represented by WMMS

3.2. Small-Scale BMP Model – SUSTAIN

The System for Urban Stormwater Treatment and Analysis INtegration (SUSTAIN) was developed by USEPA to support practitioners in developing cost-effective management plans for municipal storm water programs and evaluating and selecting BMPs to achieve water resource goals (USEPA, 2009). It was specifically developed as a decision-support system for selection and placement of BMPs at strategic locations in urban watersheds. It includes a process-based continuous simulation BMP module for representing flow and pollutant transport routing through various types of structural BMPs. Users are given the option to select from various algorithms for certain processes (e.g., flow routing, infiltration, etc.) depending on available data, consistency with coupled modeling assumptions, and the level of detail required. Figure 2-3 shows images from the SUSTAIN model user interface and documentation depicting some of the available BMP simulation options in a watershed context.

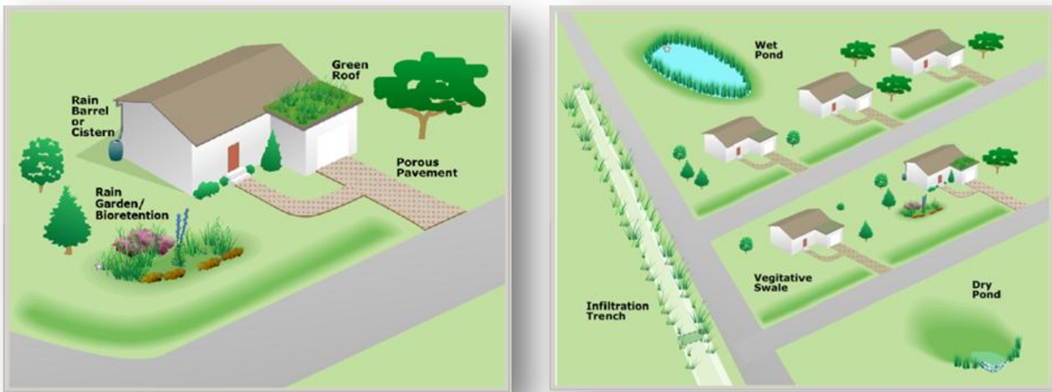

Figure 2-3. SUSTAIN model interface illustrating some available BMPs in watershed settings

SUSTAIN extends the capabilities and functionality of traditionally available models by providing integrated analysis of water quantity, quality, and *cost factors*. The SUSTAIN model in WMMS includes a cost database comprised of typical BMP component cost data from a number of published sources including BMPs constructed and maintained in Los Angeles County. SUSTAIN considers certain BMP properties as "decision variables," meaning that they are permitted to change within a given range during model simulation to support BMP selection and placement optimization. As BMP size changes, so do cost and performance. SUSTAIN runs iteratively to generate a cost-effectiveness curve comprised of optimized BMP combinations within the modeled study area (e.g., the model evaluates the optimal width and depth of certain BMPs to determine the most cost-effective configurations for planning purposes).

3.3. Large-Scale BMP Optimization Tool – NIMS/SUSTAIN

WMMS was specifically designed to dynamically evaluate effectiveness of BMPs implemented in subwatersheds for meeting downstream RWLs while maximizing cost-benefit. WMMS employs optimization based on an algorithm names Nonlinearity-Interval Mapping Scheme (NIMS) to navigate through the many potential scenarios of BMP strategies and identify the strategies that are the most cost effective (Zou et al. 2010). Given the relatively small spatial scale of the WMP area, NIMS was not applied for this study. Instead, a two-tiered approach was applied using the NSGA-II solution technique available in SUSTAIN. For Tier 1, treatment capacities were optimized for each contributing segment, which resulted in unique cost-effectiveness curves for each segment based on available opportunities therein. For Tier 2, the search space was composed of Tier 1 solutions, thereby streamlining the search process. The resulting Tier 2 curve represents the optimal large scale solution because it is comprised of optimized Tier 1 solutions. This approach is especially useful for prioritizing areas for management for scheduling implementation milestones as described in Section 8.

4. Current/Baseline Pollutant Loading

The LSPC model within WMMS was reconfigured and recalibrated specifically for the WMP areas to provide an estimate of current/existing pollutant loads from jurisdictions within the WMPs. Reconfiguration of model subwatersheds was performed to provide specific accounting of loadings from individual jurisdictions. Calibrations were performed to meet specifications of the RAA Guidelines (LARWQCB 2014).

4.1. Model Calibration to Existing Conditions

The LSPC watershed model was originally calibrated for hydrology using a regional approach relying on USGS observed daily streamflow datasets through Water Year (WY) 2006 (LACDPW 2010a). Water Quality was then calibrated using small-scale, land use level water quality monitoring data to develop representative event mean concentrations by land use (LACDPW 2010b). Model performance was also validated at the mass emissions monitoring stations in the context of a county-wide modeling effort. The calibration period for the original WMMS LSPC model began in 1996 and ended in 2006. For the RAA, an analysis was performed to evaluate performance of the LSPC model as it relates to the LLAR, LCC, and LSGR watersheds to understand and benchmark its applicability for use as a baseline condition. The evaluation of monitoring data was extended beyond the original WMMS-LSPC calibration to include the period from 10/1/2001 through 9/30/2011 incorporating both the average year (WY 2008) and 90th percentile (WY 2003) year.

Data available for the LACDPW water quality and hydrologic monitoring stations, S10 and F319 were used to reexamine simulated water quality and hydrology conditions in LA River. The two stations are co-located just south of the West Wardlow Road overpass and drain approximately 800 square miles, or nearly the entire LA River watershed. The monitoring stations were selected for comparison due to their location near the outlet of the LA River watershed, which encompasses the aggregate contributions of all upstream pollutant sources. The selected flow gage, F319, was also used to calibrate the WMMS LSPC model and, therefore, links the current and previous efforts. Water quality and hydrologic records for WYs 2003–2011 were compared to the simulated watershed model output to determine the necessary model parameter adjustments to establish an up-to-date model calibration. The locations of these two gages are presented in Figure 4-1. Statistical summaries and flow regime analysis of the water quality monitoring datasets from the Los Angeles River mass emission station S10 are presented in Attachment E.

Watershed model simulation of existing water quality conditions for the LCC watershed were evaluated for WYs 2003–2011 using data collected at the City of Long Beach Stearns Street monitoring location, just north of interstate 405. The water quality monitoring location is positioned at the WMP hydrologic outlet and captures the cumulative watershed loading effects impacting water quality conditions in this 27 square mile portion of the LCC watershed. No flow monitoring data are available in the watershed, thus simulated flow conditions could not be evaluated against observed data for LCC. The location of the water quality monitoring is presented in Figure 4-1 below and statistical summaries of the monitoring dataset are presented in Attachment E.

For the LSGR, hydrology was re-assessed at two monitoring locations using available data from WYs 2001-2011 The two monitoring locations selected include USGS 11087020 San Gabriel River at Whittier Narrows Dam CA and the LACDPW streamflow gage F354 located along Coyote Creek south of Spring Street (coincident with mass emission station S13). The USGS gage was selected for continuity with the development and calibration of the original WMMS LSPC modeling system. The primary monitoring location selected to calibrate water quality for LSGR was the LA County mass emission station S14. The San Gabriel River Monitoring Station is located below San Gabriel River Parkway in Pico Rivera. At this location the upstream tributary area is 450 square miles (LACDPW 2013). A second mass emission station, the Coyote Creek Monitoring Station (S13) located below Spring Street in the lower San Gabriel River watershed was also used to validate the water quality calibration. The locations of these two gages are presented below in Figure 4-1. Statistical summaries and flow regime analysis of the water quality monitoring datasets from the San Gabriel River and Coyote Creek mass emission stations S14 and S13 are presented in Attachment E.

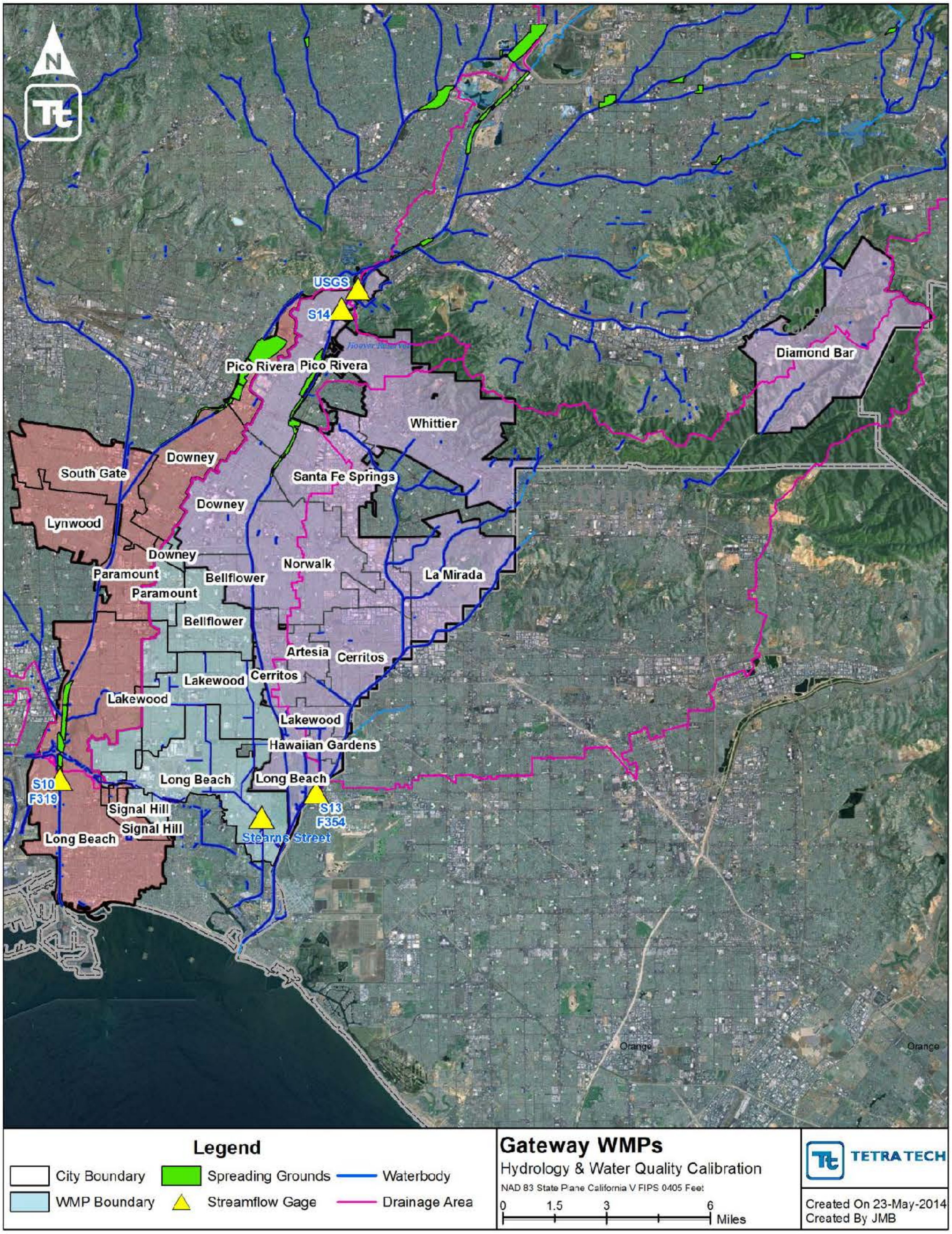

Figure 4-1. WMP groups hydrology and water quality calibration sites.

To demonstrate the ability to predict the effect of watershed processes and management actions, model calibration and validation are necessary and critical steps in any model application. Acceptable model calibration criteria for

benchmarking an RAA were developed by the Regional Board and are listed below in Table 4-1 (LARWQCB 2014). The objectives of establishing model assessment criteria are to ensure the calibrated model reflects all the model conditions and properly utilizes the available modeling parameters, thus yielding meaningful results. The lower bound of "Fair" level of agreement listed in Table 4-1 is considered a target tolerance for the model calibration process.

Table 4-1. Model assessment criteria from the RAA Guidelines

Constituent Group	Percent Difference Between Modeled and Observed		
	Very Good	Good	Fair
Hydrology / Flow	0 – 10	>10 – 15	>15 – 25
Sediment	0 – 20	>20 – 30	>30 – 40
Water Quality	0 – 15	>15 – 25	>25 – 35
Pesticides / Toxics	0 – 20	>20 – 30	>30 – 40

4.1.1. Hydrology Calibration

Table 4-2 and Table 4-3 present the hydrology calibration assessment for the Lower Los Angeles River and Lower San Gabriel River gages, respectively. Nash-Sutcliffe efficiency is a correlation coefficient commonly used in hydrological modeling to measure how well a model predicts temporal variation. A value of 1.0 means a perfect match between modeled and observed. A value of 0 means that the computed mean of observed data is as good a predictor as the model. A negative value means that the data-mean is a better predictor than the model. Because the Regional Board guidance only required annual average flow volume metric, evaluating Nash-Sutcliffe helped to demonstrate that the model also performed well at predicting *intra-annual* flow variablilty.

Table 4-2. Summary of model hydrology calibration performance for Lower Los Angeles River

Water Quality Parameter	Model Period	Hydrology Parameter	Modeled vs. Observed Volume (% Error)	Regional Board Guidance Assessment
In-stream flow at Los Angeles River below Wardlow Road (LA DPW F319)	10/1/2002 – 9/30/2011	Flow Volume	8.72	Very Good
		Nash-Sutcliffe	0.680	n/a

Table 4-3. Summary of model hydrology calibration performance for Lower San Gabriel River

Water Quality Parameter	Model Period	Hydrology Parameter	Modeled vs. Observed Volume (% Error)	Regional Board Guidance Assessment
In-stream flow at SAN GABRIEL R AB WHITTIER NARROWS DAM CA (USGS 1108702)	10/1/2001 – 9/30/2011	Flow Volume	-3.31	Very Good
		Nash-Sutcliffe	0.64	n/a
Coyote Creek near Spring Street (LA DPW F354)	10/1/2003 – 9/30/2011	Flow Volume	-6.17	Very Good
		Nash-Sutcliffe	0.62	n/a

4.1.2. Water Quality Calibration

Water quality calibration for the LLAR, LCC, and LSGR incorporated sampling from LA County mass emission stations at S10 (LA River), Strearns Street (LCC), and S13 and S14 along Coyote Creek and the San Gabriel River, respectively. The updated observed concentration data collected at these sites were used to refine the calibration and benchmark model performance. Daily observed loads were calculated by multiplying observed concentration and daily observed flow. Daily loads were estimated for LCC using simulated flows due to the lack of observed data. The percent error between this daily observed load and the daily modeled load was then calculated for each constituent. The results of this evaluation at the two gages are presented in Table 4-4 through Table 4-7.

Table 4-4. Summary of model performance by constituent at the Los Angeles River (S10) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	91	-6.8	Very Good
Total Copper	58	-3.4	Very Good
Total Zinc	58	-18.1	Good
Total Lead	52	-0.1	Very Good
Fecal Coliform	57	-5.1	Very Good
Total Nitrogen	58	-4.0	Very Good
Total Phosphorous	57	6.9	Very Good

Table 4-5. Summary of model performance by constituent at Los Cerritos Channel (Stearns St.) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	85	2.7	Very Good
Total Copper	57	-2.1	Very Good
Total Zinc	56	1.5	Very Good
Total Lead	57	2.2	Very Good
Fecal Coliform	55	1.0	Very Good
Total Nitrogen	56	17.5	Good
Total Phosphorous	56	-0.4	Very Good

Table 4-6. Summary of model performance by constituent at the San Gabriel River (S14) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	45	8.57	Very Good
Total Copper	42	-9	Very Good
Total Zinc	44	16.1	Very Good
Total Lead	44	-3.97	Very Good
Fecal Coliform	43	1.85	Very Good
Total Nitrogen	*Not evaluated at this location*		
Total Phosphorous	44	-2.27	Very Good

Table 4-7. Summary of model performance by constituent at the Coyote Creek (S13) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	42	1.28	Very Good
Total Copper	27	-28.9	Fair
Total Zinc	27	-32.44	Fair
Total Lead	25	-1.58	Very Good
Fecal Coliform	24	-34.48	Fair
Total Nitrogen	*Not evaluated at this location*		
Total Phosphorous			

Two fecal coliform samples were removed from the observed dataset at the San Gabriel River S14 mass emission station prior to performing the load calculation. These two samples appear to be outliers in the dataset with concentration values 10-100x greater than the remaining samples. These observations occurred on 10/17/2005 and 10/13/2009.

For pollutants not explicitly represented in the WMMS LSPC model, and for dry weather analysis, 90th percentile concentrations were calculated based on observed monitoring data at the LACDPW mass emission sites. The 90th percentile concentration was used for compliance with the Regional Board RAA guidelines (LARWQCB 2014). A summary of the 90th percentile concentrations for each constituent and waterbody are presented below in Table 4-8. For subsequent load reduction analyses, these concentrations were assumed for all wet or dry weather conditions they were assigned to represent existing conditions within their respective watersheds.

Table 4-8. 90th percentile concentrations assumed for non-modeled pollutants

Waterbody	Pollutant	Wet Weather	Dry Weather	90th Percentile Concentration	Units
Los Angeles River (S10)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Cadmium	●		4.8	ug/l
	Copper		●	25.68	ug/l
	Lead		●	3.43	ug/l
	E. coli		●	19,600	MPN/100 mL
Los Cerritos Channel (Stearns)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	25.4	ug/l
	E. coli		●	14,200	MPN/100 mL
San Gabriel River (S14)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	29.89	ug/l
	Selenium		●	4.77	ug/l
	E. coli		●	2,190	MPN/100 mL
Coyote Creek (S13)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	28.54	ug/l
	E. coli		●	11,500	MPN/100 mL

[1] DDT, PCBs and PAHs were below MDL, so concentrations were assumed half MDL.

4.2. Current Best Management Practices/Minimum Control Measures

It is important to note the model calibration incorporates local stormwater BMPs implemented through late 2012 into the baseline condition. The only BMPs/control devices that were explicitly incorporated into the baseline model were the Dominguez Gap basins. All other BMPs, which individually were assumed to have a small effect on water quality at the watershed scale, are implicitly represented in the baseline condition. BMPs implemented in 2013 can be categorized as WMP implementation measures and their volume/load reductions are a component of the pollutant reduction plan for attaining interim and final milestones.

5. Estimated Required Pollutant Load Reductions

This section provides a description of the process for identifying critical conditions and calculating required load reductions to meet interim and final limitations.

5.1. Selected Average (Interim) and Critical (Final) Conditions

The RAA Guidelines specify that average conditions shall be used to establish load reductions for interim milestones and critical conditions shall be used to establish load reductions for final limits. In addition, the Permits provide two pathways for addressing WQ Priorities (see Figure 5-1):

- Volume-based: Retain the standard runoff volume from the 85th percentile, 24-hour storm
- Load-based: Achieve the necessary pollutant load reductions to attain Permit limits

Both types of numeric goals were evaluated as part of this RAA.

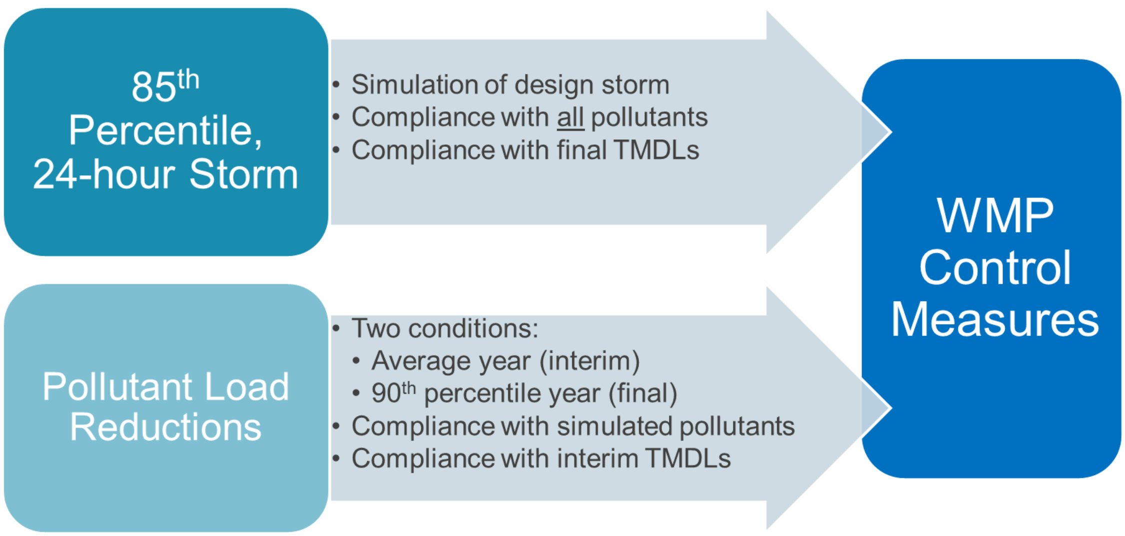

Figure 5-1. Two Types of Numeric Goals and WMP Compliance Paths according to the Permits

5.2. Representative Conditions for Wet Weather

Two approaches were considered and ultimately used in the RAA to represent wet weather critical conditions: the 90th percentile wet year and 85th percentile, 24-hour (design) storm, as described in the following subsections.

5.2.1. Average and 90th Percentile Wet Years

This RAA is based on continuous simulation, and a "representative" year-long time period was selected to represent average and critical conditions, which allows the modeling to capture the variability of rainfall and storm sizes/conditions. For LLAR, LCC, and LSGR, WY2008 was selected as the representative year for average conditions and WY2003 was selected as the representative year for the 90th percentile critical wet conditions.

To select these average and critical years for the RAA, the following steps were taken:

1. **Calculated key rainfall metrics for the last 25-years:** the average and critical years were identified by aggregating data from available rain gages across the entire Los Angeles River and San Gabriel River watersheds (LCC is in between, so the analysis for LLAR and LSGR also applies to LLC). For

comparison, other regional watersheds were also analyzed and presented. The two key metrics evaluated were: (1) total annual rainfall, and (2) average rainfall per wet day (with wet days defined as days with rainfall totals greater than 0.1 inches). The first is clearly an indicator of volume, while the second is an indicator of rainfall intensity. To evaluate long-term conditions, the analysis covered 25 water years (WY) from 1987 through 2011—the total rainfall for each precipitation gage was area-weighted and aggregated into annual totals by water year (i.e. previous October through current September).

2. **Selected years from the most recent 10-years that are most representative of average and 90th percentile**: per the RAA Guidelines, the most recent 10-year period represented in the available data were used to develop the RAA. Table 5-1 and Table 5-2 show average rainfall volumes and intensities (inches per wet day), respectively, for the most recent 10 years compared against the entire 25-years. Both the average and 90th percentile values were compared across the 10- and 25-year records. For the San Gabriel River, 2007-08 is a representative average year based on both the rainfall volume (Table 5-1) and intensity (Table 5-2) metrics. Because BMP performance is typically intensity-dependent, average rainfall per wet day (Table 5-2) was selected as a better metric for use in determining the 90th percentile than annual average rainfall (Table 5-1), which led to selection of 2002-03 as the critical year.

It should be noted that wet weather conditions were also reflective on the definition of dry/wet days. As described in Section 5, for analysis of non-bacteria pollutants (including the limiting pollutant zinc) days with greater than 90th percentile daily average flow were flagged as "wet," which aligns with the critical condition used for the LAR and LSGR metals TMDLs.

5.2.2. 85th Percentile, 24-hour Storm

The design storm is identified in the RAA Guidelines as an acceptable critical condition, and capture of design storm volumes by BMPs is a specified compliance metric in the Permits for TMDLs. The design storm was evaluated and used as a wet weather critical condition for the RAA. As described above, the design storm is a volume-based standard. Each subwatershed within each WMP area has a unique 85th percentile runoff volume, due to varying rainfall amounts and land characteristics (imperviousness, soils, slope, and the like). The rainfall depths associated with the 85th percentile, 24-hour storm are shown in Figure 5-2, based on rolling 24-hour intervals for the 25-year period between October 1, 1987 and September 30, 2011. Within the WMP area, the 85th percentile rainfall depth values range between 0.72 and 1.08 inches.

To determine the "standard volume" associated the design storm, initial conditions were set in LSPC to reflect representative conditions at the start of the simulation, along with regionally derived infiltration rates, and 85th percentile rainfall depths were used as rainfall boundary conditions. At each location the storm distribution presented in Figure 5-3 was used to temporally distribute the 24-hour rainfall volumes (LACDPW 2006). The model was then run to predict the associated runoff volumes for each subwatershed in the WMP area. Those runoff volumes represent the volumes that would need to be retained in order to attain the numeric goals associated with the 85th percentile, 24-hour storm.

Shown in Figure 5-4 are the rainfall depths and runoff depths (runoff volume divided by subwatershed area) associated with the design storm for each subwatershed in the WMP areas. About 50 percent of the subwatersheds in all three WMP areas experiences 0.4 inches or more of runoff under the 85th percentile, 24-hour storm, while about 10 percent of the area experiences about 0.55 inches or more of runoff. Figure 5-5 summarizes the total design storm volumes (in acre-feet) for each jurisdiction. The runoff depths for each subwatershed in the WMP area are graphically shown in Figure 5-6, Figure 5-7, and Figure 5-8.

Table 5-1. Average Rainfall Depths (Water Years 2002–2011 vs. 25-year Average and 90th Percentile)

Year	Average Rainfall Totals (in./year)				
	Ballona Creek	Dominguez Channel	Malibu Creek	San Gabriel River	Los Angeles River
2001-02	25.4	19.1	28.1	30.6	30.5
2002-03	17.1	13.9	20.8	23	20.4
2003-04	10.2	8.1	9.2	13.7	11.2
2004-05	39.3	28.4	42.6	49.6	46.7
2005-06	14.1	9.8	16.9	17.9	17.5
2006-07	4.3	3.1	6.8	6.4	5.8
2007-08	13.2	11.9	18.6	19.4	17.5
2008-09	9.6	8.5	12.3	14.6	12.5
2009-10	16.8	14.9	20.3	24.1	20.5
2010-11	21.2	18.5	25.3	28.5	25.7
Avg. (1987-2011)	15.9	12.5	18.4	20.7	19.2
90th %ile (1987-2011)	30.8	22.9	34.7	37.8	36.9

Red Box: WMP Watersheds. Blue highlighted cells are the two years in each basin with the smallest difference from the 25-year average. Orange cells have the smallest difference from the 90th percentile of the 25-year record.

Table 5-2. Average Rainfall Intensity (Water Years 2002–2011 vs. 25-year Average and 90th Percentile)

Year	Average Rainfall Per Wet Day (in./wet day)				
	Ballona Creek	Dominguez Channel	Malibu Creek	San Gabriel River	Los Angeles River
2001-02	0.36	0.32	0.41	0.42	0.36
2002-03	0.79	0.66	0.88	0.92	0.84
2003-04	0.61	0.48	0.61	0.66	0.58
2004-05	0.98	0.69	1.03	1.07	1.03
2005-06	0.53	0.41	0.61	0.64	0.61
2006-07	0.31	0.27	0.39	0.41	0.37
2007-08	0.56	0.52	0.68	0.76	0.71
2008-09	0.49	0.48	0.56	0.65	0.57
2009-10	0.64	0.6	0.71	0.82	0.72
2010-11	0.62	0.58	0.73	0.76	0.7
Avg. (1987-2011)	0.59	0.52	0.67	0.72	0.66
90th %ile (1987-2011)	0.78	0.66	0.91	0.97	0.89

Red Box: WMP Watersheds. Blue highlighted cells are the two years in each basin with the smallest difference from the 25-year average. Orange cells have the smallest difference from the 90th percentile of the 25-year record.

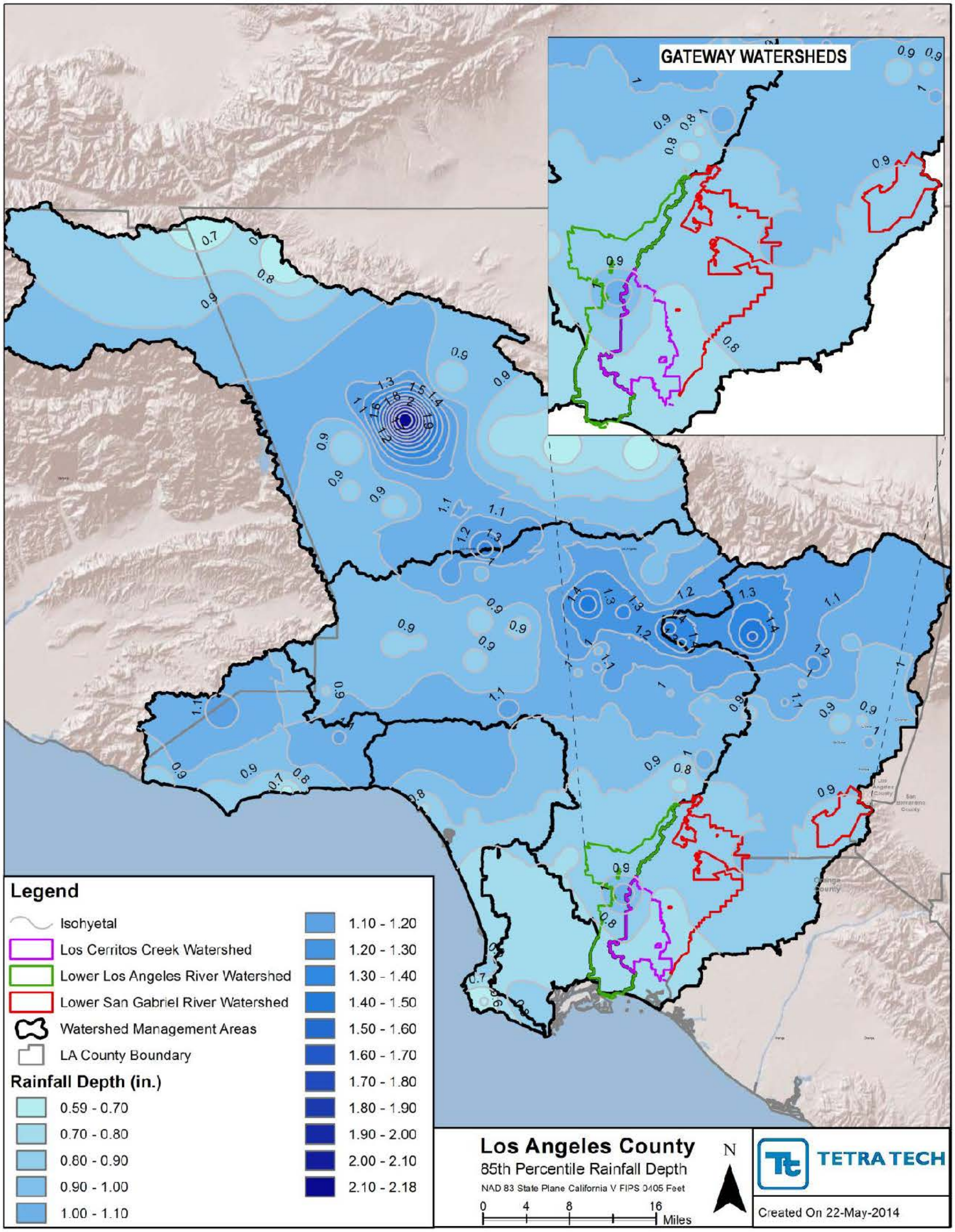

Figure 5-2. Rainfall depths associated with the 85th percentile, 24-hour storm.

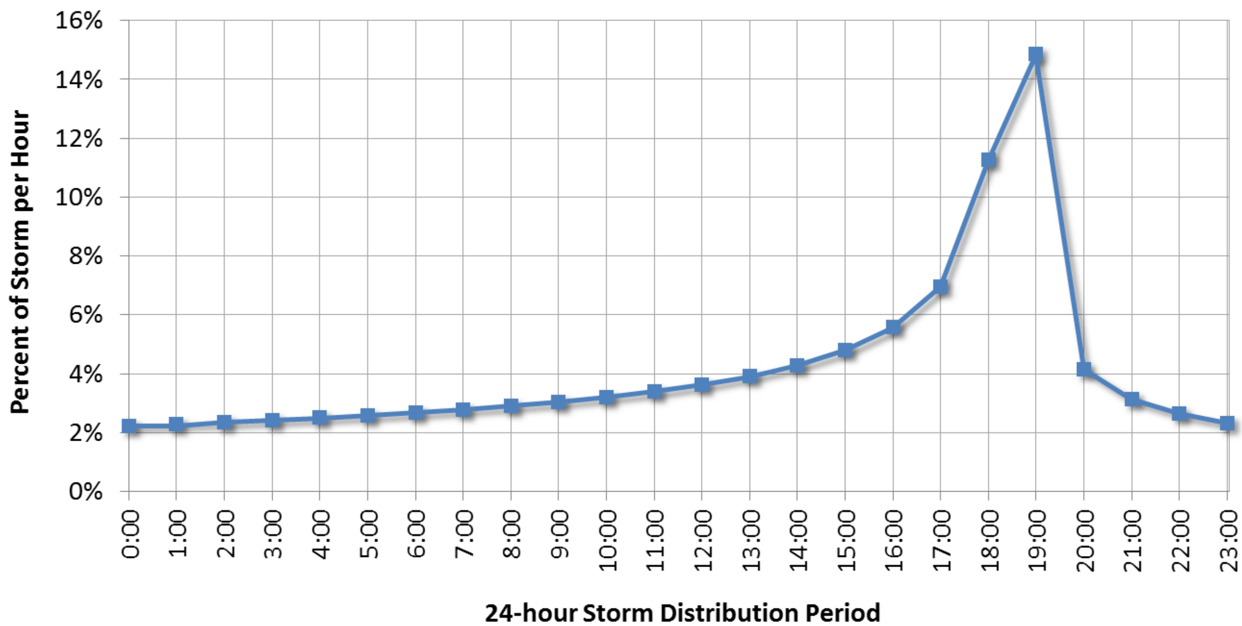

Figure 5-3. Temporal Distribution for 85th Percentile 24-hour Storm for LSPC Simulation.

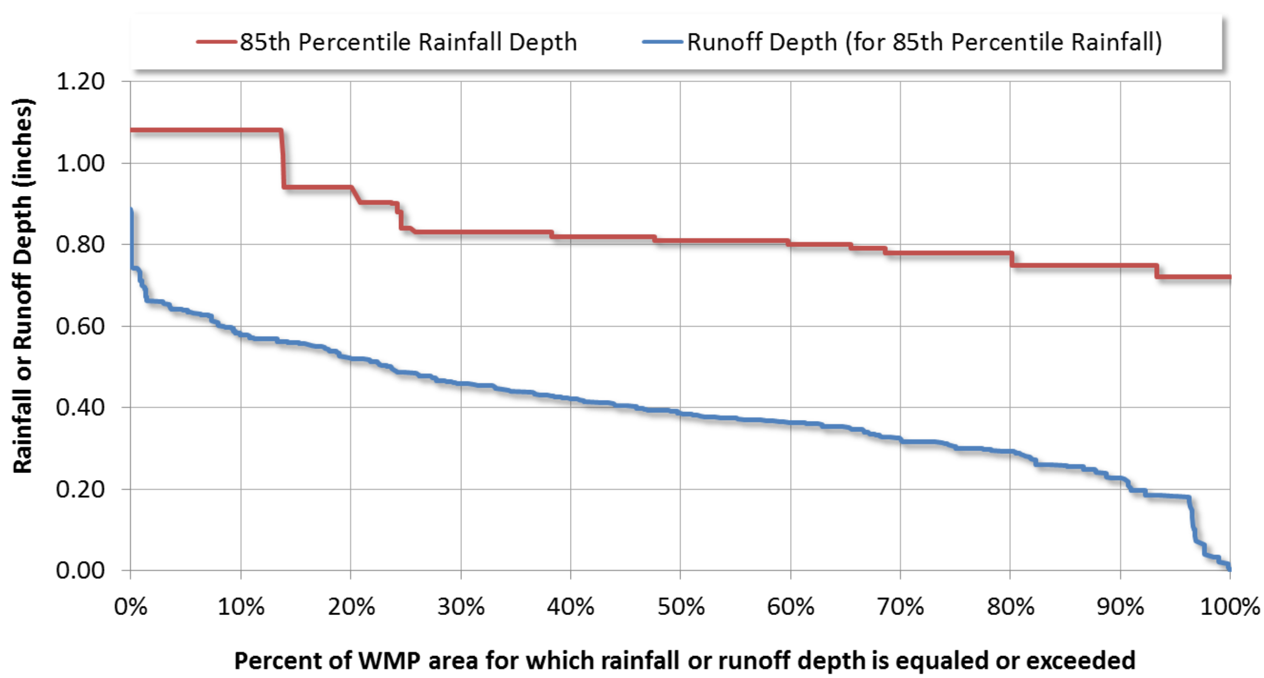

Figure 5-4. Rainfall and Runoff Depths Associated with 85th Percentile Rainfall in the WMP subwatersheds.

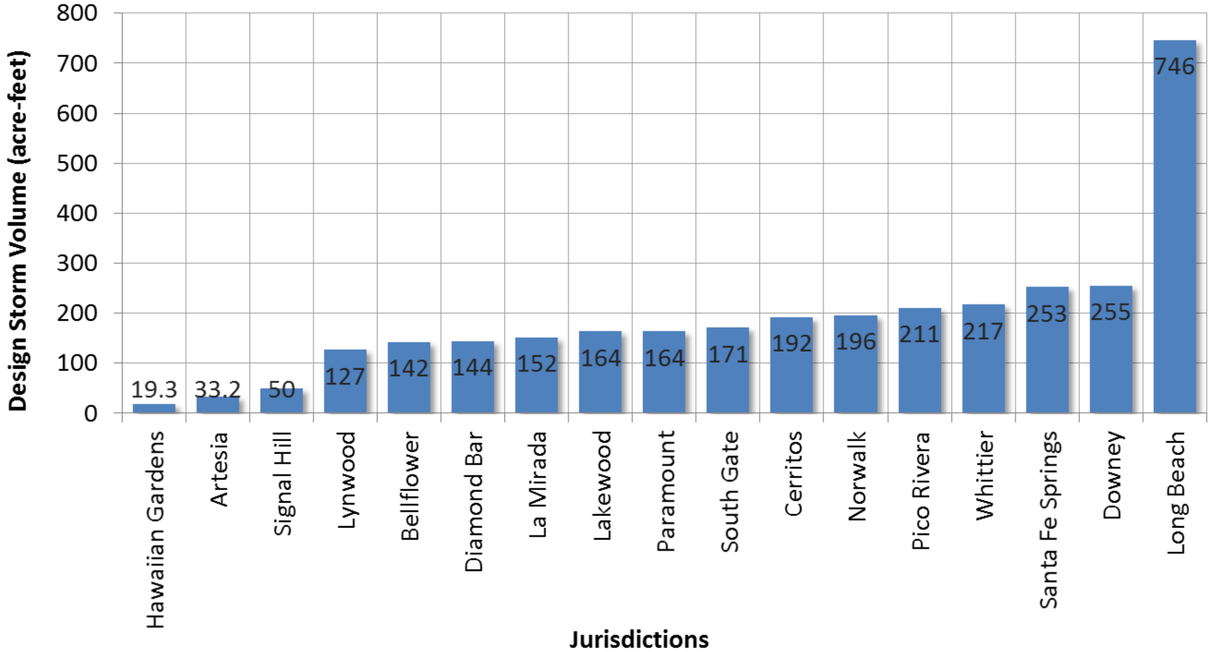

Figure 5-5. Runoff Volume Associated with the 85th Percentile, 24-hour Storm (by jurisdiction).

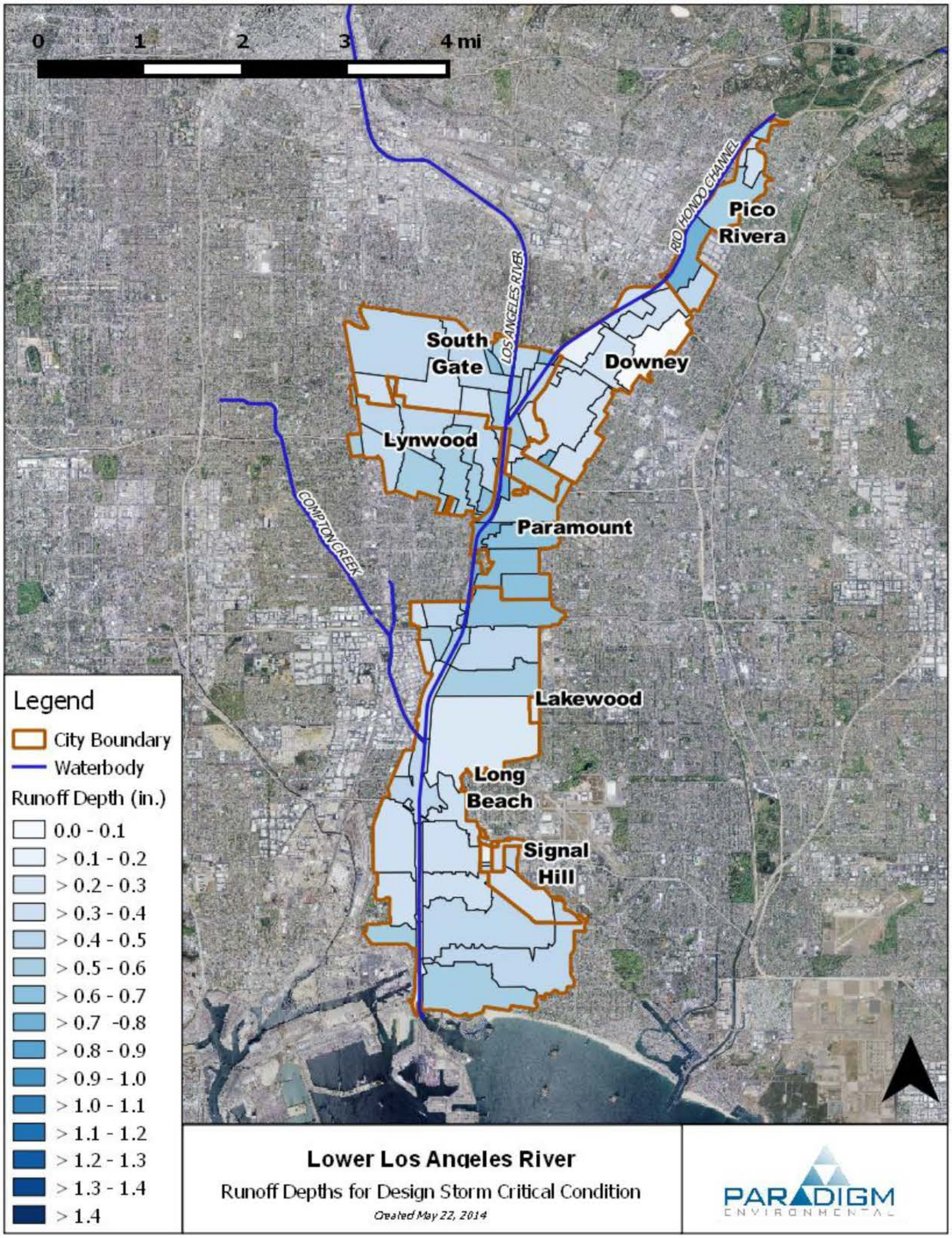

Figure 5-6. Runoff Associated with the 85th Percentile, 24-hour Storm for Lower Los Angeles River.

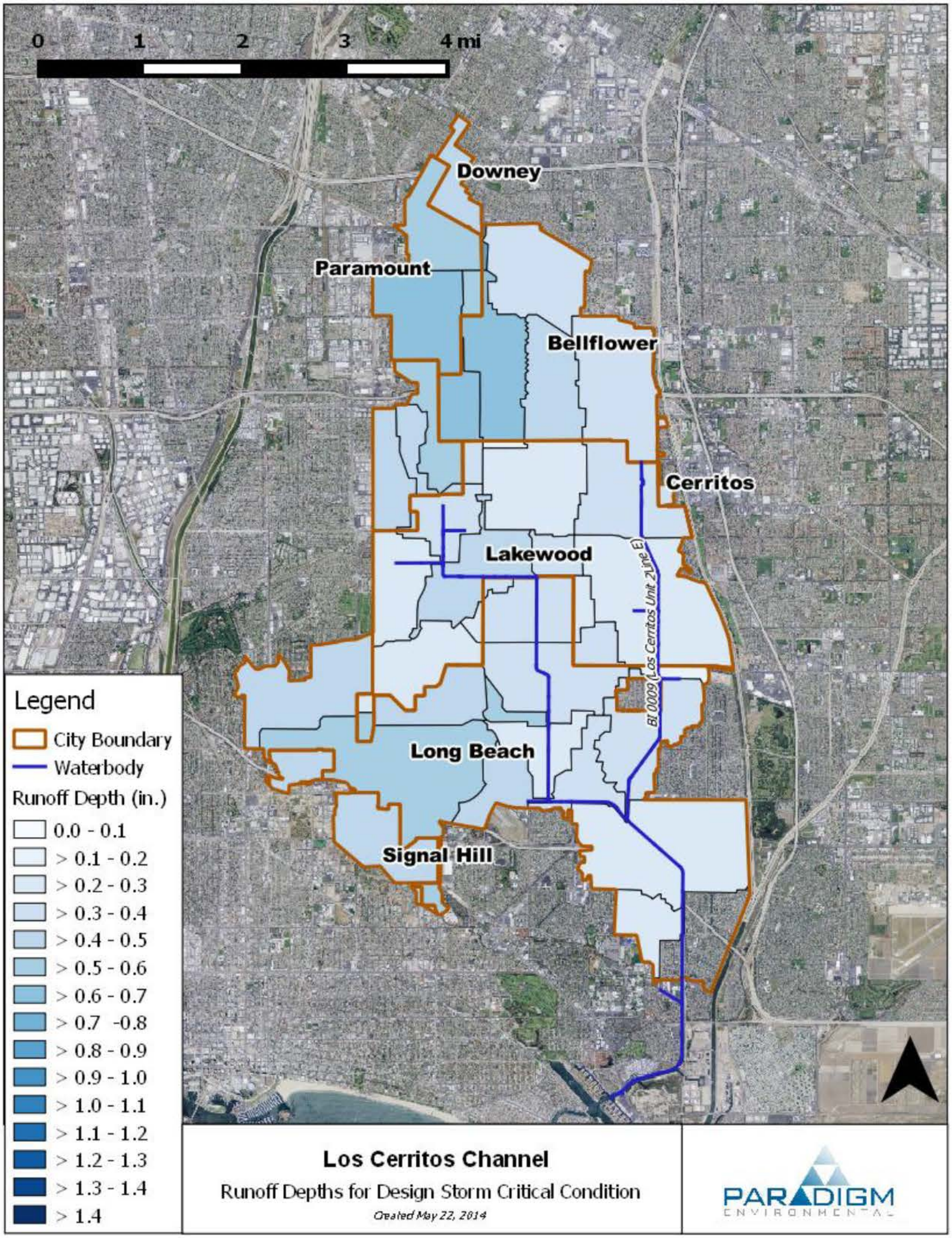

Figure 5-7. Runoff Associated with the 85th Percentile, 24-hour Storm for Los Cerritos Channel.

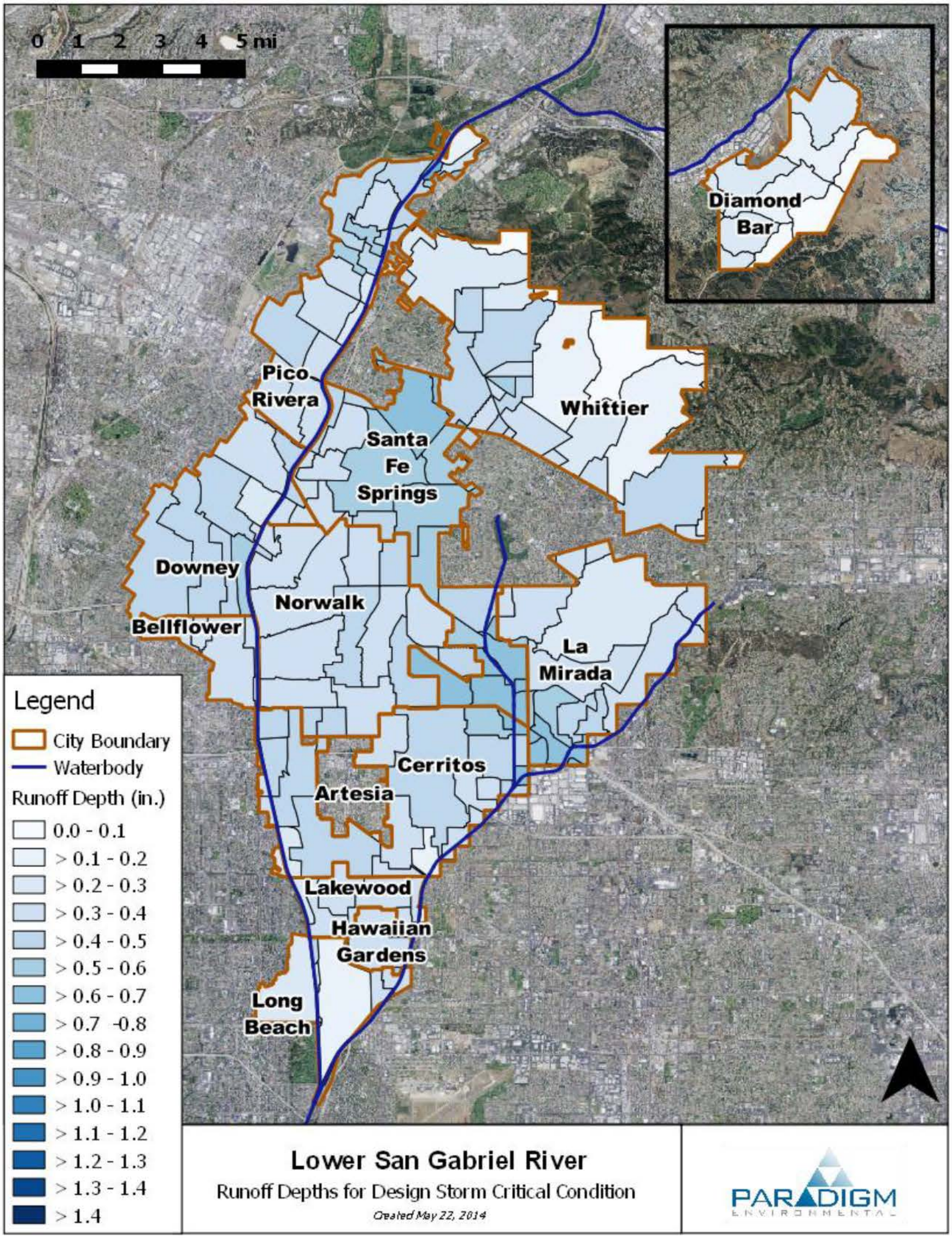

Figure 5-8. Runoff Associated with the 85th Percentile, 24-hour Storm for Lower San Gabriel River.

5.2.3. Representative Conditions for Dry Weather

Although clearly defined definitions exist for wet periods, definitions for dry periods are less clearly defined. Wet weather periods are either defined in terms of rainfall or instream flow. For bacteria, a wet day is one with a rainfall total greater than 0.1 inches plus the three subsequent days, while metals criteria define wet days as those with instream flow above the 90th percentile. One seemingly intuitive way of defining a dry period is simply to use the "non-wet" days represented as the inverse of wet days. However, summary of model results indicate some residual influence of wet weather among the "non-wet" days. This presents some challenges for estimating loads and evaluating dry weather compliance because BMP planning would be better served by choosing design conditions that are more influenced by natural background baseflow and/or anthropogenic activities such as point source discharges or dry weather runoff from irrigation (instead of post-rain event interflow).

The RAA Guidelines recommend using the most recent 10 years of data for modeling scenarios to ensure that the plans are based on a representative range of wet and dry conditions. Regional precipitation and instream flow patterns are highly variable; therefore, a representative dry period is one that consistently represents minimal influence to wet weather conditions. To identify a representative dry period, the analysis covered 25 WYs from 1987 through 2011. The following steps were taken:

1. The total rainfall for each precipitation gage in the study area was summarized and classified into wet and non-wet periods according to the bacteria criteria definition for wet weather (i.e. days with rainfall > 0.1 inches plus the three subsequent days).
2. Dry periods were evaluated on a monthly time scale. Table 5-3 shows the average number of consecutive 30-day dry periods, counted by month of the associated mid-interval date, for each of the rainfall gages within the three WMP areas over the 25 years of rainfall evaluated. The color-ramp indicates relative dryness, with red being driest. Table 5-3 indicates that on average, the months of June, July, and August are the driest months in the year, averaging 24-30 consecutive dry intervals. Note that because this table counts mid-interval dates by month, values approaching 30 actually indicate continuous dry intervals approaching 60 days (15 days on either side of the 30 day interval).
3. Select periods within the average and critical year were identified for dry weather simulations. The areal coverage or non-wet intervals in the two selected representative years (2008 and 2003) were compared against the 10-year period (2001-2011) and the long-term 25-year period (1998-2011). Figure 5-9, Figure 5-10, and Figure 5-11 show the selected representative dry period against summaries of non-wet weather conditions in the LLAR, LCC, and LSGR WMP areas, respectively. Within the two selected years, the 45-day period between 8/17 and 9/30 was found to be the most representative of dry weather conditions because (1) no rainfall occurred at any of the gages throughout all three WMP areas, (2) it was during a time of the year that was historically shown to experience the least amount of spatially-weighted rainfall in a year, and (3) it was late in the summer following an extended period of no rainfall for both 2003 and 2008.

The identified periods between 8/17 and 9/20 during the average and critical years were used for subsequent dry weather simulations for the dry weather component of the RAA.

Table 5-3. Consecutive 30-day Dry Periods per month by WMP and rainfall gage (10/1/1987 – 9/30/2011)

WMP	StaID	Average Number of Consecutive 30-Day Dry Intervals Per Month (10/1/1987 – 9/30/2011)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Los Cerritos Channel	D1254	2.2	1.9	6.2	11.9	22.3	25.2	28.9	28.9	21.4	12.7	7.8	4.4
	D1255	2.8	1.8	4.4	8.8	20.3	25.1	29.7	29.8	21.8	13.0	7.3	2.9
	D225	3.0	2.3	6.3	10.5	20.6	24.7	28.8	29.5	21.4	13.1	9.1	3.6
	D388	2.1	1.3	3.8	8.5	18.6	24.0	27.6	29.2	21.0	12.3	5.1	3.2
	D415	1.9	1.2	5.7	9.6	19.0	24.0	28.1	29.1	23.4	13.1	8.9	3.7
Lower Los Angeles River	D1113	4.2	2.5	8.3	9.8	19.5	24.4	28.1	27.8	23.6	13.7	8.8	4.5
	D1114	1.6	1.1	4.0	8.9	19.6	25.1	29.7	29.6	20.8	12.3	5.5	3.0
	D1256	2.1	1.4	4.8	10.4	20.5	24.6	28.8	29.8	23.5	14.2	6.2	3.1
	D291	3.3	1.1	5.0	8.8	19.4	24.4	28.7	28.4	21.9	11.6	4.6	3.5
	D388	2.1	1.3	3.8	8.5	18.6	24.0	27.6	29.2	21.0	12.3	5.1	3.2
	D415	1.9	1.2	5.7	9.6	19.0	24.0	28.1	29.1	23.4	13.1	8.9	3.7
Lower San Gabriel River	D106	4.2	0.6	6.0	10.9	19.7	24.6	28.6	29.0	23.9	14.0	8.2	4.0
	D1088	2.2	1.0	3.8	9.0	17.6	24.1	28.5	29.0	20.9	12.6	5.9	2.7
	D1095	2.4	0.5	4.4	10.0	19.2	24.6	28.6	29.1	21.2	14.2	7.1	4.2
	D1114	1.6	1.1	4.0	8.9	19.6	25.1	29.7	29.6	20.8	12.3	5.5	3.0
	D1254	2.2	1.9	6.2	11.9	22.3	25.2	28.9	28.9	21.4	12.7	7.8	4.4
	D1255	2.8	1.8	4.4	8.8	20.3	25.1	29.7	29.8	21.8	13.0	7.3	2.9
	D1256	2.1	1.4	4.8	10.4	20.5	24.6	28.8	29.8	23.5	14.2	6.2	3.1
	D1257	2.0	0.5	4.5	10.6	18.9	24.4	28.6	29.8	21.2	10.3	5.7	3.0
	D1271	1.8	1.6	3.9	9.4	18.1	24.4	28.6	29.7	21.6	11.7	7.3	3.4
	D156	3.0	1.5	5.2	10.1	19.2	24.6	28.5	29.3	21.0	13.4	7.2	5.0
	D17	1.7	1.2	5.2	9.1	17.5	22.4	28.6	29.0	22.6	11.3	5.2	3.7
	D225	3.0	2.3	6.3	10.5	20.6	24.7	28.8	29.5	21.4	13.1	9.1	3.6
	D269	1.8	0.5	4.2	8.1	18.0	24.2	28.6	29.1	22.2	13.0	6.7	3.2

Legend:	Wet			→	Dry

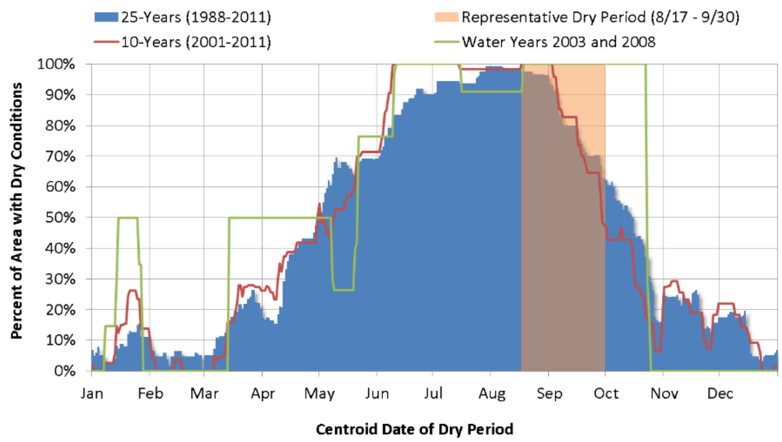

Figure 5-9. Spatiotemporal summary of non-wet weather conditions in the Lower Los Angeles River WMP area.

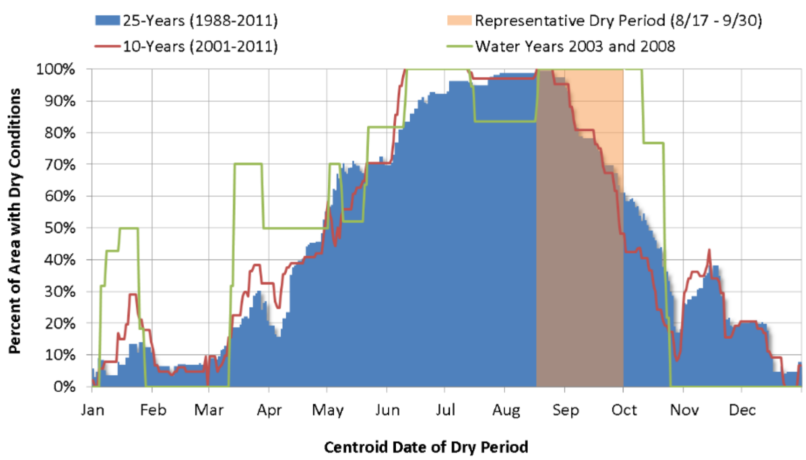

Figure 5-10. Analysis of summary of non-wet weather conditions in the Los Cerritos Channel WMP area.

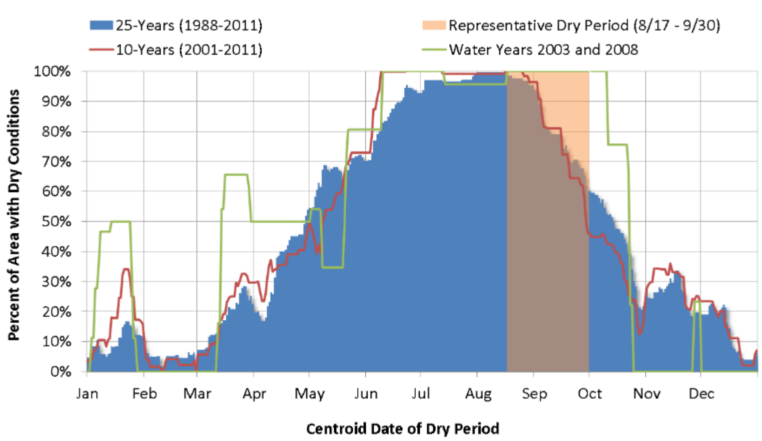

Figure 5-11. Spatiotemporal summary of non-wet weather conditions in the Lower San Gabriel River WMP area.

5.3. Calculated Required Pollutant Reductions to Achieve Final Limits

Using the average storm year (2007-08) and 90th percentile storm year (2002-03), required pollutant reductions were calculated for attainment of interim and final limitations, respectively, applicable to each WMP area. Per the RAA Guidelines, the percent reduction used to determine the control measures necessary to attain interim milestones shall be based on the average year, while the control measures for attainment of the final limits are based on the 90th percentile year.

Required load reductions were evaluated at RAA Assessment Points located at the bottom-most discharge from each WMP areas (shown in Figure 3-2 through Figure 3-4). The RAA Assessment Points represent locations where the collective discharge from each jurisdiction with each WMP area can be assessed to contribute to pollutant loads to the receiving waters. Pollutant loads outside of the WMP areas are not considered in this loading analysis at the RAA Assessment Points, although in reality other loads exist. However, transport of pollutant loads from individual jurisdictions within the WMP areas are considered, including the effect of LACFCD infrastructure and other hydraulic features that can impede flows and associated pollutant loads to the location of the RAA Assessment Points. The result is an accounting system that provides reasonable tracking and estimation of required load reductions throughout each individual WMP area so that meaningful goals can be set for BMP implementation planning.

Applicable targets for wet and dry conditions for Category 1 WQ Priorities (corresponding to the TMDLs within each watershed) are listed in Table 5-4 and Table 5-5, respectively. These targets were used to establish the daily "exceedance load" and daily "allowable load". The differences in these loads, as predicted by LSPC, were tracked across the average year and 90th percentile year and used to calculate the required pollutant reduction. While Category 1 WQ Priorities were emphasized, targets were also applied for Category 2 and Category 3 WQ Priorities. In particular, to provide a comprehensive WMP planning approach, copper, lead, zinc and *E. coli* were assessed for all RAA assessment points (even if a TMDL is not applicable).

For bacteria targets, it should be noted that Allowable Exceedance Days and high flow suspension (HFS) days were incorporated (if applicable) into the percent reduction calculation. The approach of the LA River Bacteria TMDL was used to align Exceedance Days and HFS days. The HFS applies to LLAR and LSGR but not LCC (and thus HFS days were not incorporated into the required reduction calculation for LCC). For LSGR and LCC, a bacteria TMDL has not been adopted but the RAA Guidelines state that targets and critical conditions from other TMDLs in the region should be utilized. If the Allowable Exceedance Days were removed from the percent reduction calculations for LSGR and LCC, the required reductions would increase.

Table 5-4. Applicable wet weather TMDL targets for Category 1 WQ Priorities

WMP Area	Waterbody	Pollutant	Target	Source
LLAR	LAR Reach 1 (freshwater)	Cd kg/d	2.8×10^{-9} X daily storm volume (L) - 1.8	WQBEL
	LAR Reach 1 (freshwater)	Cu kg/d	1.5×10^{-8} X daily storm volume (L) - 9.5	WQBEL
	LAR Reach 1 (freshwater)	Pb kg/d	5.6×10^{-8} X daily storm volume (L) - 3.85	WQBEL
	LAR Reach 1 (freshwater)	Zn kg/d	1.4×10^{-7} X daily storm volume (L) - 83	WQBEL
	All LLAR	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	All LLAR	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	All LLAR	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL
	LAR Reach 1 (freshwater)	*E-coli* MPN/100mL	235 (exceedances allowed during HFS days and 10 exceedance days)	WQBEL

WMP Area	Waterbody	Pollutant	Target	Source
LCC	All LCC	Cu g/d	$4.709X10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	Pb g/d	$26.852X10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	Zn g/d	$46.027X10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	All LCC	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	All LCC	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL
LSGR	SG Reach 2	Pb ug/L	81.34	WQBEL
	Coyote Cr.	Cu ug/L	24.71	WQBEL
	Coyote Cr.	Pb ug/L	96.99	WQBEL
	Coyote Cr.	Zn ug/L	144.57	WQBEL
	SG Reach 1 & Coyote Cr.	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	SG Reach 1 & Coyote Cr.	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	SG Reach 1 & Coyote Cr.	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL

Table 5-5. Applicable dry weather TMDL targets for Category 1 WQ Priorities

WMP Area	Waterbody	Pollutant	Target	Source
LLAR	LAR Reach 1 (freshwater)	Cu ug/L	23	WQBEL
	LAR Reach 1 (freshwater)	Pb ug/L	12	WQBEL
	LAR Reach 1 (freshwater)	*E-coli* MPN/100mL	126	WQBEL
LCC	All LCC	Cu g/d	67.2	WQBEL
	All LCC	*E-coli* MPN/100mL	126	WQBEL
LSGR	SG Reach 1	Cu ug/L	18	WQBEL
	SG Reach 1	*E-coli* MPN/100mL	126	WQBEL
	San Jose Cr. Reach 1&2	Se ug/L	5	WQBEL
	San Jose Cr. Reach 1&2	*E-coli* MPN/100mL	126	WQBEL
	Coyote Cr.	Cu kg/d	0.941	WQBEL
	Coyote Cr.	*E-coli* MPN/100mL	126	WQBEL

5.3.1. Wet-Weather Required Pollutant Reductions

The wet weather pollutant baseline loading and reduction targets for average and critical conditions are summarized in Table 5-6 and Table 5-7 respetively (all WMP areas) and shown graphically in Figure 5-12 through Figure 5-15 (individual WMP areas). These analyses were used to determine the limiting pollutant. The limiting pollutant is defined as the pollutant requiring the greatest load reduction, and BMPs implemented to achieve the limiting pollutant reductions are protective of other pollutant reductions (e.g., sediment or volume reductions). In Table 5-6. Wet-weather pollutant baseline loading by WMP area with analysis of limiting pollutants

WMP	Year[1]	Organics (kg)				Metals (kg)		Bacteria (Billion #)[1]
		DDT	PCB	PAH	TCu [2]	TPb	TZn [3]	E-Coli
Lower Los Angeles River (LLAR)	2003	0.12	0.77	19.80	2,437	2,464	11,153	2.78E+07
	2008	0.09	0.61	15.59	1,935	1,968	8,878	5.46E+07
Los Cerritos Channel (LCC)	2003	0.07	0.45	11.60	1,611	1,719	7,481	2.55E+08
	2008	0.05	0.35	9.13	505	386	2,607	2.40E+08
Lower San Gabriel River (LSGR)	2003	0.06	0.42	10.80	768	544	3,805	2.06E+06
	2008	0.05	0.33	8.50	393	337	2,512	1.98E+06
Coyote Creek (CC)	2003	0.11	0.71	18.20	1,640	1,197	8,373	6.57E+05
	2008	0.09	0.56	14.33	839	736	5,450	6.72E+06

Color ramps highlight potentially limiting (Red) vs. pollutants determined to be non-limiting for this analysis (Blue)

1. LLAR, LSGR, CC bacteria loads are for bacteria wet-days and exclude high flow suspension (HFS) days.
   LCC bacteria loads are for bacteria wet-days
2. Red box: Organics managed through sediment and associated metals reduction. Organic load reductions above influenced by assigned concentrations at half the MDLs (monitoring data below MDLs), and therefore are suspect and not considered limiting. Cu is not limiting after brake-pad reductions
3. Blue Box: Zinc is limiting pollutant for the 90th percentile year
4. Metals loads are for wet-weather days (90th percentile flow and greater)
5. Organics are summarized on an annual basis

Table 5-7, the red color gradient highlights limiting pollutants, with a deeper red generally indicating a more limiting pollutant. Zinc was identified as the limiting pollutant for each WMP area[4]. The determination of limiting pollutant considered implementation actions to control the pollutant – for example, Senate Bill 346 will result in significant reductions of copper loading from brake pads. Because total source control measures are not on the horizon for zinc, it becomes the limiting pollutant instead of copper. The evaluation of copper and organics as limiting pollutants and rationale for their exclusion is described below.

Although DDT and PCBs were estimated to have high load reduction requirements to meet WQBELs, they were not identified as limiting pollutants because the maximum detection limits (MDLs) used for the analysis heavily affected the calculated required reductions. Rather than use LSPC for reduction calculations, monitoring data were used directly and many reported concentrations for DDT, PCBs, and PAHs were below MDLs, so concentrations were assumed in the model to equal half the MDL. The MDL is above the target leading to non-detects requiring reductions. Of course, toxics will be addressed by control measures implemented for zinc. The Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL states that

[4] In LSGR, a higher percent reduction for bacteria was calculated for the average year than the 90th percentile (see Figure 5-14). Although total annual rainfall in 2008 and 2003 were virtually identical over the entire SGR watershed (20.5 and 20.4 inches/year, respectively), 2003 had fewer wet days than 2008, resulting in relatively more intense events on average (about 18 percent higher). As a result, 2003 had more HFS days than 2008—exceedances during HFS days are not considered when computing the required load reduction, lowering the required reduction.

“implementation of other TMDLs in the watershed may contribute to the implementation of this TMDL,” and implementation of the effective TMDLs in Los Angeles River and San Gabriel River are integrated within Phase I of the implementation of the toxics TMDL (LARWQCB and USEPA 2011). As a result, DDT, PCBs, and PAHs were not represented in Figure 5-12 through Figure 5-15.

Although copper was calculated to have a higher required reduction than zinc, the effect of Senate Bill 346 is expected to reduce those reductions without any implementation of structural control measures. The Brake Pad Partnership was formed in 1999 as a collaboration of cities, industry, and other entities to address the lack of information and research regarding the impact of brake debris material in the environment. After its formation, the Brake Pad Partnership commissioned several technical studies to better quantify the fate and transport of copper to San Francisco Bay including a detailed source assessment. Overall findings of the study estimated that of the anthropogenic sources of copper, approximately 35 percent are attributed to brake pad releases (BPP 2010). Even if the reduction was only half of this amount, the adjustment to the required copper reduction would still result in zinc being the limiting pollutant in LLAR, LCC, and LSGR.

After excluding organics and total copper for the reasons described previously, total zinc becomes the limiting pollutant in each of the WMP areas during the 90th percentile year. In other words, reductions of zinc during WMP implementation will drive reduction of other pollutants, particularly because the pollutant reduction plan emphasizes sediment control (other pollutants are typically transported with sediment) and retention/infiltration rather than pollutant treatment.

Plots showing the differences between the baseline loads, allowable loads, and exceedance loads are shown in Attachment F.

Table 5-6. Wet-weather pollutant baseline loading by WMP area with analysis of limiting pollutants

WMP	Year[1]	Organics (kg)				Metals (kg)		Bacteria (Billion #)[1]
		DDT	PCB	PAH	TCu [2]	TPb	TZn [3]	E-Coli
Lower Los Angeles River (LLAR)	2003	0.12	0.77	19.80	2,437	2,464	11,153	2.78E+07
	2008	0.09	0.61	15.59	1,935	1,968	8,878	5.46E+07
Los Cerritos Channel (LCC)	2003	0.07	0.45	11.60	1,611	1,719	7,481	2.55E+08
	2008	0.05	0.35	9.13	505	386	2,607	2.40E+08
Lower San Gabriel River (LSGR)	2003	0.06	0.42	10.80	768	544	3,805	2.06E+06
	2008	0.05	0.33	8.50	393	337	2,512	1.98E+06
Coyote Creek (CC)	2003	0.11	0.71	18.20	1,640	1,197	8,373	6.57E+05
	2008	0.09	0.56	14.33	839	736	5,450	6.72E+06

Color ramps highlight potentially limiting (Red) vs. pollutants determined to be non-limiting for this analysis (Blue)

6. LLAR, LSGR, CC bacteria loads are for bacteria wet-days and exclude high flow suspension (HFS) days.
   LCC bacteria loads are for bacteria wet-days
7. Red box: Organics managed through sediment and associated metals reduction. Organic load reductions above influenced by assigned concentrations at half the MDLs (monitoring data below MDLs), and therefore are suspect and not considered limiting. Cu is not limiting after brake-pad reductions
8. Blue Box: Zinc is limiting pollutant for the 90th percentile year
9. Metals loads are for wet-weather days (90th percentile flow and greater)
10. Organics are summarized on an annual basis

Table 5-7. Wet-weather pollutant reduction targets by WMP area with analysis of limiting pollutants[5]

WMP	Year	Organics				Metals		Bacteria
		DDT	PCB	PAH	TCu [2]	TPb	TZn [3]	E-Coli
Lower Los Angeles River (LLAR)	2003	87.3%	72.0%	0.0%	84.1%	38.6%	67.4%	23.4%
	2008	90.0%	77.9%	0.0%	82.8%	32.9%	64.9%	45.1%
Los Cerritos Channel (LCC)	2003	86.6%	70.3%	0.0%	95.6%	76.7%	90.8%	40.4%
	2008	89.6%	77.1%	0.0%	87.1%	3.6%	75.6%	47.9%
Lower San Gabriel River (LSGR)	2003	79.5%	54.6%	0.0%	40.1%	0.0%	29.3%	22.9%
	2008	91.4%	80.7%	0.0%	18.0%	0.0%	25.0%[4]	53.0%
Coyote Creek (CC)	2003	75.9%	46.8%	0.0%	37.5%	0.0%	28.3%	19.1%
	2008	91.3%	76.8%	0.0%	22.7%	0.0%	30.4%[4]	59.2%

Color ramps highlight potentially limiting (Red) vs. pollutants determined to be non-limiting for this analysis (Blue)

1. Average year is 2008 and 90th percentile year is 2003
2. Red box: Organics managed through sediment and associated metals reduction. Organic load reductions above influenced by assigned concentrations at half the MDLs (monitoring data below MDLs), and therefore are suspect and not considered limiting. Cu is not limiting after brake-pad reductions
3. Blue Box: Zinc is limiting pollutant for the 90th percentile year
4. Bacteria reduction target is lower in 2003 than 2008 because more days were classified as HFS

[5] For the Diamond Bar jurisdiction of the San Gabriel River WMP area, a portion flows to the Santa Ana River. Since this area is open space and therefore not associated with MS4 runoff, no reductions were determined necessary. Loadings for the 90th percentile year from this area are 1.16 kg/year of total Cu, 0.87 kg/year of total Pb, 5.21 kg/year of total Zn, and 4.91×10^{12} #/year of E-coli.

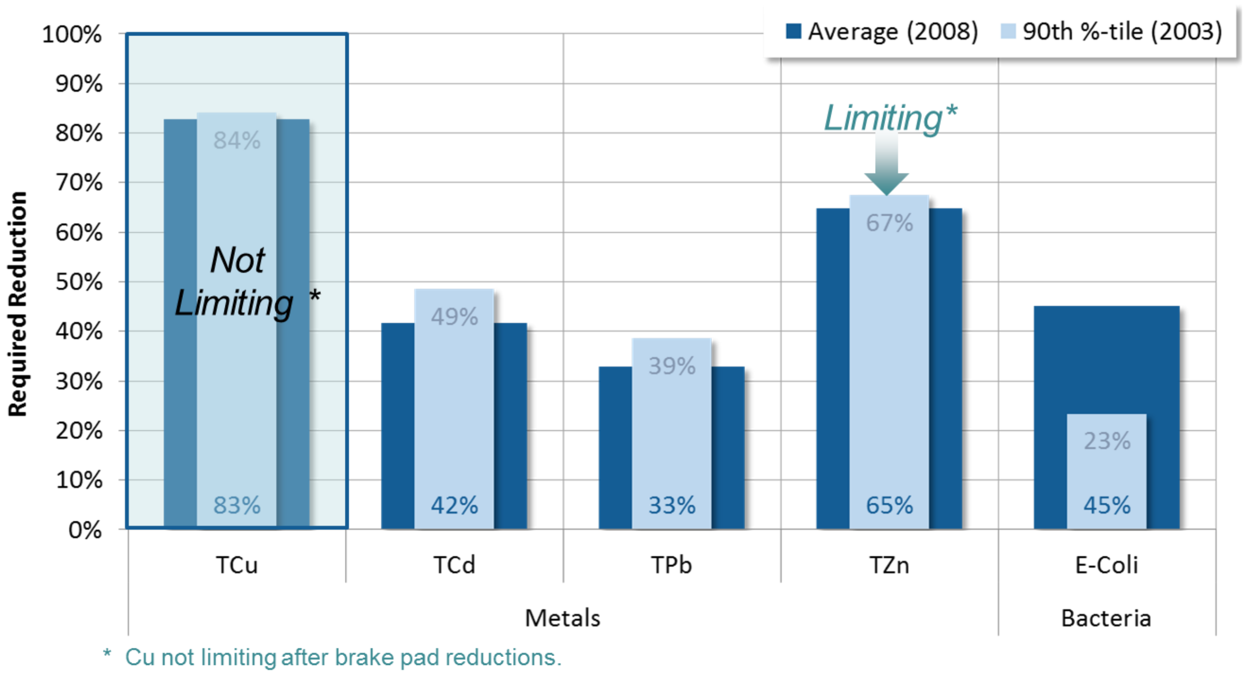

Figure 5-12. Wet-weather pollutant reduction targets and limiting pollutant for Lower Los Angeles River WMP.[6]

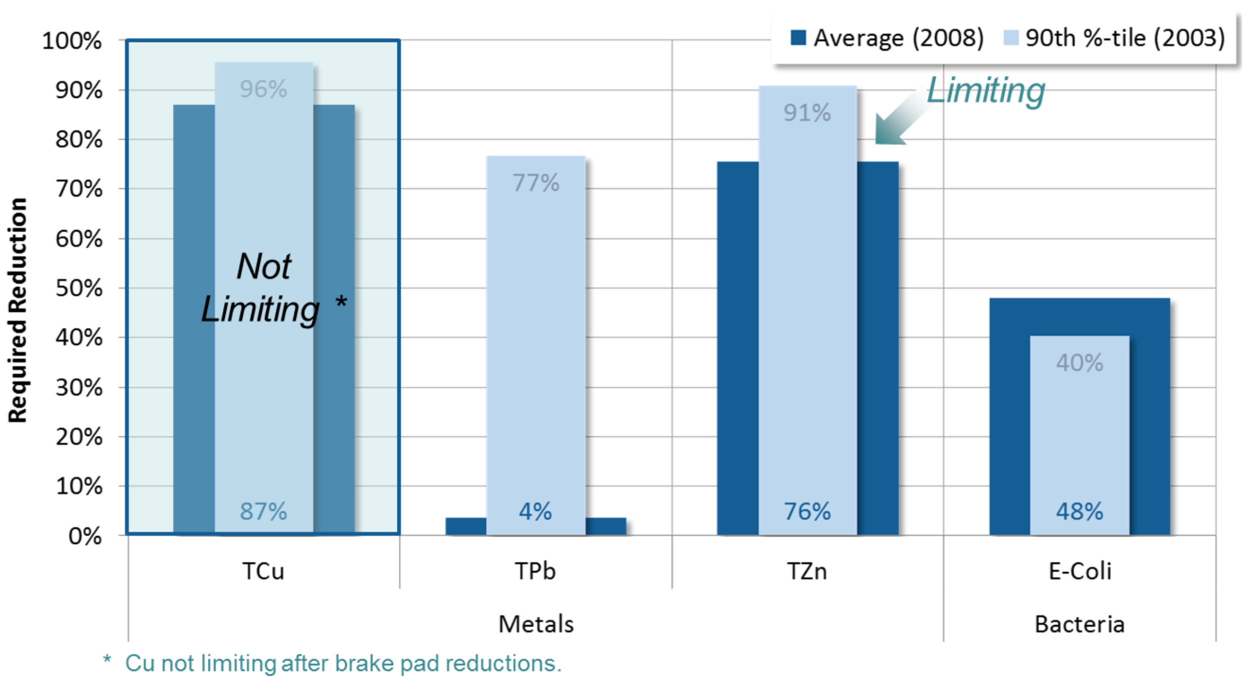

Figure 5-13. Wet-weather pollutant reduction targets and limiting pollutant for Los Cerritos Chanel WMP.

[6] Note that the Los Cerritos Channel TMDLs for Metals requires no reduction of Pb.

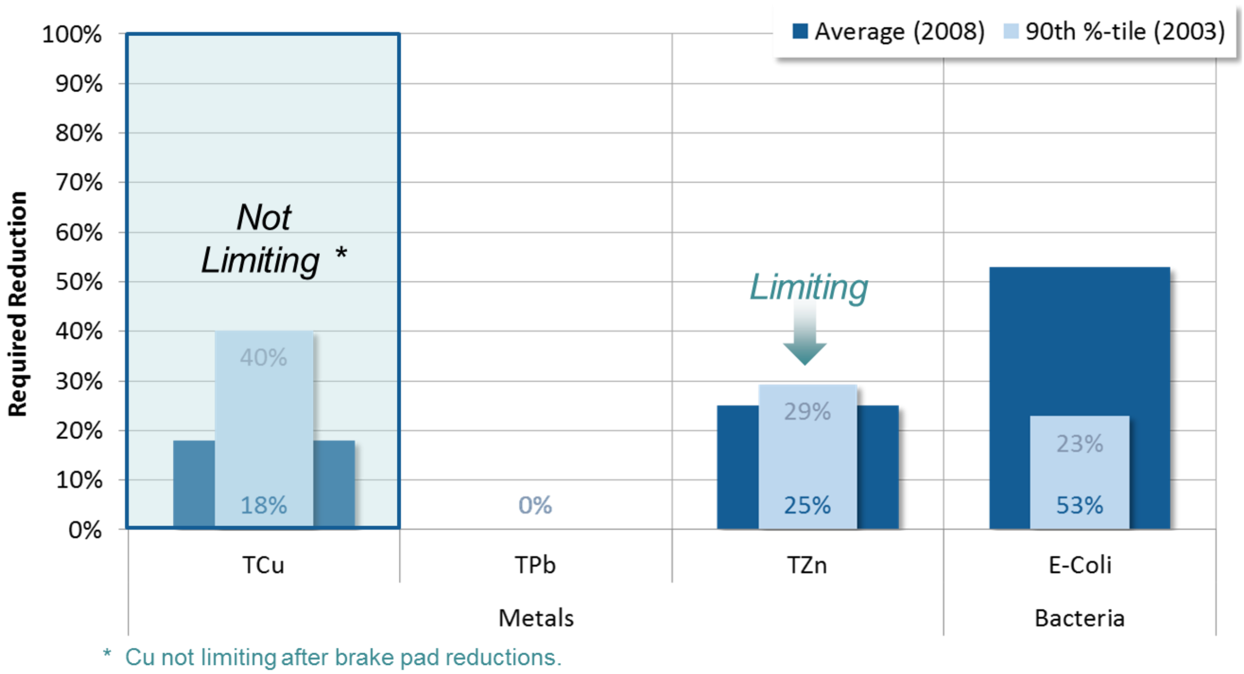

Figure 5-14. Wet-weather pollutant reduction targets and limiting pollutant for Lower San Gabriel River.

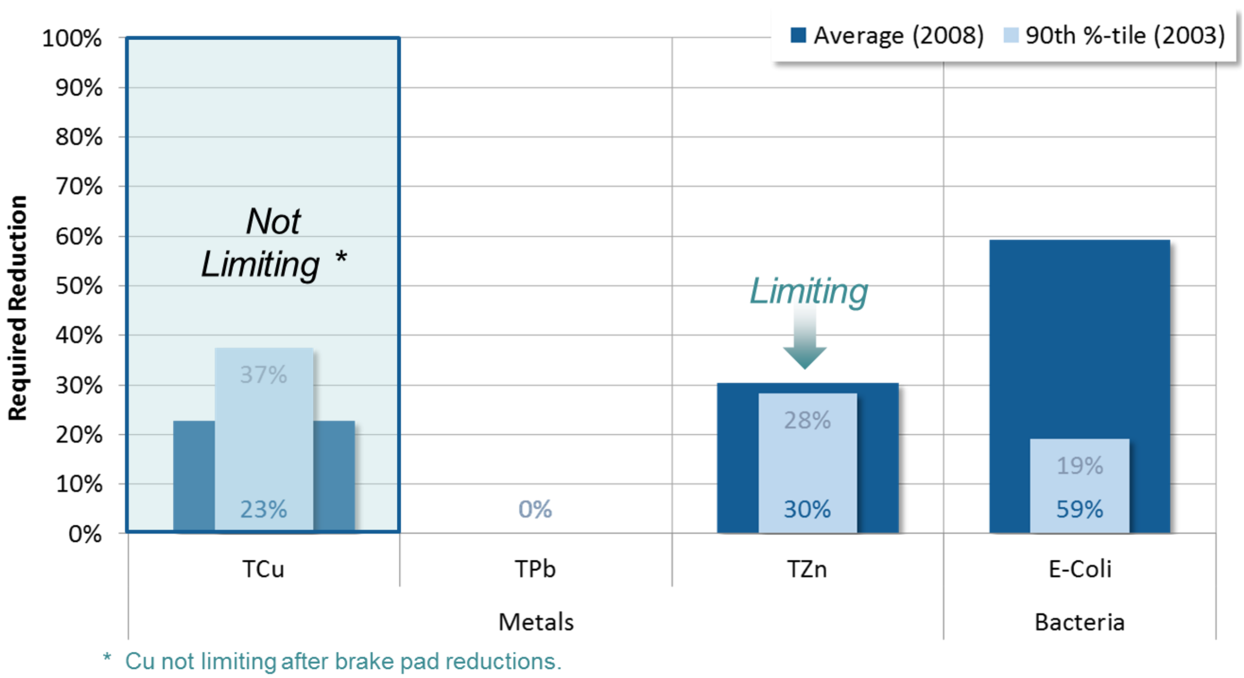

Figure 5-15. Wet-weather pollutant reduction targets and limiting pollutant for Coyote Creek.

5.3.2. Dry-Weather Pollutant Reduction Targets

Using the representative dry-weather period of August 17 through September 30, as defined in Section 5.2.3, modeled instream flow was multiplied by the observed dry weather concentrations to get existing conditions loads, which are shown in Table 5-8. Likewise, target concentrations were also multiplied by modeled instream flow to get allowable load for each waterbody, which is shown in Table 5-9. Finally, Table 5-10 summarizes dry-weather reduction targets for each listed segment for both the average year and the 90th percentile year.

For dry weather, bacteria is the limiting pollutant (not zinc) because the required reductions are much higher than other pollutants. Reductions of bacteria during WMP implementation will drive reductions of other pollutants.

Table 5-8. Modeled existing condition dry-weather loads by water body

Existing Condition		Dry Weather Flow (cfs)		Existing Load (kg/day or MPN/day)		
Waterbody	Pollutant	2003	2008	2003	2008	Mean
LAR Reach 1 (freshwater)	Cu ug/L	99.97	65.63	6.28	4.12	5.20
LAR Reach 1 (freshwater)	Pb ug/L	99.97	65.63	0.84	0.55	0.69
LAR Reach 1 (freshwater)	*E. coli* MPN/100ml	99.97	65.63	4.79E+13	3.15E+13	3.97E+13
LCC	Cu ug/L	4.65	2.20	0.29	0.14	0.21
LCC	*E. coli* MPN/100ml	4.65	2.20	1.62E+12	7.64E+11	1.19E+12
SG Reach 1	Cu ug/L	69.04	75.36	5.05	5.51	5.28
SG Reach 1	*E. coli* MPN/100ml	69.04	75.36	3.70E+12	4.04E+12	3.87E+12
San Jose Cr. Reach 1 & 2	Se ug/L	12.54	19.62	0.06	0.09	0.07
San Jose Cr. Reach 1 & 2	*E. coli* MPN/100ml	12.54	19.62	6.72E+11	1.05E+12	8.62E+11
Coyote Cr.	Cu ug/L	19.65	15.69	1.37	1.10	1.23
Coyote Cr.	*E. coli* MPN/100ml	19.65	15.69	5.53E+12	4.41E+12	4.97E+12

Table 5-9. Allowable TMDL dry-weather loads by water body

Existing Condition		Dry Weather Flow (cfs)		Allowable Load (kg/day or MPN/day)		
Waterbody	Pollutant	2003	2008	2003	2008	Mean
LAR Reach 1 (freshwater)	Cu ug/L	99.97	65.63	5.63	3.69	4.66
LAR Reach 1 (freshwater)	Pb ug/L	99.97	65.63	2.94*	1.93*	2.43*
LAR Reach 1 (freshwater)	*E. coli* MPN/100ml	99.97	65.63	3.08E+11	2.02E+11	2.55E+11
LCC	Cu ug/L	4.65	2.20	0.07	0.07	0.07
LCC	*E. coli* MPN/100ml	4.65	2.20	1.43E+10	6.78E+09	1.06E+10
SG Reach 1	Cu ug/L	69.04	75.36	3.04	3.32	3.18
SG Reach 1	*E. coli* MPN/100ml	69.04	75.36	2.13E+11	2.32E+11	2.23E+11
San Jose Cr. Reach 1 & 2	Se ug/L	12.54	19.62	0.15*	0.24*	0.20*
San Jose Cr. Reach 1 & 2	*E. coli* MPN/100ml	12.54	19.62	3.87E+10	6.05E+10	4.96E+10
Coyote Cr.	Cu ug/L	19.65	15.69	0.94	0.94	0.94
Coyote Cr.	*E. coli* MPN/100ml	19.65	15.69	6.06E+10	4.48E+10	5.45E+10

*Existing dry-weather loads are currently below the allowable loads thus showing compliance for this pollutant.

Table 5-10. Required dry-weather percent reductions by water body

WMP	Waterbody	Pollutant	Required Dry-Weather Percent Reductions		
			2003	2008	Mean
LLAR	LAR Reach 1 (freshwater)	Cu	10%	10%	10%
	LAR Reach 1 (freshwater)	Pb	0%	0%	0%
	LAR Reach 1 (freshwater)	*E. coli*	99.36%	99.36%	99.36%
LCC	LCC	Cu	76.74%	50.85%	68.43%
	LCC	*E. coli*	99.11%	99.11%	99.11%
LSGR	Coyote Cr.	Cu	31.42%	14.11%	23.73%
	Coyote Cr.	*E. coli*	98.90%	98.90%	98.90%
	SG Reach 1	Cu	39.78%	39.78%	39.78%
	SG Reach 1	*E. coli*	94.25%	94.25%	94.25%
	San Jose Cr. Reach 1 & 2	Se	0%	0%	0%
	San Jose Cr. Reach 1 & 2	*E. coli*	94.25%	94.25%	94.25%

Color Ramp shows relative magnitude of reductions—darker means higher reductions

6. Determination of Potential BMP Capacity for RAA

The process for determining the necessary cumulative BMP capacity depends on the type of numeric goal being addressed. As shown in Figure 6-1, the volume-based (design storm) approach, necessary BMP capacity was determined through a design storm analysis. For the load-based (pollutant reduction), the analysis leveraged the optimization routines in the customized WMMS. An initial step in the RAA was a comparison of the volume reductions required by the load-based and volume-based numeric goals, to support selection of the wet weather critical conditions.

For LLAR, LCC, and LSGR, the 90th percentile WY (2002-03) weather was selected as the critical condition for wet weather.

Details on the analyses performed to determine potential BMP treatment capacity are provided in Attachment A. The attachment describes the approach for incorporating nonstructural BMPs, accounting for the effect of LACFCD infrastructure, and separating the contribution from non-MS4 sources.

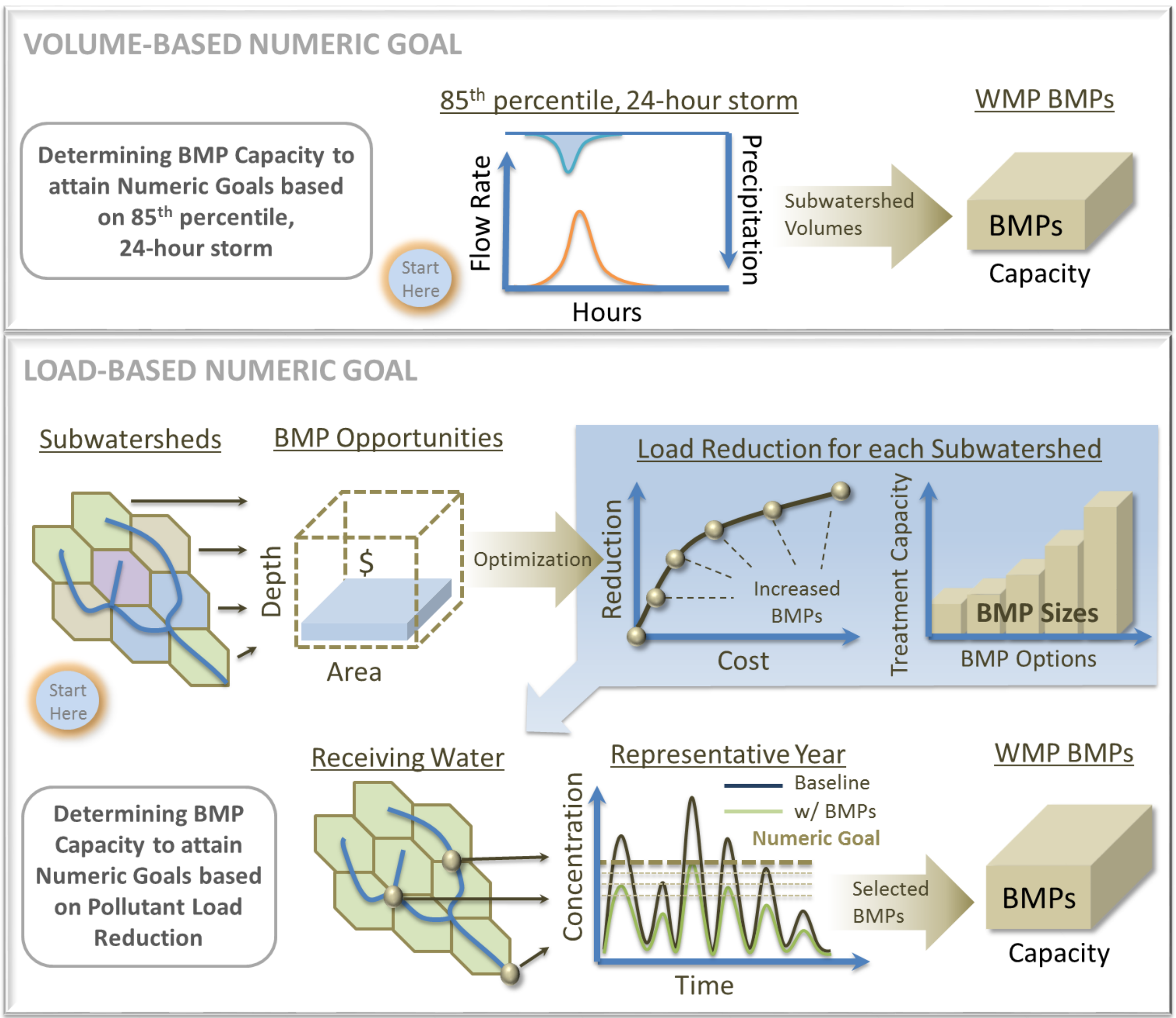

Figure 6-1. Illustration of Process for Determining Required BMP Capacities for the WMP using Volume-Based (top panel) and Load-Based (bottom panel) Numeric Goals.

7. Cumulative Volume Reduction Goals to Achieve Required Pollutant Reductions

The first output of the RAA is a series of “volume reduction goals” for each subwatershed and jurisdiction in the WMP area. WMMS was used to determine the stormwater retention volumes for each subwatershed that would achieve the required load reductions, as reported in this section. These calculated runoff reduction volumes for each subwatershed are a surrogate compliance metric for the responsible agencies. It should be noted that upon implementation, opportunities may arise where flow-through BMPs may provide similar ultimate pollutant load reduction, and may replace the need to implement volume-based reduction BMPs.

These volumes also form the basis for selection of BMPs to achieve those volume reductions, as described in Section 9 and Attachment A.

7.1. Volume Reductions for Structural BMPs

Structural BMPs were modeled using the assumptions outlined in Attachment A. BMP capacities were optimized across the entire study area to achieve the final milestone pollutant reduction requirements at each of the assessment points. Instead of summarizing optimization results in terms of BMP capacity, which is really specific to the network described in Attachment A, the results were summarized as required *annual* wet-weather retention volume (in acre-feet). This provides a volumetric basis that is (1) closely related to load reduction and (2) readily transferable as a control target for parallel BMP modeling at a finer resolution. Because the volumes were isolated to wet days, it is also not skewed by dry-weather runoff retention. The following subsections provide more details about the wet- and dry-weather analysis components.

7.1.1. Wet Weather

Using the structural BMP routing network in WMMS (described in Attachment A), the required *annual* wet-weather retention volume (in acre-feet) were calculated using the critical year time series. For milestones, the percent reduction was based on average year targets while final limits were based on critical year targets. The reported annual volumes are (1) based on required load reductions and (2) ready for BMP modeling at a finer resolution. A 10 percent load reduction was assumed to result from implementation of all nonstructural control measures outlined in the WMPs, setting the foundation of WMP implementation, and structural control measures provide additional load reduction.

Table 7-1 through Table 7-4 present incremental and cumulative retention volumes required to achieve each load reduction milestone by jurisdiction. The milestones are based on the metals TMDLs as described in Section 2. In order to calculate the incremental volume reductions for each milestone, optimization was performed for each jurisdiction to (1) emphasize BMP implementation in subwatersheds that volume reduction could most cost effectively reduce pollutants and (2) establish a cost-effective sequence of subwatersheds for each jurisdiction to achieve the milestones over time. In other words, WMMS was used to develop an implementation schedule that provides early gains in receiving water quality.

Table 7-1. Annual volume reduction goals to achieve interim and final milestones for Lower Los Angeles River WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Downey	31%	143.8	143.8
	50%	221.7	365.5
	Final	360.5	726.0
Lakewood	31%	14.3	14.3
	50%	0.0	14.3
	Final	0.0	14.3
Long Beach	31%	540.7	540.7
	50%	1090.8	1,631.5
	Final	2270.1	3,901.7
Lynwood	31%	303.3	303.3
	50%	185.2	488.6
	Final	619.6	1,108.1
Paramount	31%	181.8	181.8
	50%	227.8	409.6
	Final	579.2	988.8
Pico Rivera	31%	365.3	365.3
	50%	0.0	365.3
	Final	12.0	377.3
Signal Hill	31%	32.8	32.8
	50%	106.6	139.4
	Final	58.4	197.9
South Gate	31%	229.3	229.3
	50%	343.2	572.6
	Final	940.0	1,512.6

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less

2: Includes full implementation of planned non-structural practices

Table 7-2. Annual volume reduction goals to achieve interim and final milestones for Los Cerritos Channel WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Bellflower	10%	NS	NS
	35%	336.1	336.1
	Final	801.3	1,137.4
Cerritos	10%	NS	NS
	35%	9.7	9.7
	Final	3.2	12.9
Downey	10%	NS	NS
	35%	77.0	77.0
	Final	35.8	112.8
Lakewood	10%	NS	NS
	35%	282.4	282.4
	Final	874.8	1,157.2
Long Beach	10%	NS	NS
	35%	560.9	560.9
	Final	2115.2	2,676.1
Paramount	10%	NS	NS
	35%	278.8	278.8
	Final	353.1	631.9
Signal Hill	10%	NS	NS
	35%	269.9	269.9
	Final	52.7	322.6

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

Table 7-3. Annual volume reduction goals to achieve interim and final milestones for Lower San Gabriel River WMP

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Artesia	10%	NS	NS
	35%	1.1	1.1
	Final	0.0	1.1
Bellflower	10%	NS	NS
	35%	1.3	1.3
	Final	61.5	62.8
Cerritos	10%	NS	NS
	35%	6.6	6.6
	Final	52.8	59.4
Diamond Bar	10%	NS	NS
	35%	0.3	0.3
	Final	32.8	33.0
Downey	10%	NS	NS
	35%	4.3	4.3
	Final	259.6	263.9
Lakewood	10%	NS	NS
	35%	7.4	7.4
	Final	2.2	9.6
Long Beach	10%	NS	NS
	35%	26.9	26.9
	Final	2.3	29.2
Norwalk	10%	NS	NS
	35%	0.8	0.8
	Final	136.1	136.9
Pico Rivera	10%	NS	NS
	35%	0.2	0.2
	Final	74.8	75.1
Santa Fe Springs	10%	NS	NS
	35%	0.0	0.0
	Final	106.0	106.0
Whittier	10%	NS	NS
	35%	0.0	0.0
	Final	7.5	7.5

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

Table 7-4. Annual volume reduction goals to achieve interim and final milestones for the Coyote Creek portion of Lower San Gabriel River WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Artesia	10%	NS	NS
	35%	47.9	47.9
	Final	0.0	47.9
Cerritos	10%	NS	NS
	35%	0.1	0.1
	Final	194.2	194.3
Diamond Bar	10%	NS	NS
	35%	1.0	1.0
	Final	73.0	74.0
Hawaiian Gardens	10%	NS	NS
	35%	27.0	27.0
	Final	3.4	30.4
La Mirada	10%	NS	NS
	35%	0.8	0.8
	Final	174.9	175.7
Lakewood	10%	NS	NS
	35%	17.5	17.5
	Final	8.2	25.7
Long Beach	10%	NS	NS
	35%	37.5	37.5
	Final	0.0	37.5
Norwalk	10%	NS	NS
	35%	3.0	3.0
	Final	149.5	152.5
Santa Fe Springs	10%	NS	NS
	35%	0.4	0.4
	Final	260.3	260.7
Whittier	10%	NS	NS
	35%	2.1	2.1
	Final	252.6	254.7

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

7.1.2. Dry Weather

Dry-weather reductions from non-structural BMPs were calculated using flow from representative dry period (Section 5.2) of 8/17/2003 through 9/30/2003 and 90th percentile concentrations calculated from observed data (Section 5.2.1). Similar to wet weather, a 10% load reduction is assumed to result from the cumulative effect of nonstructural BMPs. Also, the effects of a 25% reduction in irrigation of urban grass was explicitly simulated in the model to estimate the resulting associated reduction of dry weather flows at the RAA Assessment Points. Irrigation was modeled as artificial rainfall within the LSPC model as a function of the potential evapotranspiration of urban grass. Once irrigation was reduced 25%, this directly impacted a large portion of the nonstormwater discharges drivin primarily from over irrigation and impacts on dry weather flows were significant. The projected effect of non-structural and irrigation controls on dry weather flow and loads is presented in Table 7-5. Since *E. Coli* is the limiting dry weather pollutant with required reductions in excess of 90%, the remaining volume reduction not controlled by non-structural measures will be treated by the structural BMPs described in the previous section.

Table 7-5. Projected dry weather reductions from non-structural control measures

Watershed	Constituent	Quantity (Volume or Mass)			Percent Reduction Achieved	
		Baseline	NM	NS	NM	NS
Lower Los Angeles River	Flow (M Gal.)	198.3	178.5	86.6	10.0%	56.4%
	Copper (kg)	19.28	17.35	8.42	10.0%	56.4%
	Lead (kg)	2.58	2.32	1.12	10.0%	56.4%
	E. Coli (Billion MPN)	147,166	132,449	64,230	10.0%	56.4%
Los Cerritos Channel	Flow (M Gal.)	133.6	120.2	56.3	10.0%	57.8%
	Copper (kg)	12.84	11.56	5.42	10.0%	57.8%
	E. Coli (Billion MPN)	71,808	64,627	30,277	10.0%	57.8%
Lower San Gabriel River	Flow (M Gal.)	163.3	147.0	71.2	10.0%	56.4%
	Copper (kg)	18.48	16.63	8.06	10.0%	56.4%
	Selenium (kg)	2.95	2.65	1.29	10.0%	56.4%
	E. Coli (Billion MPN)	13,540	12,186	5,903	10.0%	56.4%
Coyote Creek	Flow (M Gal.)	213.4	192.0	88.4	10.0%	58.6%
	Copper (kg)	23.05	20.75	9.55	10.0%	58.6%
	E. Coli (Billion MPN)	92,887	83,599	38,491	10.0%	58.6%

NM: Non-modeled non-structural practices achieve 10% reduction

NS: Non-structural 25% irrigation reduction practices achieve an additional approximately 60% reduction

8. MS4 Volume Reduction Goals to Achieve Required Pollutant Reductions

Each jurisdiction in the Group's WMP area is subject to stormwater runoff from non-MS4 facilities. In particular, Caltrans roads and facilities regulated by nontraditional or general industrial permits contribute to the runoff volume for each subwatershed. It will be important for these entities to retain their runoff and/or eliminate their cause/contribution to receiving water exceedances. The runoff from these non-MS4 facilities was therefore estimated and subtracted from the cumulative volume reduction goal (Section 7) to establish the MS4 responsible targets as described in Attachment A.

8.1. Summary of MS4 Responsible Reduction Goals

Runoff volumes estimated for non-MS4 permitted areas and Caltrans were subtracted from the reduction target to generate the required MS4 treatment capacity shown in Table 8-1 through Table 8-4.

Table 8-1. Lower Los Angeles River Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

	COMPLIANCE TARGET – FINAL MILESTONE		
Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Downey	726.0	654.7	71.2
Lakewood	14.3	14.3	-
Long Beach	3,901.7	3,039.6	862.1
Lynwood	1,108.1	667.9	440.2
Paramount	988.8	606.1	382.7
Pico Rivera	377.3	287.2	90.0
Signal Hill	197.9	188.9	9.0
South Gate	1,512.6	1,174.3	338.2
TOTAL	8,826.5	6,633.1	2,193.5

Table 8-2. Los Cerritos Channel Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

	COMPLIANCE TARGET – FINAL MILESTONE		
Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Bellflower	1,137.4	990.4	147.0
Cerritos	12.9	12.9	0.0
Downey	112.8	93.0	19.8
Lakewood	1,157.2	1,152.1	5.1
Long Beach	2,676.1	1,629.8	1,046.2
Paramount	631.9	525.5	106.4
Signal Hill	322.6	284.3	38.3
TOTAL	6,050.9	4,688.0	1,364.8

Table 8-3. San Gabriel River Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

Jurisdiction	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Artesia	1.1	1.1	0.0
Bellflower	62.8	57.4	5.4
Cerritos	59.4	4.1	55.3
Diamond Bar	33.0	1.1	32.0
Downey	263.9	87.3	176.7
Lakewood	9.6	2.2	7.4
Long Beach	29.2	29.2	0.0
Norwalk	136.9	4.8	132.1
Pico Rivera	75.1	60.4	14.7
Santa Fe Springs	106.0	30.3	75.8
Whittier	7.5	7.1	0.4
TOTAL	784.6	284.9	499.7

Table 8-4. Coyote Creek Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

Jurisdiction	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Artesia	47.9	15.9	32.0
Cerritos	194.3	56.7	137.6
Diamond Bar	74.0	36.7	37.4
Hawaiian Gardens	30.4	27.1	3.4
La Mirada	175.7	124.9	50.8
Lakewood	25.7	19.7	6.0
Long Beach	37.5	0.0	37.5
Norwalk	152.5	52.5	99.9
Santa Fe Springs	260.7	12.6	248.1
Whittier	254.7	200.1	54.6
TOTAL	1,253.4	546.1	707.3

9. Pollutant Reduction Plan

The BMPs used to achieve the MS4 volume reduction goals in Section 8 are not, per se, a component of the Permit compliance determination. Instead, over time each agency will report and demonstrate that the *cumulative* effect of projects implemented over time add up to the required reductions for interim milestones and final targets (reported as "MS4 Compliance Target"). However, the initial scenario of BMPs for WMP implementation (referred to as a Pollutant Reduction Plan in the RAA Guidelines) and their costs may be the most beneficial outcome of the WMP. A detailed WMP implementation scenario is presented in Attachment B, broken down by jurisdiction and subwatershed. The volume reductions are separated among right-of-way (ROW) BMPs and Low Impact Development (LID) on public parcels (in combination with nonstructural BMPs).

The Pollutant Reduction Plan is considered an "initial" scenario because over time, through adaptive management, the responsible agencies will likely "shift" among different types of BMPs (e.g., increase implementation of green streets and reduce implementation of regional BMPs) or substitute alterative BMPs altogether (e.g., implement dry wells instead of green streets). These shifts will be supported by analyses to show the substituted BMPs provide an equivalent volume reduction as the replaced BMPs.

9.1. Existing/Planned Regional Control Measures

Existing regional BMPs play an integral part in measuring the current reductions and need for future control measures. The annual volume or load removed from the existing and planned regional control measures were subtracted from the MS4 responsible runoff to determine the remaining treatment volume required. Detailed information for the existing and planned regional control measures is found in Attachment A.

The existing and planned regional control measure information was provided for the Lower Los Angeles River and Lower San Gabriel River. The jurisdictions that were impacted are listed with the associated annual reduction provided by these facilities in Table 9-1 and Table 9-2.

Table 9-1. Lower Los Angeles River Critical Year Existing/Planned Regional BMP Runoff Volume Reductions

Jurisdiction	COMPLIANCE TARGET		
	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Existing/Planned Regional BMP Reductions (acre-ft/year)	Remaining MS4 Responsible Critical Year Storm Volume (acre-ft/year)
Lakewood	14.3	6.4	7.9
Long Beach	3,039.6	633.4	2,406.2
Signal Hill	188.9	22.7	166.2

Table 9-2. Lower San Gabriel River Critical Year Existing/Planned Regional BMP Runoff Volume Reductions

Jurisdiction	COMPLIANCE TARGET		
	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Existing/Planned Regional BMP Reductions (acre-ft/year)	Remaining MS4 Responsible Critical Year Storm Volume (acre-ft/year)
Downey	87.3	24.0	63.3

9.2. Future Control Measures for Attainment of Interim and Final Limits

The Pollutant Reduction Plans for wet and dry weather illustrate the sequencial BMP implementation strategy to attain all interim and final limits. Within each of the jurisdictions, the subwatershed subareas were individually prioritized and associated with milestones on the basis of cost-effectiveness for zinc removal. The optimization modeling results presented in Section 7 and Figure 9-1, Figure 9-2 and Figure 9-3 shown below identify the prioritization of subwatershed implementation based on the most effective combination of BMPs. The implementation schedule outlined in the Pollutant Reduction Plans for wet and dry weather are based upon this prioritization. The plans are presented in the following subsections.

9.2.1. Wet Weather

The interim and final targets are presented in total acre-feet per year that requires treatement through structural BMPs (less the non-MS4 and existing regional volumes as described in Sections 8 and 9.1). To properly capture the annual volume, BMPs are sized to the minimum volume needed to capture the target annual volume. Thus, the BMPs are presented as a volume (acre-feet) that has the ability to capture the required annual total to meet compliance.

An overall jurisdictional summary table is presented in Table 9-3 that outlines the required BMP volume to achieve compliance in the associated WMP group. The BMP volumes are the sum of existing distributed BMPs, potential green street BMPs, LID on public parcels, and remaining BMP volume that must be implemented as regional (or other) projects as necessary to meet the annual volume reduction target.

Table 9-4 through Table 9-7 outlines the jurisdiction-wide BMP volume targets necessary to meet the annual volume interim and final limits established in Section 8. Each distributed BMP was associated with a jurisdictional subwatershed and the associated implementation schedule, thus summing their impact across different interim goals. The remaining BMP volume after accounting for existing distributed BMPs is spread across right-of-way BMPs, LID on public parcels, and remaining BMP volume including potential regional projects. Priority was given to LID on public parcels, followed by right-of-way BMPs and finally other BMPs. The incremental column shows the total additional BMP volume required for each milestone while the cumulative measures the total BMP volume required by each milestone to hit the final compliance targets. Deatiled discussion on how the BMPs in the right-of-way and LID on public parcels were determined is found in Attachment A. Detailed tables are provided in Attachment B for each jurisdiction and associated subwatersheds. Detailed tables describing the existing distributed BMPs are found in Attachment D.

Table 9-3. Jurisdictional Final Target BMP Volumes by WMP Group

	LLAR	LCC	LSGR - SGR	LSGR - CC	
Jurisdiction	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**TOTAL**
Artesia	-	-	0.1	1.1	**1.2**
Bellflower	-	118.2	5.5	-	**123.7**
Cerritos	-	1.6	0.6	6.4	**8.6**
Diamond Bar	-	-	0.2	8.9	**9.1**
Downey	83.4	10.2	17.5	-	**111.2**
Hawaiian Gardens	-	-	-	2.2	**2.2**
La Mirada	-	-	-	15.2	**15.2**
Lakewood	1.2	169.5	0.4	1.9	**173.0**
Long Beach	319.1	208.7	2.7	0.0	**530.5**
Lynwood	95.5	-	-	-	**95.5**
Norwalk	-	-	0.3	4.7	**5.0**
Paramount	76.6	55.1	-	-	**131.7**
Pico Rivera	41.2	-	10.8	-	**52.0**
Santa Fe Springs	-	-	4.9	2.1	**7.0**
Signal Hill	22.3	28.6	-	-	**50.9**
South Gate	173.0	-	-	-	**173.0**
Whittier	-	-	1.4	39.1	**40.5**
TOTAL	**812.3**	**591.9**	**44.4**	**81.6**	**1,530.2**

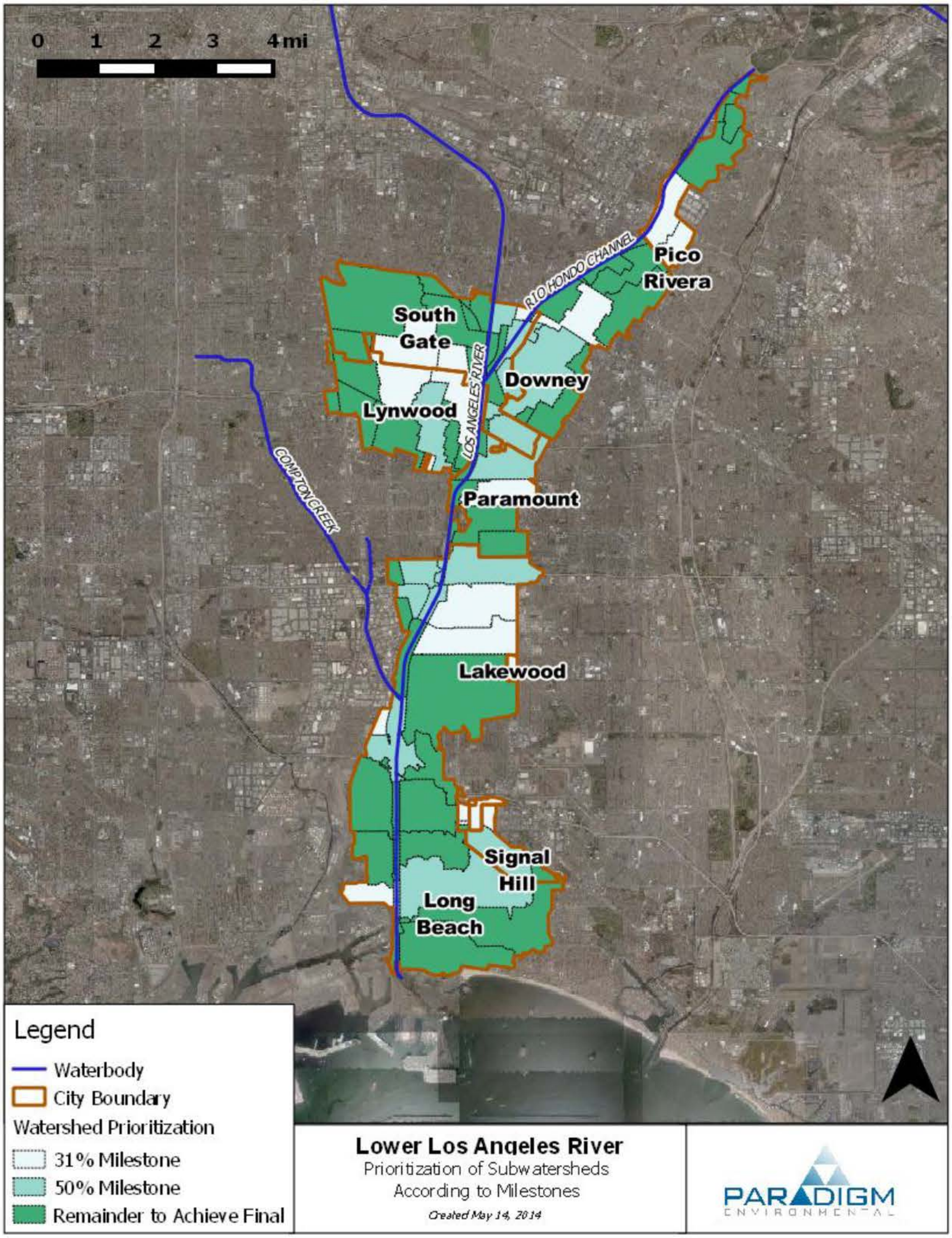

Figure 9-1. LLAR implementation areas associated with Interim and final milestones.

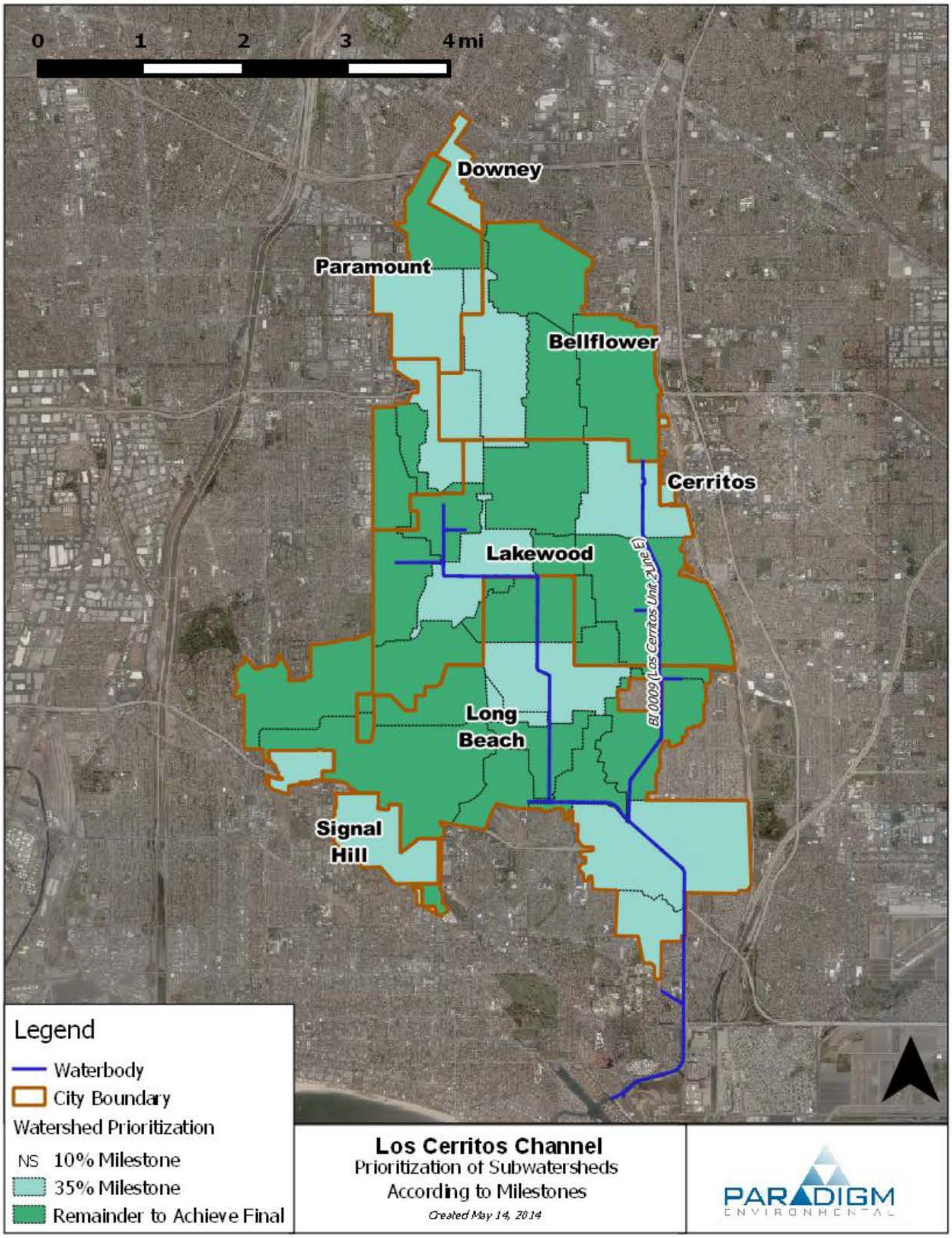

Figure 9-2. LCC implementation areas associated with Interim and final milestones.

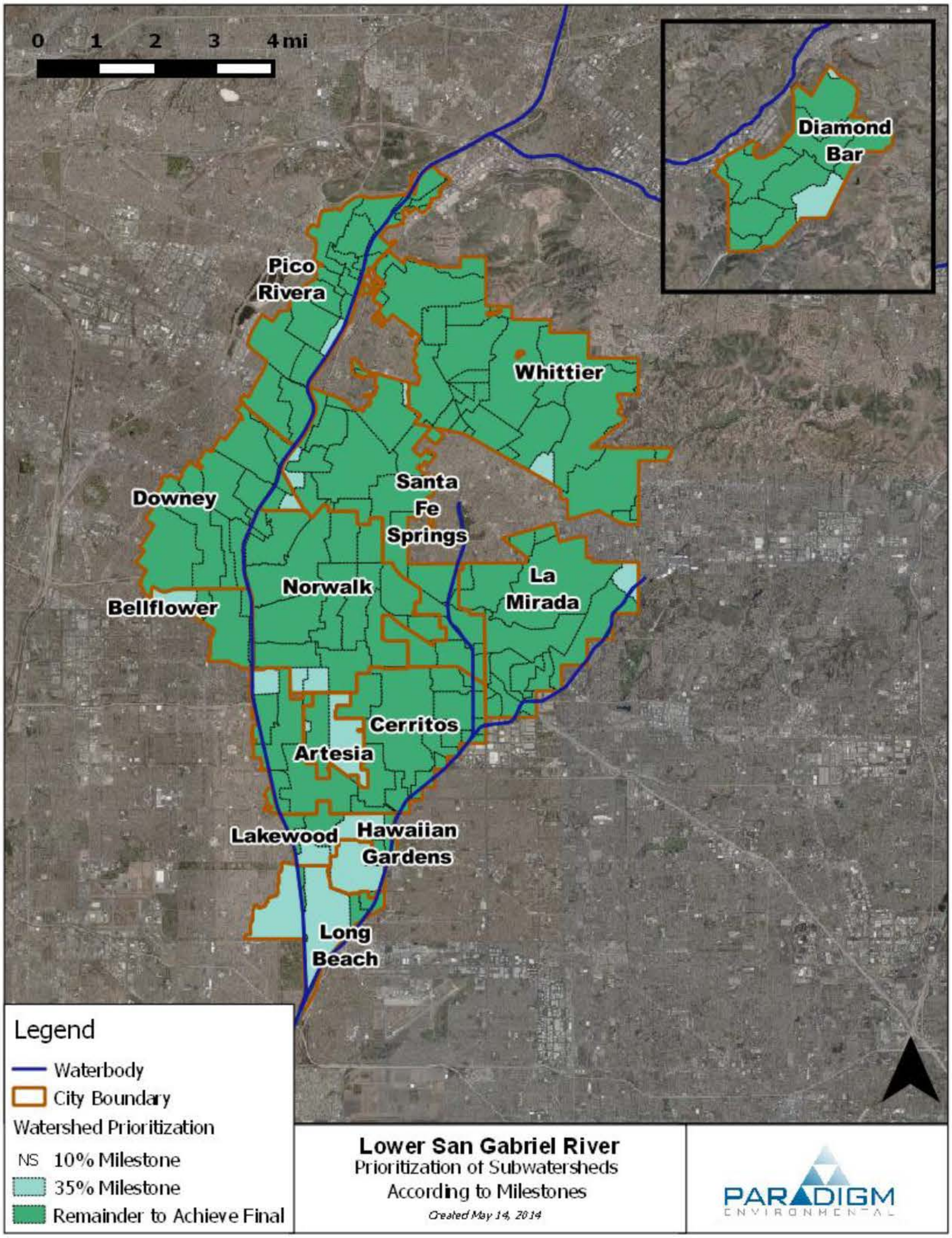

Figure 9-3. LSGR implementation areas associated with Interim and final milestones.

Table 9-4. Lower Los Angeles River Pollutant Reduction Plan for Attainment of Interim and Final Limits

		COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
Jurisdiction	Milestone	Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Downey	31%	143.8	143.8	1.1	12.2	12.2	0.7	0.7	7.1	7.1
	50%	187.1	330.9	0.7	2.5	14.7	10.1	10.8	0.6	7.7
	Final	323.9	654.7	2.0	31.2	45.9	4.4	15.3	10.7	18.4
Lakewood	31%	7.9	7.9	NA	1.1	1.1	0.0	0.0	-	-
	50%	-	7.9		-	1.1	-	0.0	-	-
	Final	-	7.9		-	1.1	-	0.0	-	-
Long Beach	31%	6.5	6.5	NA	1.0	1.0	0.0	0.0	-	-
	50%	567.0	573.5		40.3	41.3	7.5	7.5	24.7	24.7
	Final	1,832.7	2,406.2		113.4	154.6	20.8	28.3	111.5	136.2
Lynwood	31%	235.9	235.9	NA	18.4	18.4	2.7	2.7	13.1	13.1
	50%	134.9	370.8		12.8	31.2	3.8	6.5	0.1	13.2
	Final	297.2	667.9		22.7	53.9	4.5	11.1	17.3	30.5
Paramount	31%	163.7	163.7	0.1	9.0	9.0	1.7	1.7	10.2	10.2
	50%	65.7	229.4		7.4	16.4	0.8	2.5	0.3	10.4
	Final	376.6	606.1		14.9	31.2	2.1	4.7	30.2	40.6
Pico Rivera	31%	275.3	275.2	NA	11.5	11.5	0.5	0.5	27.4	27.4
	50%	-	275.2		-	11.5	-	0.5	-	27.4
	Final	12.0	287.2		1.3	12.8	0.0	0.5	0.5	27.9
Signal Hill	31%	8.5	8.5	0.2	0.8	0.8	0.2	0.2	0.2	0.2
	50%	105.8	114.3		7.0	7.8	0.9	1.1	5.9	6.1
	Final	51.9	166.2		2.2	10.0	0.0	1.1	4.9	11.0
South Gate	31%	229.3	229.3	4.7	23.2	23.2	0.9	0.9	6.5	6.5
	50%	198.1	427.4		15.0	38.3	0.8	1.7	12.6	19.1
	Final	746.9	1,174.3		49.3	87.5	5.1	6.8	54.7	73.8

Table 9-5. Los Cerritos Channel Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Bellflower	10%	NS	NS		-	-	-	-	-	-
	35%	244.4	244.4	NA	15.1	15.1	1.2	1.2	16.2	16.2
	Final	746.0	990.4		43.0	58.1	3.2	4.5	39.4	55.6
Cerritos	10%	NS	NS		-	-	-	-	-	-
	35%	9.7	9.7	NA	1.0	1.0	0.0	0.0	0.5	0.5
	Final	3.2	12.9		-	1.0	-	0.0	0.1	0.6
Downey	10%	NS	NS		-	-	-	-	-	-
	35%	57.2	57.2	0.1	5.3	5.3	0.0	0.0	2.7	2.7
	Final	35.8	93.0		-	5.3	-	0.0	2.1	4.8
Lakewood	10%	NS	NS		-	-	-	-	-	-
	35%	282.4	282.4	NA	31.5	31.5	4.7	4.7	6.9	6.9
	Final	869.7	1,152.1		90.0	121.5	7.0	11.8	29.3	36.2
Long Beach	10%	NS	NS		-	-	-	-	-	-
	35%	473.5	473.5	NA	33.8	33.8	12.3	12.3	16.4	16.4
	Final	1,156.3	1,629.8		87.9	121.7	9.5	21.8	48.9	65.3
Paramount	10%	NS	NS		-	-	-	-	-	-
	35%	267.0	267.0	NA	14.3	14.3	3.0	3.0	17.1	17.1
	Final	258.5	525.5		8.5	22.8	3.5	6.4	8.7	25.8
Signal Hill	10%	NS	NS		-	-	-	-	-	-
	35%	231.6	231.6	0.0	11.2	11.2	1.2	1.2	14.2	14.2
	Final	52.7	284.3		-	11.2	-	1.2	2.0	16.2

NS: Non-structural practices achieve 10% milestone
NA: No information/not enough information provided
*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

Table 9-6. San Gabriel River Pollutant Reduction Plan for Attainment of Interim and Final Limits

		COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
Jurisdiction	Milestone	Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Artesia	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.1	1.1		-	-	0.1	0.1	-	-
	Final	-	1.1		-	-	-	0.1	-	-
Bellflower	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.3	1.3		0.2	0.2	0.0	0.0	-	-
	Final	56.1	57.4		1.5	1.8	3.7	3.7	0.0	0.0
Cerritos	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	4.1	4.1		0.6	0.6	0.0	0.0	-	-
Diamond Bar	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	1.1	1.1		0.2	0.2	-	-	-	-
Downey	10%	NS	NS		-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	63.3	63.3	7.1	10.0	10.0	0.4	0.4	-	-
Lakewood	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	2.2	2.2		0.2	0.2	0.0	0.0	0.1	0.1
Long Beach	10%	NS	NS	NA	-	-	-	-	-	-
	35%	26.9	26.9		1.1	1.1	1.3	1.3	-	-
	Final	2.3	29.2		0.3	1.4	-	1.3	0.0	0.0

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Norwalk	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.8	0.8		-	-	0.1	0.1	-	-
	Final	4.0	4.8		-	-	0.3	0.3	-	-
Pico Rivera	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.2	0.2		0.0	0.0	-	-	-	-
	Final	60.2	60.4		10.7	10.8	-	-	0.0	0.0
Santa Fe Springs	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	30.3	30.3		4.6	4.6	-	-	0.3	0.3
Whittier	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.0	0.0		-	-	-	-	0.0	0.0
	Final	7.1	7.1		1.4	1.4	-	-	-	0.0

NS: Non-structural practices achieve 10% milestone

NA: No information/not enough information provided

*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

Table 9-7. Coyote Creek Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Artesia	10%	NS	NS	NA	-	-	-	-	-	-
	35%	15.9	15.9		-	-	1.1	1.1	-	-
	Final	-	15.9		-	-	-	1.1	-	-
Cerritos	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.1	0.1		0.0	0.0	-	-	-	-
	Final	56.6	56.7		3.0	3.1	3.4	3.4	-	-
Diamond Bar	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.0	1.0		0.3	0.3	-	-	-	-
	Final	35.6	36.7		8.0	8.2	-	-	0.7	0.7
Hawaiian Gardens	10%	NS	NS	NA	-	-	-	-	-	-
	35%	23.6	23.6		0.3	0.3	1.5	1.5	-	-
	Final	3.4	27.1		0.2	0.6	0.1	1.6	0.0	0.0
La Mirada	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	124.9	124.9		9.6	9.6	5.6	5.6	-	-
Lakewood	10%	NS	NS	NA	-	-	-	-	-	-
	35%	17.5	17.5		0.9	0.9	0.7	0.7	-	-
	Final	2.3	19.7		-	0.9	0.3	0.9	-	-
Long Beach	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	0.0	0.0		-	-	0.0	0.0	-	-

Jurisdiction	Milestone	COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Norwalk	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.6	1.6		-	-	0.2	0.2	-	-
	Final	50.9	52.5		1.4	1.4	3.2	3.4	-	-
Santa Fe Springs	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	12.6	12.6		1.0	1.0	-	-	1.1	1.1
Whittier	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	200.1	200.1		39.0	39.0	-	-	0.0	0.0

NS: Non-structural practices achieve 10% milestone

NA: No information/not enough information provided

*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

9.2.2. Dry Weather

Dry weather reductions are attained through a combination of non-structural practices and structural BMPs as they are implemented as part of the wet weather attainment of limits. As wet-weather BMPs are implemented, they serve to remove the dry-weather flows thus meeting the compliance set forth to achieve dry-weather reductions. As a summary of the dry weather analysis, Table 9-8 through Table 9-11 outline the jurisdiction-wide attainment of interim and final milestones for dry weather. The reduction from implemented BMPs compares the actual dry-weather reduction versus the compliance target.

Table 9-8. Lower Los Angeles River Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Downey	31%	30.8%	65.9%
	50%	49.7%	76.9%
	Final	99.4%	99.4%
Lakewood	31%	30.8%	99.4%
	50%	49.7%	99.4%
	Final	99.4%	99.4%
Long Beach	31%	30.8%	62.1%
	50%	49.7%	74.3%
	Final	99.4%	99.4%
Lynwood	31%	30.8%	71.8%
	50%	49.7%	80.2%
	Final	99.4%	99.4%
Paramount	31%	30.8%	51.0%
	50%	49.7%	72.4%
	Final	99.4%	99.4%
Pico Rivera	31%	30.8%	71.8%
	50%	49.7%	71.8%
	Final	99.4%	99.4%
Signal Hill	31%	30.8%	69.3%
	50%	49.7%	94.9%
	Final	99.4%	99.4%
South Gate	31%	30.8%	62.8%
	50%	49.7%	75.9%
	Final	99.4%	99.4%

Table 9-9. Los Cerritos Channel Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Bellflower	10%	9.9%	58.1%
	35%	34.7%	71.4%
	Final	99.1%	99.1%
Cerritos	10%	9.9%	56.4%
	35%	34.7%	99.1%
	Final	99.1%	99.1%
Downey	10%	9.9%	59.8%
	35%	34.7%	99.1%
	Final	99.1%	99.1%
Lakewood	10%	9.9%	55.6%
	35%	34.7%	69.6%
	Final	99.1%	99.1%
Long Beach	10%	9.9%	60.1%
	35%	34.7%	76.9%
	Fin al	99.1%	99.1%
Paramount	10%	9.9%	52.8%
	35%	34.7%	79.8%
	Final	99.1%	99.1%
Signal Hill	10%	9.9%	60.8%
	35%	34.7%	99.1%
	Final	99.1%	99.1%

Table 9-10. San Gabriel River Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Artesia	10%	9.4%	57.6%
	35%	33.0%	94.3%
	Final	94.25%	94.25%
Bellflower	10%	9.4%	49.9%
	35%	33.0%	57.6%
	Final	94.25%	94.25%
Cerritos	10%	9.4%	43.7%
	35%	33.0%	48.1%
	Final	94.25%	94.25%
Diamond Bar	10%	9.4%	58.2%
	35%	33.0%	58.8%
	Final	94.25%	94.25%
Downey	10%	9.4%	57.4%
	35%	33.0%	58.1%
	Final	94.25%	94.25%
Lakewood	10%	9.4%	43.1%
	35%	33.0%	73.7%
	Final	94.25%	94.25%
Long Beach	10%	9.4%	46.6%
	35%	33.0%	91.6%
	Final	94.25%	94.25%
Norwalk	10%	9.4%	54.8%
	35%	33.0%	55.7%
	Final	94.25%	94.25%
Pico Rivera	10%	9.4%	51.8%
	35%	33.0%	51.9%
	Final	94.25%	94.25%
Santa Fe Springs	10%	9.4%	54.4%
	35%	33.0%	57.9%
	Final	94.25%	94.25%
Whittier	10%	9.4%	57.9%
	35%	33.0%	58.0%
	Final	94.25%	94.25%

Table 9-11. Coyote Creek Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Artesia	10%	9.9%	60.9%
	35%	34.6%	85.1%
	Final	98.9%	98.9%
Cerritos	10%	9.9%	56.3%
	35%	34.6%	56.3%
	Final	98.9%	98.9%
Diamond Bar	10%	9.9%	61.3%
	35%	34.6%	65.9%
	Final	98.9%	98.9%
Hawaiian Gardens	10%	9.9%	59.7%
	35%	34.6%	96.9%
	Final	98.9%	98.9%
La Mirada	10%	9.9%	57.4%
	35%	34.6%	58.7%
	Final	98.9%	98.9%
Lakewood	10%	9.9%	60.7%
	35%	34.6%	76.5%
	Final	98.9%	98.9%
Long Beach	10%	9.9%	54.5%
	35%	34.6%	91.9%
	Final	98.9%	98.9%
Norwalk	10%	9.9%	59.2%
	35%	34.6%	60.8%
	Final	98.9%	98.9%
Santa Fe Springs	10%	9.9%	51.7%
	35%	34.6%	52.0%
	Final	98.9%	98.9%
Whittier	10%	9.9%	60.7%
	35%	34.6%	61.4%
	Final	98.9%	98.9%

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Attachment A: DETERMINATION OF BMP TREATMENT CAPACITY

Submitted to:

LLAR WMP Group | LCC WMP Group | LSGR WMP Group

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January 15, 2015

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1. Determination of BMP Treatment Capacity

The process for determining the necessary cumulative BMP capacity depends on the type of numeric goal being addressed. As shown in Figure 1-1, the volume-based (design storm) approach, necessary BMP capacity was determined through a design storm analysis. For the load-based (pollutant reduction), the analysis leveraged the optimization routines in the customized WMMS. An initial step in the RAA was a comparison of the volume reductions required by the load-based and volume-based numeric goals, to support selection of the wet weather critical conditions.

This appendix describes key analyses conducted to determine the potential capacity of different BMPs including non-structural BMPs. In addition, it describes the approach for non-MS4 sources.

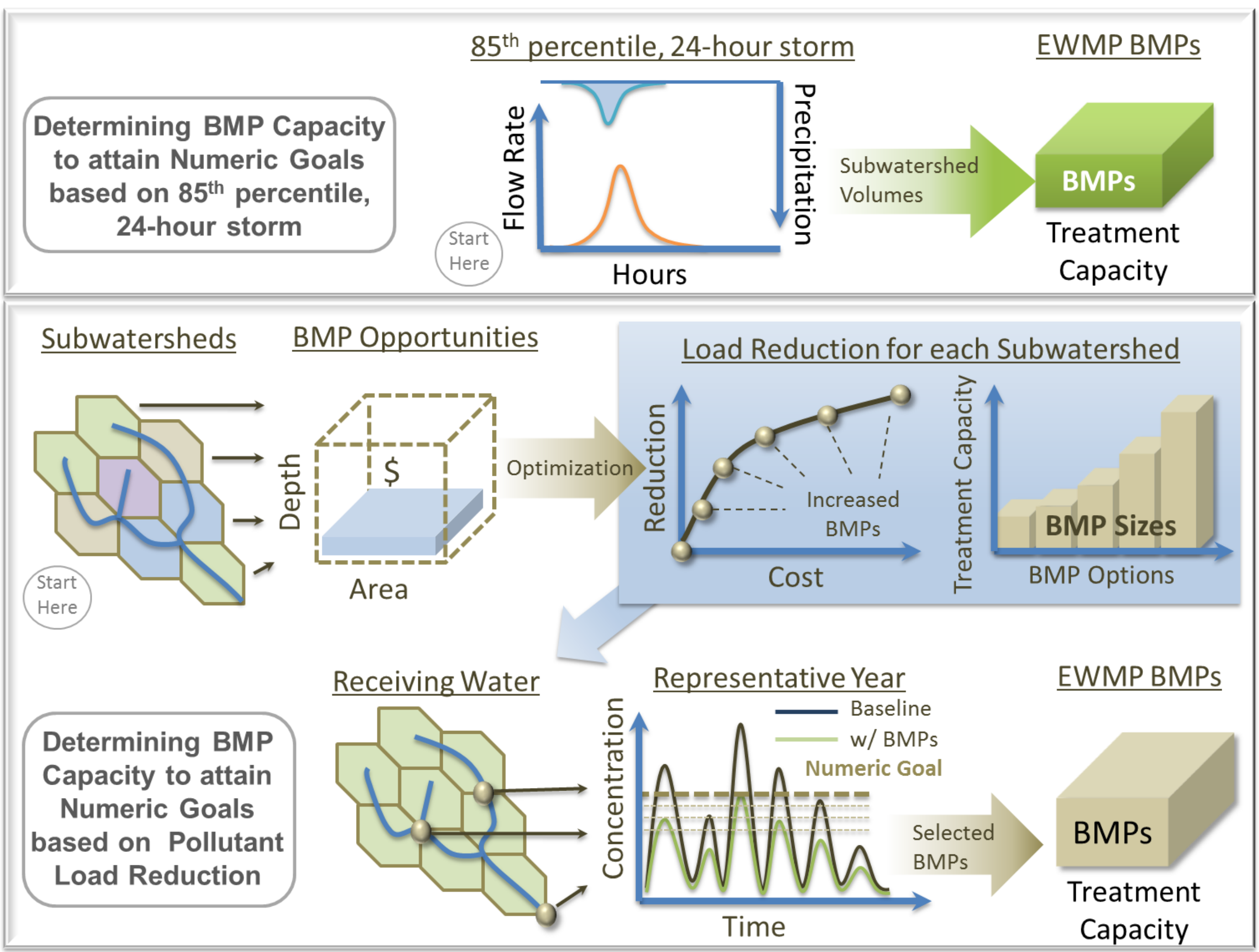

Figure 1-1. Illustration of Process for Determining Required BMP Capacities for the WMP using Volume-Based (top panel) and Load-Based (bottom panel) Numeric Goals.

1.1. Load Reduction Optimization Modeling Analysis

During development of WMMS, distributed BMPs were modeled at the subwatershed-scale using a generalized BMP treatment train. Depending on the land use type, different types of BMPs were applied. The three generalized BMP pathways were: (1) transportation, (2) residential, and (3) commercial/industrial/institutional. A conceptual schematic of the BMP network and pathways is presented in Figure 1-2 (LACDPW 2011).

For the RAA, subwatershed-scale SUSTAIN models were developed using the WMMS modeling assumptions. Each BMP from the treatment train described in Figure 1-2 was configured consistently with modeling performed during development of the WMMS system and followed the Regional Board RAA guidelines. A summary of key BMP parameters used for RAA modeling are presented in Table 1-1. Background infiltration rates were changed from those used during WMMS development (0.5 inches per hour) to site-specific infiltrations rates provided in the Los Angeles County Hydrology Manual and associated spatial datasets (LACDPW 2006). These rates also deviate somewhat from the values suggested in the RAA Guidelines (0.1 – 0.3 inches per hour); however, the data are locally-derived, published and reliable which provides adequate justification for their use.

First, SUSTAIN models were configured using the existing condition watershed model runoff timeseries and land use distributions as inputs, and benchmarked against the aggregated LSPC model results to establish baseline consistency. Second, using the SUSTAIN configuration with the respective BMP opportunities per pathway (as presented in Figure 1-2) in each subwatershed, optimization runs were formulated to maximize zinc reduction (i.e. the limiting target pollutant) while minimizing total estimated implementation cost. This resulted in a matrix of high-resolution cost-effectiveness curves for each subwatershed. Finally, a Tier-II optimization framework was configured to collectively optimize target load reductions at the downstream assessment point, with an added equitability constraint to ensure that each jurisdiction shared proportionally in the reduction effort. For the Tier-II optimization, instead of the decision variables being individual BMPs within a network like before, they were comprised of individual solutions taken off the cost-effectiveness curves at each subwatershed. The primary objective was to quantify the stormwater retention volume and load reductions provided by the collective actions occurring within each contributing jurisdiction tributary to the assessment point.

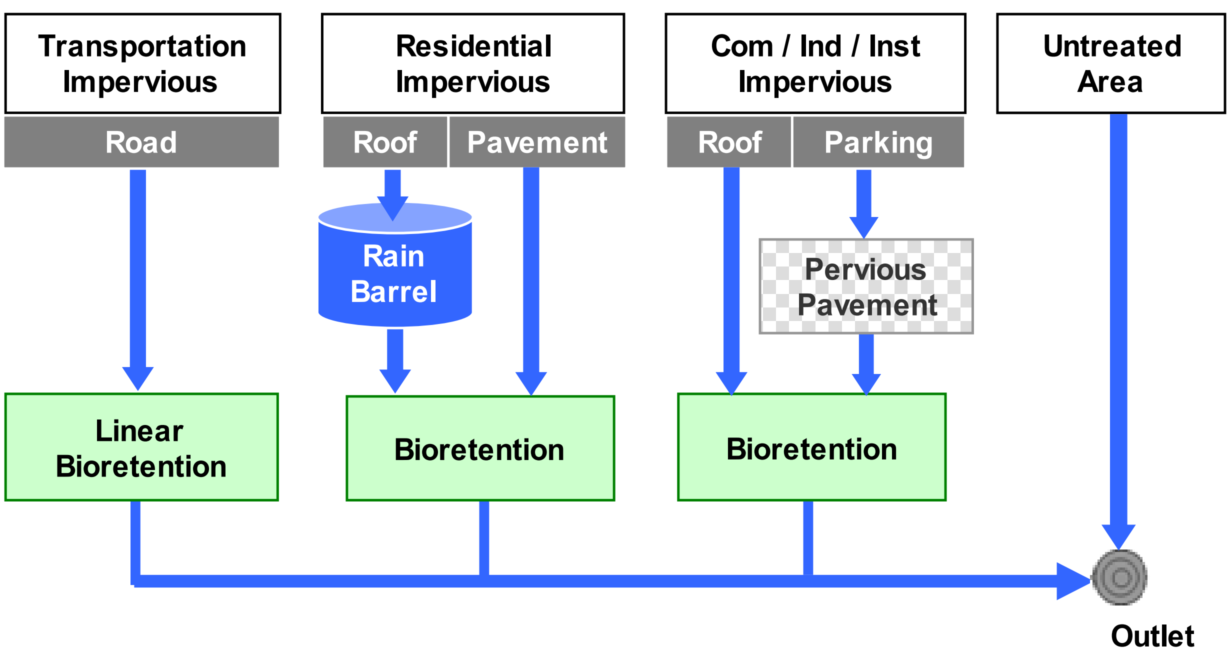

Figure 1-2. Conceptual schematic of the WMMS aggregate BMP treatment train (LACDPW 2011b).

Table 1-1. BMP parameters used in the load reduction modeling analysis

Constituent Group	Rain Barrel	Bioretention	Porous Pavement
Media Infiltration Rate (in/hr)	n/a	0.1 – 0.9	0.1 – 0.9
Substrate Layer Porosity (fraction)	n/a	0.4	0.4
Substrate Layer Field Capacity (fraction)	n/a	0.3	0.055
Substrate Layer Wilting Point (fraction)	n/a	0.1	0.05
Underdrain Gravel Porosity (fraction)	n/a	0.5	0.45
Vegetative Parameter, A (unitless)	n/a	0.6	1.0
Background Infiltration Rate (in/hr)	n/a	0.1 – 0.9	0.1 – 0.9
First Order Decay Rate (1/day)[1]	0.2 – 0.8	0.2 – 0.8	0.2 – 0.8
Underdrain Filtration Rate (%)[1]	n/a	0.5 – 0.9	0.5 – 0.9

1. Rates vary by pollutant and the type of BMP soil media

1.2. BMP Capacity Analysis for the Rights-of-Way

A key consideration for WMP implementation is the potential BMP capacity that could be provided by rights-of-way (ROW). In order to highlight the potential structural BMP implementation approaches to meet the volume targets, a BMP opportunity analysis was conducted. Two broad categories of BMPs – ROW BMPs and LID on public parcels – were used to describe the networks of BMPs needed to meet the target reductions.

This section describes how right-of-ways were evaluated for opportunities to locate BMPs and evaluate the key components that affect the ability of the ROW BMP networks to be effective: space available in the ROW, types of BMPs to site in the ROW, drainage areas that could potentially be treated by ROW BMPs, and estimated BMP infiltration rates.

Stormwater BMPs in the ROW are treatment systems arranged linearly within the street ROW and are designed to reduce runoff volumes and improve runoff water quality from the roadway and adjacent parcels. Implementing BMPs in the ROW provides an opportunity to meet water quality goals by locating BMPs in areas owned or controlled by a municipality to avoid the cost of land acquisition or establishing an easement. Implementing BMPs in the ROW allows for direct control of construction, maintenance, and monitoring activities by the responsible jurisdiction. Bioretention and permeable pavement are typically best suited for implementation in the ROW

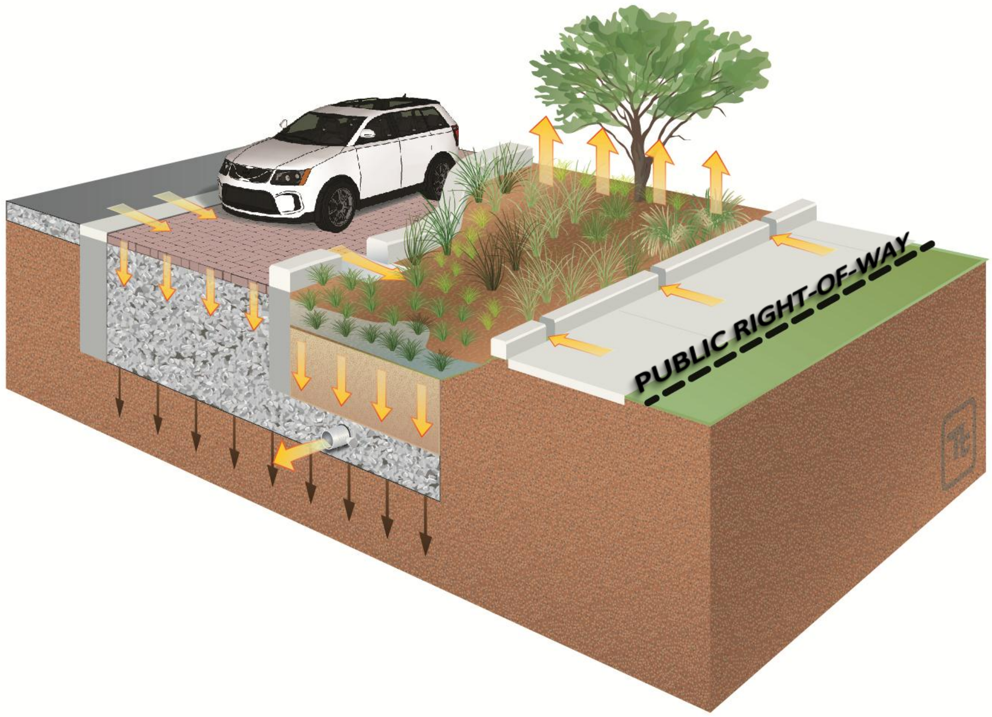

Figure 1-3. Conceptual schematic of ROW BMPs with an underdrain (Arrows indicate water pathways).

Not all roads are suited for ROW BMP retrofits; therefore, screening is required to eliminate roads where ROW BMP retrofits are impractical or infeasible due to physical constraints. While ROW BMP retrofits can be implemented in a variety of settings, the physical characteristics of the road itself such as the road type, local topography, and depth to groundwater can significantly influence the practicality of designing and constructing these features. A screening protocol was established to identify realistic opportunities for retrofits based on the best available GIS data. The opportunities identified during this process provide the foundation for the engineering analysis to determine the volume of stormwater that can be treated by ROW BMP retrofits in the subject watersheds. This section describes the data and the screening process used to identify the best available roads for ROW BMP retrofits.

1.2.1. Data Used

To evaluate BMP opportunities and available implementation areas, several key data sets were processed and formatted. Table 1-2 outlines the data set names, formats, descriptions, and sources.

Table 1-2. Summary of Data

Data Set	Format	Description	Source
Parcels	GIS Shapefile	Outlines property boundaries and sizes	Los Angeles County (LAC) Assessor
Roads	GIS Shapefile	Shows street centerline network & classification by Topologically Integrated Geographic Encoding and Reference (TIGER)	LAC GIS Portal
Land Use	GIS Shapefile	Subdivides the region into predefined land use categories with similar runoff properties. Each individual land use feature identifies the associated percent impervious coverage.	LAC WMMS Model
Subwatersheds	GIS Shapefile	Defines drainage areas to selected outlet points	LAC WMMS Model
Slopes	GIS Shapefile	Classifies regions by the slope category	LAC WMMS Model
Soils	GIS Shapefile	Outlines spatial extents of dominant soil types	LAC GIS Portal
Jurisdictions	GIS Shapefile	Establishes city and county boundaries	LAC GIS Portal
Drainage Network	GIS Shapefile	Identifies stormwater structure layout and conveyance methods	LAC GIS Portal
Groundwater Contours	GIS Shapefile	Illustrates groundwater depth as measured from the surface	LAC BOS
Soil Runoff Coefficient Curves	PDF File	Curves characterize effect of rainfall intensity on runoff coefficient per soil type	Hydrology Manual Appendix C (LADPW 2006)
Aerial Imagery	Layer File	Orthoimage of entire region	ESRI Maps & Data Imagery
Runoff Rates	Time Series	Hourly runoff for land uses for the continuous simulation model	LAC WMMS Model

1.2.2. ROW BMP Screening

High traffic volumes, speed limits, slopes, and groundwater tables, impact the feasibility of ROW BMP implementation. Road classification data contains information typically useful for determining if the street is subject to high traffic volumes and speeds, and Census TIGER road data provides the best available road classification information for the study area. Table 1-3 shows the Master Address File (MAF)/TIGER Feature Classification Codes (MTFCC) deemed appropriate for ROW BMP retrofit opportunities. Only roads with the MTFCCs listed in Table 1-3 can be considered for ROW BMP retrofits in this screening analysis. All other roads are screened out.

Table 1-3. ROW BMP MTFCC

MTFCC	Description
S1400	Local neighborhood road, rural road, city street
S1730	Alley
S1780	Parking lot road

In addition to the screening of road types, opportunities were further screened to remove segments that have steep slopes. BMP implementation on streets with grades greater than 10 percent present engineering challenges that substantially reduce the cost effectiveness of the retrofit opportunity. From the available slope information, roads were considered as retrofit opportunities if the slope was less than 10 percent.

The final screen applied to the roads is the depth to groundwater. Implementing ROW BMPs in areas where the groundwater table is high is not recommended due to the fact that the BMPs are rendered ineffective due to their storage capacity being seriously diminished with groundwater inflow. From the groundwater contours provided, roads were eliminated as opportunities if the depth to groundwater was less than 10 feet. Attachment C highlights the areas identified with groundwater depths of 10 feet or less. The highlighted areas provide a starting point for elimination, however it should be noted that further evaluation may be necessary based on local knowledge of areas with high groundwater tables or daylighting of perched groundwater layers as identified by the jurisdictions.

The results of the ROW BMP screening are presented in Attachment C. Attachment C shows the roads available for retrofit (highlighted in green) versus all of the roads within the study area. An overall watershed map and individual jurisdictional maps for each watershed show all the identified retrofit opportunities. The maps indicate that a majority of the roads within each jurisdiction pass through the screening as potential retrofits. It should be noted that due to the coarse nature of the road classification data, only freeways, highways, and major roads were eliminated in the classification screening process. In practice, retrofitting every street that passed through the screening will likely not be feasible and adaptive management strategies will be necessary in the future to further refine the road classification data layer to more accurately identify road types suitable for ROW BMP retrofits.

The screened opportunities were used as the basis to evaluate the potential runoff volume reduction provided by ROW BMP implementations. In the following section, an engineering assessment is presented that determines the ROW BMP contributing drainage areas and the overall volume reductions achieved through ROW BMP implementation.

1.2.3. ROW BMP Configuration

The three most important assumptions necessary to evaluate BMP volume reduction performance are (1) the physical BMP configuration assumptions, (2) the contributing drainage area characteristics, and (3) the in-situ soil infiltration rates. By understanding the area draining to the BMPs and the volume capacity and function of the BMPs, an assessment can be performed to evaluate the potential of ROW retrofit BMPs to capture the required runoff volume in each subwatershed. This section summarizes the information and processes used to establish BMP configuration assumptions to be used for the runoff analysis presented in the following section.

1.2.4. BMP Assumptions Based on Green Streets

ROW BMPs consists of multiple types and combinations of stormwater treatment options. A well-established and often utilized ROW BMP is green streets. Green streets provide multiple benefits for pollutant and volume reduction and have been implemented in locations throughout the nation. In the future and as updates are made to the WMP, other ROW BMPs may be incorporated to achieve the required volume reductions.

Green streets typically consist of bioretention areas between the curb and sidewalk (herein referred to as the parkway) and/or permeable pavement within the parking lane. Prior to evaluating green street BMP treatment capacity, it is imperative to establish a configuration that can be assumed for typical implementation watershed-wide. This establishes the parkway space needed for the BMPs (plan view) and also determines the hydraulic function and storage capacity of the subsurface systems.

Bioretention systems are surface and subsurface water filtration systems, which use vegetation and underlying soils to store, filter, and reduce runoff volume while removing pollutants. Figure 1-4 represents a typical bioretention system incorporated into a green street design. Bioretention systems consist of a ponding depth and engineered soil media depth to treat runoff. Table 1-4 outlines typical widths, depths, and soil parameters associated with green street bioretention cells. Green streets were assumed to have no underdrains because the

WMP emphasizes low impact development and stormwater volume reduction to achieve pollutant load reductions.

Driveways and utilities limit the road length that can be converted into a green street. From past experience and aerial imagery review in the local watersheds, it was determined that 30 percent of the road length could be considered as the maximum possibility for conversion into bioretention area. This factor was used to limit the total length of potential green street bioretention areas. The parameters outlined above and in the table below were assumed to be the typical green street BMP implementation configuration for the screening analysis and the BMP treatment capacity evaluation described in the next section.

Table 1-4. BMP Design and Modeling Parameters for Subsequent Analyses

Component	Design Parameter	Value
Ponding Area	Depth	0.8 feet
	Width	4.0 feet
Media Layer	Depth	3.0 feet
	Porosity	0.4
Overall Profile	Effective Depth[1]	2.0 feet

[1] Effective depth is the maximum equivalent depth of water stored within the bioretention area less the depth displaced by soil media (vertical summation of surface ponding depth and void storage depth)

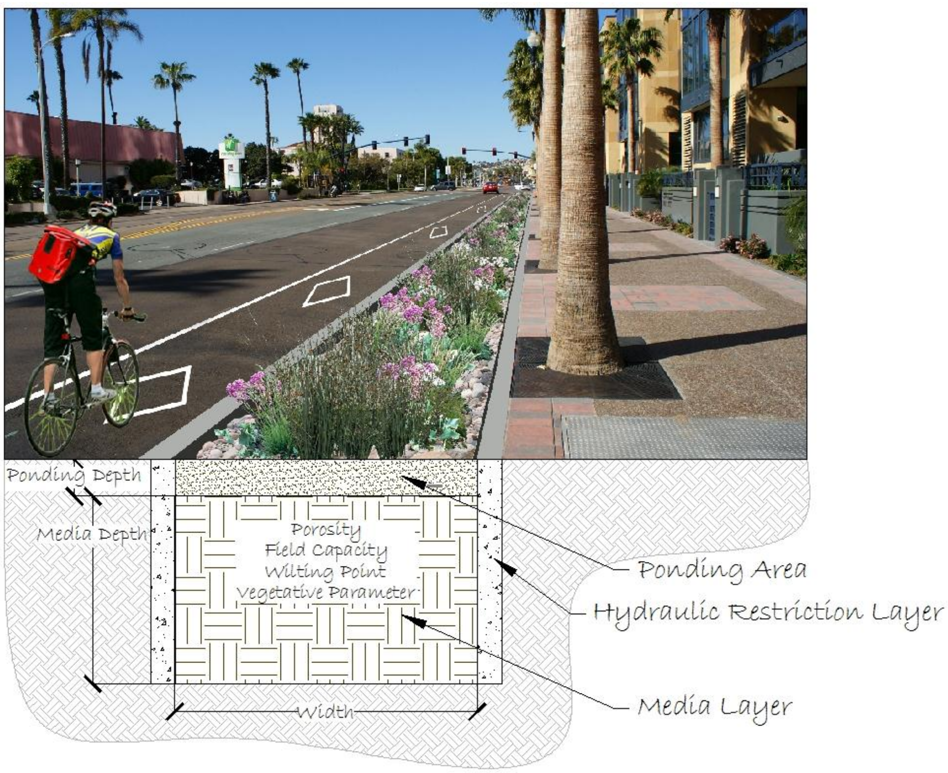

Figure 1-4. Typical bioretention section view (City of San Diego 2011).

Contributing Drainage Area Analysis

The purpose of this analysis was to realistically represent the area, type, and impervious coverage of land draining to potential green streets throughout the entire watershed. This is a critical step in WMP development because it predicts what volume of runoff can be assumed treated by green streets and what remaining (untreated) runoff must be routed to regional BMPs or addressed in other ways. The following engineering analyses were performed at a subwatershed-scale within the limits of available data and resources to estimate the maximum potential green street treatment capacity; given more detailed street-by-street drainage area data, the assumptions and results presented herein could be refined in future efforts to optimize green street treatment capacity. Figure 1-5 illustrates a simplified routing schematic used to represent the available runoff flow pathways to green street and regional BMPs throughout the watershed. The following subsections explain how each representative drainage area illustrated in Figure 1-5 was characterized.

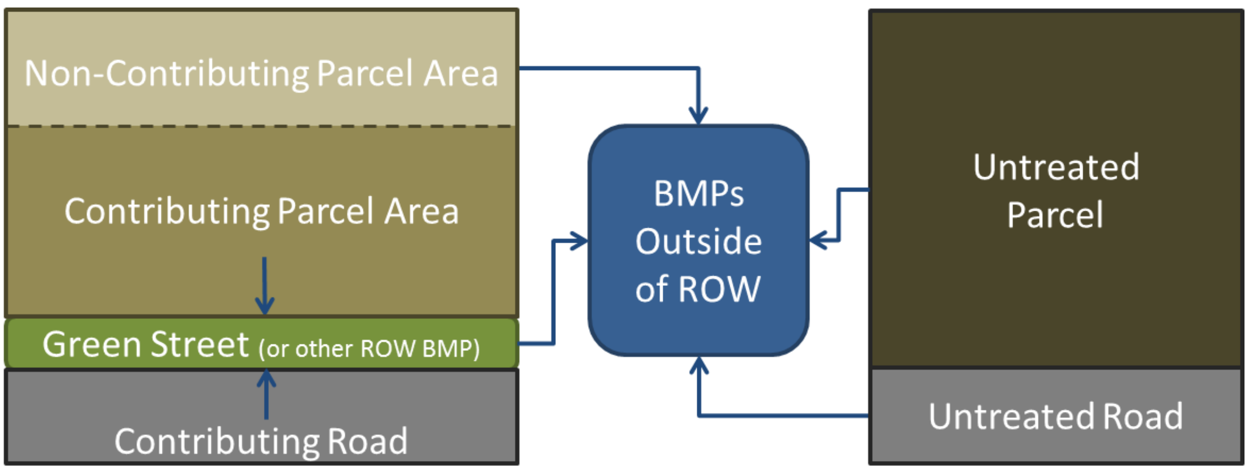

Figure 1-5. Green streets model schematic (arrows denote direction of runoff routing; figure not to scale).

Typical Parcel Size & Street Frontage Analysis

The nature of the green street analysis requires an understanding of typical parcel sizes and how much of the parcel drains to the ROW. Much of the runoff from parcels and the road drains to the ROW and is conveyed downstream through curb, gutter, and pipes. By identifying the typical parcel size, frontage length, and associated road area that drains to a candidate right-of-way area (Figure 1-6) the total area draining to potential green street retrofit opportunities was extrapolated throughout the watershed. For purposes of this study, only the high-density residential, multifamily residential, commercial, institutional, and industrial land uses were considered as contributing substantial runoff to the ROW (all other land uses contain minimal impervious area and thus contribute insubstantial runoff to the ROW).

The typical parcel size for each land use was determined by identifying all parcels for each land use. Once all the parcels were selected, the median parcel size for each land use was calculated and tabulated. This method evaluated thousands of parcels throughout the entire watershed and provided the most accurate depiction of the typical parcel size for each land use based on available data. Results are shown in Table 1-5.

Each parcel is adjacent to a portion of the ROW where the green street would be implemented. A subset of parcels approximate to the median parcel size for each land use was selected to determine the average frontage length. The portion of the selected parcels that was in contact with the ROW was measured using desktop analysis tools and averaged between all parcels of the same land use. Results are shown in Table 1-5.

Road area draining to green streets constitutes a substantial component of the total impervious drainage area. To establish road drainage areas, typical road widths were defined by sampling representative road segments located in each land use. Widths were measured from curb-to-curb using aerial orthoimagery and reported to the nearest even integer. The median sampled road width for each land use was calculated and compared with the City of Los Angeles Standard Street Dimensions (City of Los Angeles Bureau of Engineering 1999) for validation. To predict the resulting contributing road areas, the previously measured frontage length was multiplied by half the road width. Roads were assumed to be crowned; therefore, only half of the width would drain to one side of the road. Results are shown in Table 1-5.

As discussed in Section 1.2.4, only 30 percent of the frontage length could be converted into bioretention area. This factor was multiplied by the frontage length and used in limiting the total length of bioretention available within the model, as presented in Table 1-5.

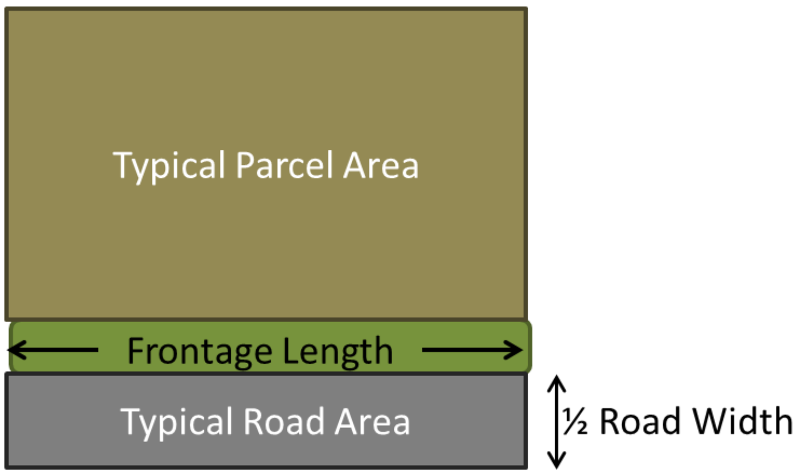

Figure 1-6. Typical parcel area, road width, road area, and frontage length schematic (figure not to scale)

Table 1-5. Typical parcel area, road area, and frontage length

Land Use	Typical Parcel Area (ft^2)	Frontage Length (ft)	Typical Road Width (ft)	Typical Road Area (ft^2)	BMP Length (ft)
High-density Residential	6,528	57	38	1,083	17
Multifamily Residential	13,526	60	30	900	18
Commercial	12,429	100	63	3,150	30
Institutional	38,215	143	37	2,646	43
Industrial	26,467	117	46	2,691	35
Other Land Use (Open Space, Vacant, etc.)	n/a[1]	100	40	2,000	30

[1] assumed not draining to ROW

Contributing Parcel Area Analysis

Many parcels will not always entirely drain to the ROW because portions can be retained on-site or flow onto an adjacent property. The actual volume of water that can be treated by a green street BMP was determined by identifying the typical proportion of the parcel that drains to the ROW (as shown in context of the model

schematic in Figure 1-7). This step also determines the area, and associated runoff, that is *not* expected to drain to green streets and is routed directly to downstream regional facilities or other practices (herein referred to as non-contributing parcel area).

The contributing areas to the green street BMPs were found using random sampling and identifying the surrounding parcel drainage patterns. Parcels were selected using a random number generator and drainage areas were determined on a desktop analysis using topography, aerial imagery, and drainage infrastructure features. The average contributing percentage was identified by evaluating multiple sites. Table 1-6 shows the percent contributing areas by land use that were determined from this analysis.

The impervious coverage of contributing parcel areas was also characterized during this step so that runoff could be simulated and routed to green streets in each land use. This was performed by tabulating the imperviousness data from the WMMS Model for each individual land use feature. The area-weighted mean impervious coverage was then calculated for each land use type. Results are tabulated for each land use in Table 1-6.

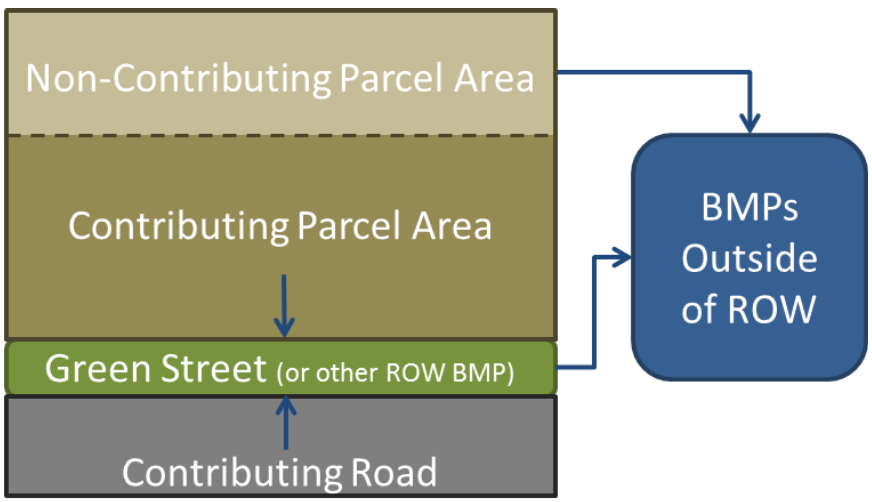

Figure 1-7. Parcel contributing area to ROW (impervious varies by land use; arrows denote direction of runoff routing; figure not to scale).

Table 1-6. Contributing area percentage by land use

Land Use	Contributing to ROW	Non-contributing to ROW	Percent Impervious
High-density Residential	80%	20%	36%
Multifamily Residential	80%	20%	60%
Commercial	80%	20%	90%
Institutional	80%	20%	72%
Industrial	35%	65%	66%
Other Land Use (Open Space, Vacant, etc.)	0%	100%	n/a

Untreated Roads Tabulation

Untreated roads consist of roadways with steep slopes, classifications not suited for green street implementation, or adjacent to open space or vacant parcels. Untreated road and associated adjacent parcel area that will ultimately drain to other BMPs was tabulated using available GIS data and screening results from Section 1.2.2 (conceptually illustrated in Figure 1-8).

Because green streets are implemented in the linear environment of the transportation corridor, it was assumed that the percentage of parcel area draining to green streets would be proportional to the percentage of suitable roads for green streets (as identified in Section 1.2.2) in each subwatershed. In other words, parcels associated with unsuitable roads were assumed to bypass green street treatment and routed directly to other facilities (these areas are defined herein as *untreated parcels*). The total treated and untreated parcel areas were reconciled with the total areas of each land use (per subwatershed) in the WMMS Model for validation and consistency.

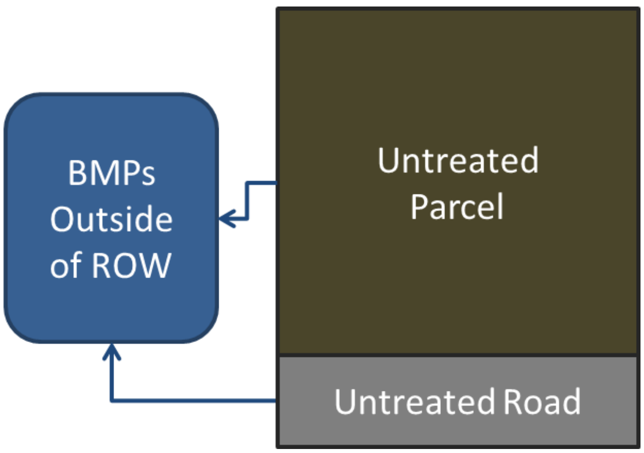

Figure 1-8. Schematic depicting untreated parcel and untreated road runoff routing (arrows denote direction of runoff routing; figure not to scale).

Summary of Contributing Drainage Areas

Results of the preceding analyses are presented in Figure 1-9. Areas that were assumed *un*treated by green streets include unsuitable roads and adjacent parcels, portions of suitable parcels that do not drain to the ROW, and predominantly pervious parcels (Open Space, Vacant, etc.), as discussed in preceding subsections; runoff from these untreated areas is assumed routed directly to regional facilities. Note that contributing areas are not necessarily proportional to contributing runoff due to variation in impervious coverage; runoff routing resulting from the preceding analyses is presented in the following section.

Given more detailed street-by-street engineering analyses, the potential area treated by green streets could be optimized, but the results below represent realistic estimates based on sound engineering judgment and currently available data and resources. Adaptive management strategies could target specific land uses that tend to bypass green street treatment (e.g. runoff, and associated treatment capacity, generated by industrial areas could be addressed through relevant industrial permits or onsite BMPs). Additional discussion on adaptive management strategies is provided in Section 8 of the main report.

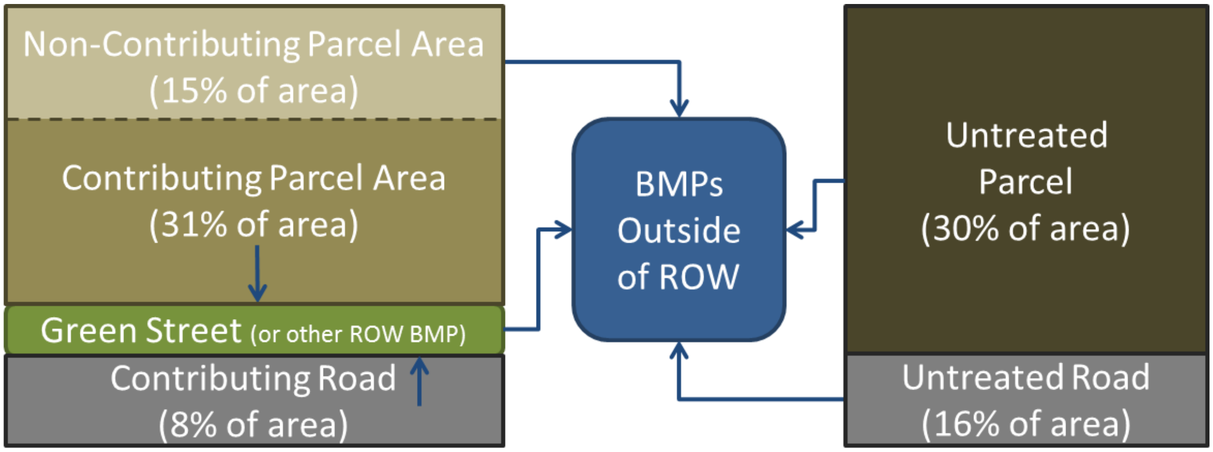

Figure 1-9. Schematic characterizing approximate distribution of routing to BMPs in the ROW for all WMP areas (arrows denote direction of runoff routing; figure not to scale).

BMP Infiltration Rates by Subwatershed

The purpose of performing the subwatershed infiltration rate analysis was to assign an average green street BMP infiltration rate to each subwatershed using soils data. Infiltration rates were assigned at the subwatershed level, which is the finest resolution at which the model performs hydrologic and water quality computations.

Soil data coverage provided through the LACDPW categorized soil unit areas into soil types. Runoff coefficient curves reported in the Hydrology Manual were developed by LACDPW for each soil type using double ring infiltrometer tests performed on areas of homogeneous runoff characteristics (LACDPW 2006). LADPW employed a sprinkling-type infiltrometer to perform the tests in each homogeneous area.

Runoff coefficient curves represent the response of the runoff coefficient (defined as the ratio of runoff to rainfall from a land area) to varying rainfall intensities. Each curve displays an inflection point representing the rainfall intensity at which substantial runoff initiates. According to LADPW (2006), each curve was assigned a minimum runoff coefficient of 0.1, “indicating that there is some runoff even at the smallest rainfall intensities.” If it is assumed that substantial runoff initiates when the intensity of rainfall is greater than the soil’s inherent infiltration rate, then the infiltration rate can be assumed equal to the rainfall intensity at the inflection point (less the assumed minimum runoff).

As demonstrated conceptually in Figure 1-10, the inflection point, and subsequently calculated infiltration rate, for each unique soil type in the WMP areas were identified using the runoff coefficient curves in Appendix C of the *Hydrology Manual* (LADPW 2006). Subwatershed areas were then intersected with the soil type coverage to calculate an area-weighted infiltration rate. Attachment C shows the distribution of the infiltration rates.

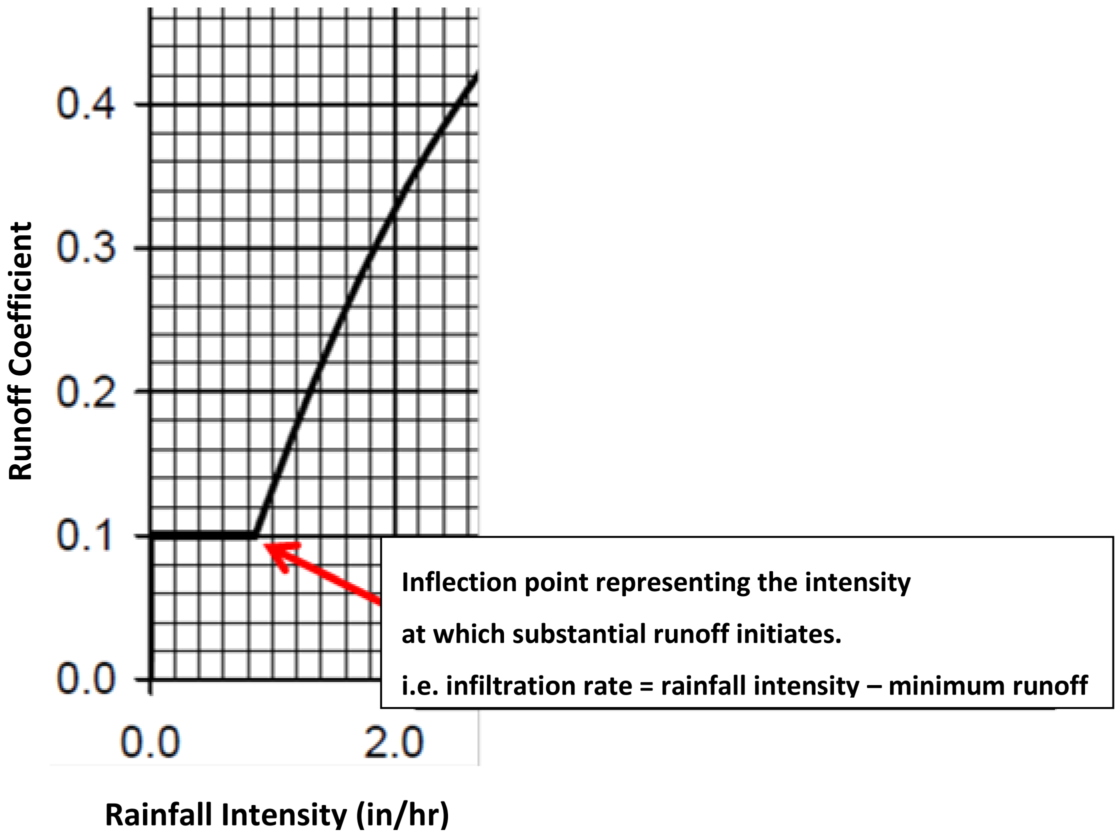

Figure 1-10. Example determination of runoff coefficient inflection point for an arbitrary soil type in Appendix C of LACDPW (2006).

1.3. LID on Public Parcels Assessment

Retrofitting public parcels with LID can be an efficient strategy for reducing stormwater runoff. This method allows municipalities the flexibility to prioritize and schedule stormwater projects to coincide with improvements that are already on the books (such as scheduled parking lot resurfacing, utility work, and public park improvements). Implementing LID on public parcels also allows municipalities the freedom to construct, inspect, and maintain BMPs without the need to purchase private property or to create stormwater easements.

The spatial extent of public parcels in each subwatershed was identified by selecting all parcels labeled as public by their assessors identification number (AIN). A total of 7,052 acres of public land was identified during this process (7% of the total WMP area). Each public parcel was assumed to implement BMPs that would treat the 85th percentile, 24-hour storm. The BMP volume was assumed to equal the 85th percentile, 24-hour storm depth times the impervious area.

LID retrofits are not feasible in all locations due to steep slopes, soil contamination hazards, and other constrains. The total runoff to be retained on public parcels was therefore discounted by 30% in order to provide a more realistic goal; this estimate was made in the lack of more detailed data, based on past LID screening exercises performed in Los Angeles County. The discount factor should be refined as actual public project sites are screened and prioritized.

1.4. Existing, Planned, and Potential BMPs

Existing and planned BMPs throughout the WMP areas were identified by the jurisdictions. These BMPs will provide capacity to reduce the annual storm runoff volume and demonstrate progress towards achieving the target runoff volume reduction.

1.4.1. Modeled Existing/Planned Subwatershed-Scale Regional BMPs

Regional BMPs that treat large portions of, or entire, subwatersheds (i.e. those with drainage areas larger than 50 acres) were modeled to quantify the impact to the upstream jurisdictions. The modeling approach and predicted performance for these specific sites is detailed in the following subsections. It is important to note that modeling was performed at a planning level coincident with the resolution of the subwatershed-scale WMMS model. Limited data were available to represent the sites, so conservative engineering assumptions were applied where appropriate. The calculated equivalent volume reductions from the BMPs can be refined during the adaptive management process once detailed design and monitoring data become available for the sites.

DeForest Wetlands Project

The DeForest Wetlands Project is located along the east bank of the Los Angeles River in the City of Long Beach and is comprised of approximately 34 acres of restored terrestrial and freshwater habitat and recreational amenities. The Project provides both groundwater recharge and surface water quality improvement. Site and modeling details are listed in Table 1-7.

Table 1-7. DeForest Wetlands Project details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	In Development		
Compliance Targets for Contributing Subwatersheds[1]	**248.7**	**ac-ft/yr**	Subwatershed 486066
	247.6	**ac-ft/yr**	Subwatershed 486068
Given Details			
Drainage Area	1490	ac	Delineated in GIS using WMMS subwatershed boundaries
Average Annual Infiltration Volume	15-35	ac-ft/yr	Per Section 3 of the WMP
Average Annual Treated Volume	800-1000	ac-ft/yr	Per Section 3 of the WMP; assumed volume is fully treated by wetland pollutant removal mechanisms prior to discharge; assumed treated volume is in addition to infiltration volume
Annual Runoff Volume Entering Wetland[1]	1589	ac-ft/yr	WMMS output
Annual Zinc Load Entering Wetland[1]	1808	lb Zn/yr	WMMS output
Wetland Zinc Effluent Concentration	20	µg/L	Upper limit of 95% confidence interval for wetland channels, per RAA Guidelines (LARWQCB 2014)
Modeling Results			
Estimated Annual Zinc Load Reduced by Infiltration[1]	17.1	lb Zn/yr	Assumed loading associated with minimum average infiltrated runoff; assumed load sequestered in sediments and/or sorbed to underlying soils
Estimated Annual Zinc Load Reduced by Wetland Functions[1]	535	lb Zn/yr	Reduction associated with treated volume; calculated by subtracting average effluent load associated with minimum treated volume from annual influent loading
Estimated Zinc Load Reduction	30.5%		

Relative to Annual Runoff[1]			
Estimated Zinc Load Reduction Relative to Compliance Target[1]	97.7%		
Estimated Equivalent Annual Volume Reduction[1]	**243.1**	**ac-ft/yr**	Subwatershed 486066
	242.0	**ac-ft/yr**	Subwatershed 486068

[1] Indicated annual volumes are referenced to the critical year

Dominguez Gap Wetlands Project

The Dominguez Gap Wetlands Project consists of two treatment wetlands situated on the east and west banks of the Los Angeles River that features habitat and recreational amenities. The East Basin is a 37-ac facility that is dewatered manually by a pump. The West Basin primarily functions as an infiltration basin and is approximately 15 acres. Table 1-8 and Table 1-10 characterize the site and modeling details of the East and West Basins, respectively.

Table 1-8. Dominguez Gap East Wetlands Project – East Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	Complete		
Compliance Targets for Contributing Subwatersheds[1]	**346.9**	**ac-ft/yr**	Subwatershed 486014
	14.3	**ac-ft/yr**	Subwatershed 446014
Given Details			
Drainage Area	2075	ac	Delineated in GIS using WMMS subwatershed boundaries
Maximum Volume Treated per Storm Event	71	ac-ft	Per Section 3 of the WMP; assumed volume is fully treated by wetland pollutant removal mechanisms prior to discharge
Maximum Annual Volume Treated[1]	526	ac-ft/yr	Based on storm events recorded for critical year; assumed all storm event runoff volume treated up to 71 ac-ft
Annual Runoff Volume Entering Wetland[1]	913	ac-ft/yr	WMMS output
Annual Zinc Load Entering Wetland[1]	934	lb Zn/yr	WMMS output
Wetland Zinc Effluent Concentration	20	µg/L	Upper limit of 95% confidence interval for wetland channels, per RAA Guidelines (LARWQCB 2014)
Modeling Results			
Annual Zinc Load Reduced by Infiltration[1]	unknown	lb Zn/yr	Site soil information or monitored data required
Annual Zinc Load Reduced by Wetland Functions[1]	202	lb Zn/yr	Reduction associated with treated volume; calculated by subtracting average effluent load associated with minimum treated volume from annual influent loading
Zinc Load Reduction Relative to Annual Runoff[1]	22%		
Zinc Load Reduction Relative to Compliance Target[1]	55%		
Equivalent Annual Volume Reduction[1]	**191.7**	**ac-ft/yr**	Subwatershed 486014
	6.4	**ac-ft/yr**	Subwatershed 446014

[1] Indicated annual volumes are referenced to the critical year

Table 1-9. Dominguez Gap Wetlands Project – West Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	Complete		
Compliance Targets for Contributing Subwatersheds[1]	**152.0**	**ac-ft/yr**	Subwatershed 486013 (41% contributes to West Basin)
	7.4	**ac-ft/yr**	Subwatershed 486015
Given Details			
Drainage Area	299	ac	Delineated in GIS using WMMS subwatershed boundaries
Annual Runoff Volume Infiltrated	All	ac-ft/yr	Per Section 3 of the WMP, no connection to Los Angeles River
Modeling Results			
Subwatershed 486013 Annual Runoff Volume Infiltrated[1]	47%		41% of subwatershed area contributes 47% of runoff volume to the basin
Subwatershed 446015Annual Runoff Volume Infiltrated	100%		100% of subwatershed area contributing
Equivalent Annual Volume Reduction[1]	**152.0**	**ac-ft/yr**	Subwatershed 486013 (compliance target is 43% annual reduction, so meets target)
	7.4	**ac-ft/yr**	Subwatershed 446015

[1] Indicated annual volumes are referenced to the critical year

Willow Springs Park

The Willow Springs Park project will convert a public parcel to a 47-acre park. The park will contain bioswales and a water feature integrated into a recreational spaces. Table 1-10 Characterizes the site and modeling details.

Table 1-10. Willow Springs Park details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	In Development		
Compliance Targets for Contributing Subwatersheds[1]	**26.5**	**ac-ft/yr**	Subwatershed 776012
	7.2	**ac-ft/yr**	Subwatershed 486012
Given Details			
Drainage Area	211	ac	Delineated in GIS using WMMS subwatershed boundaries
Total BMP Footprint	11	Ac	Per Section 3 of the WMP; natural channels/bioswales with very high infiltration rates
Underlying soil infiltration rates	0.9	In/hr	WMMS
Subwatershed area contributing	95%		
Modeling Results			
Maximum infiltration rate over footprint of BMP	0.83	ac-ft/hr	Assumed constant infiltration over entire footprint, applied to each time step of model runoff output draining to park – meets compliance target via infiltration
Equivalent Annual Volume Reduction[1]	**26.5**	**ac-ft/yr**	Subwatershed 776012
	7.2	**ac-ft/yr**	Subwatershed 446012

[1] Indicated annual volumes are referenced to the critical year

Discovery Park Infiltration Basin

An existing infiltration basin located at 12400 Columbia Way in the City of Downey treats runoff from approximately 51 acres (5% of the subwatershed in which the site is located). Field observations indicate that the facility has capacity to infiltration runoff at a rate of 2 in/hr (equivalent to approximately 4 ac-ft/day) in addition to detention storage. Table 1-11 reports the simplified modeling assumptions for this BMP – upon further evaluation of as-built conditions, the associated volume reduction can be refined during the adaptive management process.

Table 1-11. Discovery Park Infiltration Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower San Gabriel River		
Location	City of Downey		
Status	Complete		
Compliance Targets for Treated Subwatersheds[1]	**80.6**	**ac-ft/yr**	Subwatershed 245115
Given Details			
Drainage Area	51	ac	
Observed Infiltration Rate	4	ac-ft/day	Per Gerald Green, personal communication, 2014, February 2
Percentage of Subwatershed Contributing to BMP	5%		
Approximate Runoff Volume Draining to BMP[1]	44	ac-ft/yr	WMMS
Modeling Results			
Equivalent Annual Volume Reduction[1]	**24**	**ac-ft/yr**	Assumed constant infiltration over entire footprint, applied to each time step of model runoff output draining to park

[1] Indicated annual volumes are referenced to the critical year

Parque Dos Rios

Parque Dos Rios is located at the confluence of the Los Angeles River and Rio Hondo River. An approximately 30-ac area between the freeway and the Los Angeles River will be converted to an infiltration basin to treat additional upstream area. Currently, the site is self-retaining open space and is characterized in the baseline model as such. No further runoff volume reductions were calculated for this site; as design details are finalized for the infiltration basin improvements, associated volume reductions can be applied towards upstream jurisdictional compliance targets.

1.4.2. Identified Parcel-Scale Regional and Distributed BMPs

The jurisdictions within the WMP areas compiled detailed lists of BMPs intended to treat areas smaller than 50 acres. As with the preceding regional BMPs, these strategies represent progress towards achieving the compliance target in each respective jurisdiction. The distributed BMPs are listed in Attachment D and can be applied towards meeting the compliance targets in each jurisdiction.

The WMP groups have identified additional potential regional BMPs and these are listed in Section 3 for LCC and Section 4 for LLAR and LSGR of the respective WMP.

1.5. Non-MS4 Facility Runoff

Each jurisdiction is the Group's WMP area is subject to stormwater runoff from non-MS4 facilities. In particular, Caltrans roads and facilities regulated by nontraditional or general industrial permits contribute to the runoff volume for each subwatershed. It will be important for these entities to retain their runoff and/or eliminate their cause/contribution to receiving water exceedances. The runoff from these non-MS4 facilities was therefore estimated and subtracted from the treatment target as described below.

1.5.1. Non-MS4 Permitted Areas

Non-MS4 permitted areas were identified based on the address list of permittees on the State Water Resources Control Board (SWRCB) website. Using the address information, corresponding parcel areas were selected using the LA County Assessor Parcel Viewer and the associated GIS Shapefile. The percentage of permitted land use area relative to the total land use area was calculated and the associated non-MS4 permitted area runoff as extracted from the WMMS runoff response output.

1.5.2. Caltrans

The design storm runoff generated by Caltrans facilities was estimated using WMMS land use data. Areas labeled as Transportation consist of freeways and other extensive transportation facilities that tend to fall under Caltrans jurisdiction (versus areas labeled as Secondary Roads, which are managed by local transportation departments); these areas were assumed to be Caltrans facilities. Runoff from Transportation land uses, less runoff from any overlapping non-MS4 permitted areas identified above, was extracted from the WMMS model output for each subwatershed.

1.6. Institutional BMPs and Minimum Control Measures

It is challenging to accurately quantify most institutional BMP and minimum control measure (MCM) benefits in terms of pollutant load reductions because they generally require extensive survey and monitoring information to quantify. In addition, nonstructural BMPs may target pollutants, land uses, or populations, resulting in different load reductions depending on the implementation technique. A number of MCMs are outlined in each WMP, representing an array of practices to most effectively address pollutants at their source or affect their transport. For the purposes of the RAA, a 10% reduction was assumed to represent the cumulative impact of these practices during both wet and dry conditions. Another explicitly modeled nonstructural BMP was a goal to reduce 25% of irrigation of urban vegetation, a goal that can result from a myriad of practices ranging from public education, enforcement, incentive programs, creative water rate structures, etc. The 25% reduction in irrigation was modeled directly in LSPC and is the primary driver for dry weather flow reductions. Pollutant load reductions from these nonstructural BMPs were subtracted from loads simulated in the baseline model to quantify progress towards meeting the watershed numeric goals. Results of both the 10% reduction for collective MCMs, in addition to irrigation reduction, are presented in Section 7 of the main RAA report for both wet and dry conditions.

Attachment B: Detailed Jurisdictional Compliance Tables

Submitted to:

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January 15, 2015

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B1. Lower Los Angeles River WMP – MS4 vs Non-MS4

B1.1. City of Downey

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6076	17.1	17.0	0.1
6077	123.0	123.0	-
6079	210.3	176.4	33.9
6082	0.3	0.3	-
6100	11.4	10.7	0.7
6102	143.8	143.8	-
6103	0.0	-	0.0
6104	37.1	37.1	-
6106	100.2	76.4	23.9
6111	82.1	69.5	12.6
6113	0.6	0.6	0.0
Grand Total	726.0	654.7	71.2

B1.2. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6014	14.3	14.3	-
Grand Total	14.3	14.3	-

B1.3. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6001	17.7	0.0	17.7
6002	387.5	378.7	8.8
6003	430.0	429.9	0.1
6004	3.4	2.4	1.0
6005	29.9	6.6	23.3
6006	55.9	35.9	20.0
6007	110.5	67.0	43.5
6008	172.5	144.0	28.5
6009	160.5	159.5	1.1
6010	128.3	100.8	27.5
6011	202.2	184.8	17.4
6012	7.2	0.0	7.2
6013	152.0	12.3	139.6
6014	346.9	346.9	-
6015	7.4	4.3	3.1
6016	3.0	0.0	3.0
6017	1.9	1.1	0.9
6018	49.3	45.8	3.5
6065	89.8	36.7	53.2
6066	248.7	202.6	46.1
6067	83.9	25.3	58.6
6068	247.6	222.5	25.1
6069	102.2	42.6	59.6
6070	83.4	22.2	61.2
6071	276.3	94.4	181.9
6072	0.3	0.3	-
7016	503.6	473.3	30.3
Grand Total	3,901.7	3,039.6	862.1

B1.4. City of Lynwood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6023	40.3	26.3	13.9
6024	16.1	10.6	5.4
6028	11.2	11.2	-
6030	168.8	45.2	123.6
6031	145.5	133.0	12.5
6032	115.7	60.5	55.2
6033	130.0	113.3	16.6
6074	185.2	134.9	50.4
6078	59.8	0.0	59.8
6080	146.6	91.7	54.9
6081	76.8	41.3	35.5
6082	12.2	0.0	12.2
Grand Total	1,108.1	667.9	440.2

B1.5. City of Paramount

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6069	0.0	0.0	-
6071	157.1	120.7	36.4
6072	183.8	172.9	10.9
6073	124.1	61.4	62.6
6075	181.8	163.7	18.1
6076	227.8	65.7	162.1
6078	112.3	21.7	90.6
6080	1.9	0.0	1.9
Grand Total	988.8	606.1	382.7

B1.6. City of Pico Rivera

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6106	86.5	44.3	42.2
6111	0.0	0.0	0.0
6112	5.9	1.4	4.5
6113	272.8	229.5	43.3
6114	0.0	0.0	-
6115	0.0	0.0	-
6116	0.0	0.0	-
6117	0.0	0.0	-
6126	12.0	12.0	-
6129	0.0	0.0	-
Grand Total	377.3	287.2	90.0

B1.7. City of Signal Hill

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6002	106.6	105.8	0.8
6003	43.7	43.7	-
6007	6.4	0.0	6.4
6009	8.3	8.2	0.1
6011	6.3	6.0	0.3
6012	26.6	25.2	1.4
Grand Total	197.9	188.9	9.0

B1.8. City of South Gate

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6031	148.6	148.6	-
6033	70.0	61.9	8.1
6034	422.9	416.7	6.3
6076	125.9	92.5	33.4
6078	0.0	0.0	-
6079	68.9	54.4	14.6
6080	48.7	48.7	-
6082	137.6	82.8	54.7
6083	36.2	11.5	24.7
6084	159.7	137.8	21.9
6085	67.8	0.0	67.8
6089	35.7	18.3	17.4
6090	43.8	3.4	40.4
6096	0.6	0.6	-
6098	0.1	0.1	-
6100	80.6	51.2	29.4
6101	25.0	25.0	-
6102	6.3	6.3	-
6104	7.4	7.4	-
6350	18.6	0.0	18.6
6351	8.2	7.1	1.0
Grand Total	1,512.6	1,174.3	338.2

B2. Lower Los Angeles River WMP – Compliance Tables

B2.1. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6076	Final	17.0	-	-	1.2	-	1.2
6077	Final	123.0	0.3	11.8	1.2	6.4	19.6
6079	50%	176.4	0.7	1.7	10.1	-	12.5
6082	Final	0.3	-	-	0.0	0.0	0.0
6100	50%	10.7	0.0	0.8	0.0	0.6	1.4
6102	31%	143.8	1.1	12.2	0.7	7.1	21.1
6103	Final	-	0.7	-	-	-	0.7
6104	Final	37.1	0.3	3.2	0.0	0.9	4.5
6106	Final	76.4	0.4	9.1	1.6	-	11.1
6111	Final	69.5	0.3	7.1	0.5	3.3	11.2
6113	Final	0.6	-	0.0	-	0.1	0.1
Grand Total		654.7	3.8	45.9	15.3	18.4	83.4

B2.2. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6014	31%	7.9	-	1.1	0.0	-	1.2
Grand Total		7.9	-	1.1	0.0	-	1.2

B2.3. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6001	Final	-	-	-	-	-	-
6002	50%	378.7	-	23.8	5.2	19.3	48.3
6003	Final	429.9	-	22.4	1.4	32.8	56.5
6004	50%	2.4	-	0.1	-	0.3	0.3
6005	31%	6.6	-	1.0	0.0	-	1.0
6006	Final	35.9	-	0.3	0.1	4.1	4.5
6007	Final	67.0	-	6.4	0.1	4.0	10.6
6008	Final	144.0	-	13.9	2.0	3.5	19.4
6009	Final	159.5	-	11.5	0.7	9.2	21.4
6010	Final	100.8	-	8.2	0.9	4.8	13.9
6011	Final	184.8	-	14.4	0.9	9.6	24.9
6012	31%	-	-	-	-	-	-
6013	50%	-	-	-	-	-	-
6014	Final	155.2	-	15.0	7.9	-	22.9
6015	31%	-	-	-	-	-	-
6016	Final	-	-	-	-	-	-
6017	50%	1.1	-	-	-	0.1	0.1
6018	Final	45.8	-	4.3	-	2.6	6.9
6065	Final	36.7	-	0.4	0.0	4.6	5.0
6066	31%	-	-	-	-	-	-
6067	50%	25.3	-	2.6	0.3	0.5	3.3
6068	31%	-	-	-	-	-	-
6069	50%	42.6	-	0.6	0.0	3.5	4.1
6070	50%	22.2	-	2.7	0.4	-	3.1
6071	50%	94.4	-	10.5	1.6	1.0	13.1
6072	50%	0.3	-	0.0	-	0.0	0.0
7016	Final	473.3	-	16.5	6.9	36.3	59.7
Grand Total		2,406.2	-	154.6	28.3	136.2	319.1

B2.4. City of Lynwood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6023	Final	26.3	-	1.0	0.7	1.6	3.3
6024	Final	10.6	-	0.4	-	1.1	1.4
6028	31%	11.2	-	0.8	-	0.9	1.7
6030	Final	45.2	-	4.0	2.4	-	6.4
6031	31%	133.0	-	9.9	2.0	7.5	19.4
6032	Final	60.5	-	6.0	0.4	3.4	9.8
6033	Final	113.3	-	7.4	0.2	10.7	18.2
6074	50%	134.9	-	12.8	3.8	0.1	16.8
6078	Final	-	-	-	-	-	-
6080	31%	91.7	-	7.7	0.7	4.7	13.2
6081	Final	41.3	-	4.0	0.8	0.5	5.3
6082	Final	-	-	-	-	-	-
Grand Total		667.9	-	53.9	11.1	30.5	95.5

B2.5. City of Paramount

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6069	31%	0.0	-	-	-	-	-
6071	Final	120.7	0.0	4.9	0.9	9.9	15.6
6072	Final	172.9	0.0	7.6	1.1	13.9	22.6
6073	Final	61.4	-	1.9	0.2	4.6	6.6
6075	31%	163.7	-	9.0	1.7	10.2	20.9
6076	50%	65.7	-	7.4	0.8	0.3	8.6
6078	Final	21.7	-	0.5	0.0	1.8	2.3
6080	Final	-	-	-	-	-	-
Grand Total		606.1	0.1	31.2	4.7	40.6	76.6

B2.6. City of Pico Rivera

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6106	31%	44.3	-	5.9	0.5	0.2	6.5
6111	Final	-	-	-	-	-	-
6112	31%	1.4	-	0.0	-	0.1	0.2
6113	31%	229.5	-	5.6	0.0	27.0	32.7
6114	Final	-	-	-	-	-	-
6115	Final	0.0	-	-	-	0.0	0.0
6116	Final	-	-	-	-	-	-
6117	Final	-	-	-	-	-	-
6126	Final	12.0	-	1.3	0.0	0.5	1.8
6129	Final	-	-	-	-	-	-
Grand Total		287.2	-	12.8	0.5	27.9	41.2

B2.7. City of Signal Hill

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6002	50%	105.8	-	7.0	0.9	5.9	13.9
6003	Final	43.7	-	1.9	0.0	4.2	6.0
6007	Final	-	-	-	-	-	-
6009	Final	8.2	0.1	0.3	-	0.7	1.1
6011	31%	6.0	0.1	0.8	-	0.2	1.1
6012	31%	2.5	-	0.0	0.2	-	0.2
Grand Total		166.2	0.2	10.0	1.1	11.0	22.3

B2.8. City of South Gate

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6031	31%	148.6	-	16.9	0.8	5.3	22.9
6033	Final	61.9	-	4.5	0.3	4.8	9.5
6034	Final	416.7	-	30.0	3.8	25.3	59.0
6076	50%	92.5	-	7.5	0.7	5.1	13.2
6078	Final	-	-	-	-	-	-
6079	50%	54.4	-	4.9	0.1	3.4	8.4
6080	31%	48.7	-	5.8	-	2.5	8.3
6082	Final	82.8	0.0	4.3	0.1	9.4	13.8
6083	Final	11.5	-	0.7	-	0.9	1.6
6084	Final	137.8	4.7	8.3	0.8	5.9	19.8
6085	50%	-	-	-	-	-	-
6089	Final	18.3	-	0.8	0.2	1.8	2.7
6090	Final	3.4	-	0.6	-	-	0.6
6096	31%	0.6	-	0.0	0.0	0.0	0.1
6098	31%	0.1	-	-	0.0	-	0.0
6100	50%	51.2	-	2.6	0.0	4.2	6.8
6101	31%	25.0	-	0.5	0.1	2.6	3.3
6102	31%	6.3	-	-	-	0.8	0.8
6104	Final	7.4	-	0.0	0.0	0.9	1.0
6350	Final	-	-	-	-	-	-
6351	Final	7.1	-	0.0	0.0	1.1	1.1
Grand Total		1,174.3	4.7	87.5	6.8	73.8	173.0

B3. Los Cerritos Channel WMP – MS4 vs Non-MS4

B3.1. City of Bellflower

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5507	305.0	268.1	36.9
5517	154.4	137.7	16.7
5518	235.2	233.5	1.7
5519	289.1	235.8	53.2
5523	138.8	100.4	38.5
5524	14.8	14.8	-
Grand Total	1,137.4	990.4	147.0

B3.2. City of Cerritos

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5506	0.0	0.0	-
5507	12.9	12.9	0.0
Grand Total	12.9	12.9	0.0

B3.3. City of Downey

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5524	112.8	93.0	19.8
Grand Total	112.8	93.0	19.8

B3.4. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5506	226.6	226.5	0.0
5507	176.3	176.3	-
5510	20.7	19.9	0.8
5512	143.1	138.8	4.3
5514	35.3	35.3	-
5515	26.6	26.6	-
5516	31.9	31.9	-
5517	134.4	134.4	-
5519	9.5	9.5	-
5520	164.5	164.5	-
5521	95.2	95.2	-
5522	71.9	71.9	-
5523	21.4	21.4	-
Grand Total	1,157.2	1,152.1	5.1

B3.5. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5501	0.3	0.3	0.0
5502	0.5	0.2	0.2
5503	78.2	77.8	0.4
5504	349.2	300.9	48.2
5505	133.3	130.5	2.8
5506	8.6	8.6	0.0
5508	74.6	65.6	9.0
5509	129.3	25.6	103.7
5510	807.6	152.2	655.3
5511	50.5	48.5	2.0
5512	454.0	329.5	124.5
5513	32.5	30.5	2.0
5514	153.5	152.8	0.7
5515	91.0	91.0	-
5520	7.4	7.4	-
5521	108.7	49.2	59.5
5522	50.8	48.6	2.2
5523	146.4	110.7	35.7
Grand Total	2,676.1	1,629.8	1,046.2

B3.6. City of Paramount

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5519	36.5	35.4	1.2
5523	343.3	332.6	10.7
5524	252.1	157.5	94.6
Grand Total	631.9	525.5	106.4

B3.7. City of Signal Hill

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5510	322.6	284.3	38.3
Grand Total	322.6	284.3	38.3

B4. Los Cerritos Channel WMP - Compliance Tables

B4.1. City of Bellflower

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5507	Final	268.1	-	16.7	1.2	13.2	31.1
5517	Final	137.7	-	9.3	0.8	9.3	19.4
5518	Final	233.5	-	16.8	1.2	10.2	28.2
5519	35%	176.3	-	11.4	0.9	12.1	24.4
	Final	59.5	-	-	-	3.6	3.6
5523	35%	68.0	-	3.7	0.4	4.1	8.2
	Final	32.3	-	-	-	2.0	2.0
5524	Final	14.8	-	0.2	-	1.2	1.4
Grand Total		990.4	-	58.1	4.5	55.6	118.2

B4.2. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5506	Final	0.0	-	-	-	0.0	0.0
5507	35%	9.7	-	1.0	0.0	0.5	1.4
	Final	3.2	-	-	-	0.1	0.1
Grand Total		12.9	-	1.0	0.0	0.6	1.6

B4.3. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5524	35%	57.2	0.1	5.3	0.0	2.7	8.1
	Final	35.8	-	-	-	2.1	2.1
Grand Total		93.0	0.1	5.3	0.0	4.8	10.2

B4.4. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5506	Final	226.5	-	31.4	2.1	5.1	38.5
5507	35%	131.0	-	15.4	2.6	1.5	19.5
	Final	45.2	-	-	-	3.6	3.6
5510	Final	19.9	-	0.4	-	1.5	1.9
5512	Final	138.8	-	7.7	0.2	7.0	14.9
5514	Final	35.3	-	3.7	1.3	0.4	5.4
5515	Final	26.6	-	3.9	0.2	0.5	4.6
5516	Final	31.9	-	4.0	0.4	0.8	5.3
5517	Final	134.4	-	18.6	1.4	2.8	22.9
5519	35%	3.1	-	0.2	-	0.2	0.4
	Final	6.4	-	-	-	0.1	0.1
5520	35%	130.9	-	14.0	2.1	4.4	20.6
	Final	33.5	-	-	-	3.3	3.3
5521	Final	95.2	-	11.6	0.6	2.2	14.3
5522	Final	71.9	-	8.7	0.8	1.6	11.1
5523	35%	17.4	-	1.9	-	0.7	2.6
	Final	4.0	-	-	-	0.3	0.3
Grand Total		1,152.1	-	121.5	11.8	36.2	169.5

B4.5. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5501	35%	0.1	-	0.0	0.0	0.0	0.0
	Final	0.1	-	-	-	0.0	0.0
5502	35%	0.1	-	0.0	0.0	0.0	0.0
	Final	0.2	-	-	-	0.0	0.0
5503	35%	57.7	-	4.2	2.3	2.0	8.5
	Final	20.1	-	-	-	1.7	1.7
5504	35%	196.6	-	10.2	3.3	8.7	22.2
	Final	104.4	-	-	-	5.5	5.5
5505	Final	130.5	-	15.9	1.6	3.2	20.7
5506	Final	8.6	-	0.1	0.2	0.4	0.7
5508	Final	65.6	-	7.7	0.9	1.7	10.3
5509	Final	25.6	-	-	2.2	-	2.2
5510	Final	152.2	-	9.8	0.9	6.1	16.8
5511	Final	48.5	-	6.7	0.2	1.3	8.1
5512	Final	329.5	-	22.2	1.7	16.8	40.7
5513	35%	23.9	-	1.5	0.1	2.1	3.7
	Final	6.6	-	-	-	0.4	0.4
5514	35%	106.0	-	10.9	5.9	-	16.7
	Final	46.8	-	3.7	-	2.8	6.5
5515	Final	91.0	-	10.8	1.7	2.3	14.9
5520	Final	7.4	-	0.8	-	0.3	1.2
5521	Final	49.2	-	6.0	0.1	1.8	7.9
5522	Final	48.6	-	4.2	0.0	3.1	7.3
5523	35%	89.3	-	7.0	0.8	3.5	11.3
	Final	21.4	-	-	-	1.6	1.6
Grand Total		1,629.8	-	121.7	21.8	65.3	208.7

B4.6. City of Paramount

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5519	35%	24.0	-	1.9	0.2	1.4	3.5
	Final	11.4	-	-	-	0.6	0.6
5523	35%	243.0	-	12.4	2.8	15.7	30.9
	Final	89.6	-	-	-	4.1	4.1
5524	Final	157.5	-	8.5	3.5	4.0	16.0
Grand Total		525.5	-	22.8	6.4	25.9	55.1

B4.7. City of Signal Hill

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5510	35%	231.6	0.0	11.2	1.2	14.2	26.6
	Final	52.7	-	-	-	2.0	2.0
Grand Total		284.3	0.0	11.2	1.2	16.2	28.6

B5. Lower San Gabriel River (San Gabriel River) WMP – MS4 vs Non-MS4

B5.1. City of Artesia

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5109	1.1	1.1	-
Grand Total	1.1	1.1	-

B5.2. City of Bellflower

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5110	0.0	0.0	-
5112	0.7	0.6	0.2
5113	56.8	51.5	5.3
5114	0.0	0.0	-
5115	1.3	1.3	-
5116	0.1	0.1	-
5118	3.9	3.9	-
Grand Total	62.8	57.4	5.4

B5.3. City of Cerritos

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5107	0.0	0.0	-
5108	0.0	0.0	-
5109	40.7	0.0	40.7
5110	2.9	2.9	-
5111	6.8	0.0	6.8
5112	2.3	1.2	1.2
5113	0.0	0.0	-
5516	6.6	0.0	6.6
Grand Total	59.4	4.1	55.3

B5.4. City of Diamond Bar

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5197	0.0	0.0	-
5198	0.0	0.0	-
5203	12.6	0.0	12.6
5204	3.8	0.0	3.8
5205	1.0	1.0	-
5212	15.3	0.0	15.3
5213	0.3	0.0	0.3
Grand Total	33.0	1.1	32.0

B5.5. City of Downey

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5113	0.0	0.0	-
5114	78.3	22.4	55.9
5115	80.6	0.0	80.6
5118	0.0	0.0	0.0
5119	52.5	52.5	-
5122	4.3	0.0	4.3
5124	0.0	0.0	0.0
5125	38.4	2.5	35.8
5126	9.8	9.8	-
5127	0.0	0.0	-
5128	0.0	0.0	-
Grand Total	263.9	87.3	176.7

B5.6. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5105	0.8	0.8	-
5106	7.4	0.0	7.4
5107	0.0	0.0	-
5108	1.4	1.4	-
5110	0.0	0.0	-
Grand Total	9.6	2.2	7.4

B5.7. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5102	0.0	0.0	-
5103	26.9	26.9	-
5104	2.3	2.3	-
5105	0.0	0.0	-
5106	0.0	0.0	-
Grand Total	29.2	29.2	-

B5.8. City of Norwalk

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5109	0.8	0.8	-
5116	0.5	0.0	0.5
5117	14.5	0.0	14.5
5118	3.7	0.1	3.5
5120	39.1	0.0	39.1
5121	41.5	3.9	37.6
5122	34.7	0.0	34.7
5124	2.2	0.0	2.2
Grand Total	136.9	4.8	132.1

B5.9. City of Pico Rivera

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5127	0.0	0.0	-
5128	10.9	6.4	4.5
5130	6.2	6.1	0.1
5131	17.2	11.7	5.5
5132	0.0	0.0	-
5135	4.3	4.3	-
5136	7.2	7.2	-
5137	0.2	0.2	-
5139	7.8	7.8	-
5140	0.0	0.0	-
5141	4.9	4.9	-
5142	0.0	0.0	-
5143	8.9	8.9	-
5144	3.8	0.0	3.8
5145	1.7	1.7	-
5147	0.0	0.0	-
5148	0.2	0.2	0.0
5149	0.0	0.0	-
5150	0.3	0.0	0.3
5151	0.3	0.0	0.3
5153	1.0	1.0	-
5154	0.0	0.0	-
Grand Total	75.1	60.4	14.7

B5.10. City of Santa Fe Springs

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5120	3.1	3.1	0.0
5122	11.0	0.0	11.0
5123	80.0	23.9	56.2
5127	0.0	0.0	0.0
5129	4.5	0.0	4.5
5130	1.7	0.0	1.7
5132	0.0	0.0	-
5133	0.1	0.0	0.1
5134	5.6	3.3	2.3
5135	0.0	0.0	-
Grand Total	106.0	30.3	75.8

B5.11. City of Whittier

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5138	7.1	7.1	-
5142	0.0	0.0	0.0
5146	0.4	0.0	0.4
5147	0.0	0.0	-
5148	0.0	0.0	-
5153	0.0	0.0	-
5173	0.0	0.0	-
Grand Total	7.5	7.1	0.4

B6. Lower San Gabriel River (San Gabriel River) WMP – Compliance Tables

B6.1. City of Artesia

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5109	35%	1.1	-	-	0.1	-	0.1
Grand Total		1.1	-	-	0.1	-	0.1

B6.2. City of Bellflower

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5110	Final	0.0	-	-	-	0.0	0.0
5112	Final	0.6	-	0.1	0.0	-	0.1
5113	Final	51.5	-	0.9	3.4	-	4.3
5114	Final	-	-	-	-	-	-
5115	35%	1.3	-	0.2	0.0	-	0.2
5116	Final	0.1	-	-	-	0.0	0.0
5118	Final	3.9	-	0.6	0.3	-	0.9
Grand Total		57.4	-	1.8	3.7	0.0	5.5

B6.3. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5107	Final	-	-	-	-	-	-
5108	Final	-	-	-	-	-	-
5109	Final	-	-	-	-	-	-
5110	Final	2.9	-	0.4	0.0	-	0.4
5111	Final	-	-	-	-	-	-
5112	Final	1.2	-	0.2	0.0	-	0.2
5113	Final	-	-	-	-	-	-
5116	35%	-	-	-	-	-	-
Grand Total		4.1	-	0.6	0.0	-	0.6

B6.4. City of Diamond Bar

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5197	Final	0.0	-	0.0	-	-	0.0
5198	Final	-	-	-	-	-	-
5203	Final	-	-	-	-	-	-
5204	Final	-	-	-	-	-	-
5205	Final	1.0	-	0.2	-	-	0.2
5212	Final	-	-	-	-	-	-
5213	35%	-	-	-	-	-	-
Grand Total		1.1	-	0.2	-	-	0.2

B6.5. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5113	Final	-	1.0	-	-	-	1.0
5114	Final	22.4	0.8	2.1	0.4	-	3.3
5115	Final	-	0.6	-	-	-	0.6
5118	Final	-	0.6	-	-	-	0.6
5119	Final	52.5	3.3	6.4	-	-	9.7
5122	35%	-	0.0	-	-	-	0.0
5124	Final	-	0.0	-	-	-	0.0
5125	Final	2.5	0.4	0.1	-	-	0.5
5126	Final	9.8	0.3	1.4	-	-	1.7
5127	Final	-	0.1	-	-	-	0.1
5128	Final	-	0.0	-	-	-	0.0
Grand Total		87.3	7.1	10.0	0.4	-	17.5

B6.6. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5105	Final	0.8	-	-	0.0	0.1	0.1
5106	35%	-	-	-	-	-	-
5107	Final	-	-	-	-	-	-
5108	Final	1.4	-	0.2	0.0	-	0.2
5110	Final	-	-	-	-	-	-
Grand Total		2.2	-	0.2	0.0	0.1	0.4

B6.7. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5102	Final	-	-	-	-	-	-
5103	35%	26.9	-	1.1	1.3	-	2.4
5104	Final	2.3	-	0.3	-	-	0.3
5105	Final	-	-	-	-	-	-
5106	Final	0.0	-	-	-	0.0	0.0
Grand Total		29.2	-	1.4	1.3	0.0	2.7

B6.8. City of Norwalk

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5109	35%	0.8	-	-	0.1	-	0.1
5116	Final	-	-	-	-	-	-
5117	Final	-	-	-	-	-	-
5118	Final	0.1	-	-	0.0	-	0.0
5120	Final	-	-	-	-	-	-
5121	Final	3.9	-	-	0.3	-	0.3
5122	Final	-	-	-	-	-	-
5124	Final	-	-	-	-	-	-
Grand Total		4.8	-	-	0.3	-	0.3

B6.9. City of Pico Rivera

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5127	Final	0.0	-	-	-	0.0	0.0
5128	Final	6.4	-	1.2	-	-	1.2
5130	Final	6.1	-	1.1	-	-	1.1
5131	Final	11.7	-	2.0	-	-	2.0
5132	Final	0.0	-	-	-	0.0	0.0
5135	Final	4.3	-	0.8	-	-	0.8
5136	Final	7.2	-	1.3	-	-	1.3
5137	35%	0.2	-	0.0	-	-	0.0
5139	Final	7.8	-	1.4	-	-	1.4
5140	Final	-	-	-	-	-	-
5141	Final	4.9	-	0.8	-	-	0.8
5142	Final	-	-	-	-	-	-
5143	Final	8.9	-	1.6	-	-	1.6
5144	Final	-	-	-	-	-	-
5145	Final	1.7	-	0.3	-	-	0.3
5147	Final	-	-	-	-	-	-
5148	Final	0.2	-	0.0	-	-	0.0
5149	Final	0.0	-	-	-	-	-
5150	Final	-	-	-	-	-	-
5151	Final	-	-	-	-	-	-
5153	Final	1.0	-	0.2	-	-	0.2
5154	Final	-	-	-	-	-	-
Grand Total		60.4	-	10.8	-	0.0	10.8

B6.10. City of Santa Fe Springs

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5120	Final	3.1	-	0.2	-	0.3	0.5
5122	Final	-	-	-	-	-	-
5123	Final	23.9	-	3.8	-	-	3.8
5127	35%	-	-	-	-	-	-
5129	Final	-	-	-	-	-	-
5130	Final	-	-	-	-	-	-
5132	Final	-	-	-	-	-	-
5133	Final	-	-	-	-	-	-
5134	Final	3.3	-	0.6	-	-	0.6
5135	Final	0.0	-	0.0	-	0.0	0.0
Grand Total		30.3	-	4.6	-	0.3	4.9

B6.11. City of Whittier

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5138	Final	7.1	-	1.4	-	-	1.4
5142	Final	-	-	-	-	-	-
5146	Final	-	-	-	-	-	-
5147	Final	-	-	-	-	-	-
5148	Final	-	-	-	-	-	-
5153	35%	0.0	-	-	-	0.0	0.0
5173	Final	-	-	-	-	-	-
Grand Total		7.1	-	1.4	-	0.0	1.4

B7. Lower San Gabriel River WMP (Coyote Creek) – MS4 vs Non-MS4

B7.1. City of Artesia

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5008	0.0	0.0	-
5018	47.9	15.9	32.0
Grand Total	47.9	15.9	32.0

B7.2. City of Cerritos

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5008	41.7	7.7	34.0
5016	0.0	0.0	-
5017	4.3	4.3	-
5018	49.7	14.9	34.8
5023	0.0	0.0	-
5024	48.7	0.0	48.7
5026	5.8	5.8	0.1
5028	12.2	0.0	12.2
5029	4.9	4.9	-
5030	0.1	0.1	0.0
5035	3.8	0.0	3.8
5036	2.2	1.2	1.0
5038	0.0	0.0	-
5059	16.0	15.1	0.8
5060	0.0	0.0	-
5061	4.9	2.6	2.3
Grand Total	194.3	56.7	137.6

B7.3. City of Diamond Bar

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5053	0.0	0.0	-
5054	1.0	1.0	-
5055	8.4	8.4	-
5056	10.6	0.0	10.6
5057	26.8	0.0	26.8
5058	27.2	27.2	-
Grand Total	74.0	36.7	37.4

B7.4. City of Hawaiian Gardens

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5004	0.0	0.0	-
5007	27.0	23.6	3.4
5009	0.1	0.1	-
5013	1.3	1.3	-
5014	2.1	2.1	-
Grand Total	30.4	27.1	3.4

B7.5. City of La Mirada

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5037	0.0	0.0	-
5038	1.1	0.0	1.1
5039	7.5	0.0	7.5
5040	2.1	0.0	2.1
5041	2.0	0.0	2.0
5042	0.0	0.0	0.0
5043	34.8	19.1	15.7
5044	0.8	0.0	0.8
5045	0.8	0.0	0.8
5059	1.4	1.4	-
5060	0.9	0.0	0.9
5062	40.4	20.5	19.9
5063	37.0	37.0	-
5064	0.0	0.0	-
5067	0.0	0.0	-
5069	40.3	40.3	-
5070	0.0	0.0	-
5073	5.7	5.7	-
5074	0.8	0.8	-
5080	0.0	0.0	-
Grand Total	175.7	124.9	50.8

B7.6. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5004	0.0	0.0	-
5007	17.5	17.5	0.0
5008	8.2	2.3	5.9
5014	0.0	0.0	-
5015	0.0	0.0	-
5016	0.0	0.0	-
5017	0.0	0.0	-
Grand Total	25.7	19.7	6.0

B7.7. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5003	0.0	0.0	0.0
5004	37.5	0.0	37.5
5005	0.0	0.0	-
5007	0.0	0.0	-
5009	0.0	0.0	-
5013	0.0	0.0	-
Grand Total	37.5	0.0	37.5

B7.8. City of Norwalk

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5008	3.0	1.6	1.3
5018	36.0	2.0	34.0
5019	41.5	24.3	17.2
5020	0.0	0.0	-
5021	43.4	16.9	26.5
5022	28.7	7.7	21.0
5024	0.0	0.0	-
5025	0.0	0.0	-
5060	0.0	0.0	-
5068	0.0	0.0	-
5071	0.0	0.0	-
5073	0.0	0.0	-
Grand Total	152.5	52.5	99.9

B7.9. City of Santa Fe Springs

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5019	0.0	0.0	-
5020	27.7	0.0	27.7
5022	13.5	0.0	13.5
5024	0.0	0.0	-
5025	31.2	0.0	31.2
5060	28.9	0.0	28.9
5061	0.0	0.0	-
5062	2.6	0.0	2.6
5067	19.4	0.0	19.4
5068	6.1	0.0	6.1
5069	2.3	0.0	2.3
5071	50.5	0.0	50.5
5072	2.6	2.6	-
5073	23.5	0.0	23.5
5084	1.4	1.4	-
5089	19.8	0.0	19.8
5092	1.1	1.1	-
5093	22.1	0.0	22.1
5094	7.4	7.4	-
5095	0.4	0.0	0.4
Grand Total	260.7	12.6	248.1

B7.10. City of Whittier

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5045	0.0	0.0	-
5064	0.0	0.0	-
5065	3.7	3.7	-
5070	0.0	0.0	-
5079	18.5	11.7	6.8
5080	52.6	26.0	26.5
5081	2.1	0.0	2.1
5082	6.8	0.2	6.6
5083	0.0	0.0	-
5086	1.7	0.0	1.7
5087	21.0	20.8	0.2
5088	25.0	24.7	0.3
5089	0.6	0.5	0.1
5090	0.8	0.8	-
5091	6.6	5.7	0.9
5092	13.8	8.9	4.9
5093	0.0	0.0	-
5094	0.6	0.6	-
5095	24.2	21.1	3.1
5096	3.8	3.8	-
5097	5.2	5.2	-
5098	48.7	47.9	0.7
5099	11.3	10.6	0.7
5100	7.3	7.3	-
5101	0.6	0.6	-
Grand Total	254.7	200.1	54.6

B8. Lower San Gabriel River WMP (Coyote Creek) – Compliance Tables

B8.1. City of Artesia

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	Final	-	-	-	-	-	-
5018	35%	15.9	-	-	1.1	-	1.1
Grand Total		15.9	-	-	1.1	-	1.1

B8.2. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	Final	7.7	-	-	0.9	-	0.9
5016	Final	-	-	-	-	-	-
5017	Final	4.3	-	-	0.5	-	0.5
5018	Final	14.9	-	-	1.1	-	1.1
5023	Final	-	-	-	-	-	-
5024	Final	-	-	-	-	-	-
5026	Final	5.8	-	1.0	0.0	-	1.0
5028	Final	-	-	-	-	-	-
5029	Final	4.9	-	0.3	0.2	-	0.6
5030	35%	0.1	-	0.0	-	-	0.0
5035	Final	-	-	-	-	-	-
5036	Final	1.2	-	0.2	0.0	-	0.2
5038	Final	-	-	-	-	-	-
5059	Final	15.1	-	1.6	0.5	-	2.0
5060	Final	-	-	-	-	-	-
5061	Final	2.6	-	-	0.2	-	0.2
Grand Total		56.7	-	3.1	3.4	-	6.4

B8.3. City of Diamond Bar

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5053	Final	-	-	-	-	-	-
5054	35%	1.0	-	0.3	-	-	0.3
5055	Final	8.4	-	1.2	-	0.7	1.9
5056	Final	-	-	-	-	-	-
5057	Final	-	-	-	-	-	-
5058	Final	27.2	-	6.7	-	-	6.7
Grand Total		36.7	-	8.2	-	0.7	8.9

B8.4. City of Hawaiian Gardens

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5004	Final	-	-	-	-	-	-
5007	35%	23.6	-	0.3	1.5	-	1.8
5009	Final	0.1	-	-	-	0.0	0.0
5013	Final	1.3	-	-	0.1	-	0.1
5014	Final	2.1	-	0.2	0.0	-	0.3
Grand Total		27.1	-	0.6	1.6	0.0	2.2

B8.5. City of La Mirada

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5037	Final	-	-	-	-	-	-
5038	Final	-	-	-	-	-	-
5039	Final	-	-	-	-	-	-
5040	Final	-	-	-	-	-	-
5041	Final	-	-	-	-	-	-
5042	Final	-	-	-	-	-	-
5043	Final	19.1	-	1.9	0.6	-	2.5
5044	Final	-	-	-	-	-	-
5045	35%	-	-	-	-	-	-
5059	Final	1.4	-	0.3	-	-	0.3
5060	Final	-	-	-	-	-	-
5062	Final	20.5	-	1.0	1.1	-	2.1
5063	Final	37.0	-	-	3.0	-	3.0
5064	Final	-	-	-	-	-	-
5067	Final	-	-	-	-	-	-
5069	Final	40.3	-	5.3	0.9	-	6.2
5070	Final	-	-	-	-	-	-
5073	Final	5.7	-	1.0	-	-	1.0
5074	Final	0.8	-	0.1	-	-	0.1
5080	Final	-	-	-	-	-	-
Grand Total		124.9	-	9.6	5.6	-	15.2

B8.6. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5004	Final	-	-	-	-	-	-
5007	35%	17.5	-	0.9	0.7	-	1.6
5008	Final	2.3	-	-	0.3	-	0.3
5014	Final	-	-	-	-	-	-
5015	Final	-	-	-	-	-	-
5016	Final	-	-	-	-	-	-
5017	Final	-	-	-	-	-	-
Grand Total		19.7	-	0.9	0.9	-	1.9

B8.7. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5003	Final	-	-	-	-	-	-
5004	35%	-	-	-	-	-	-
5005	Final	-	-	-	-	-	-
5007	Final	-	-	-	-	-	-
5009	Final	-	-	-	-	-	-
5013	Final	0.0	-	-	0.0	-	0.0
Grand Total		0.0	-	-	0.0	-	0.0

B8.8. City of Norwalk

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	35%	1.6	-	-	0.2	-	0.2
5018	Final	2.0	-	-	0.2	-	0.2
5019	Final	24.3	-	-	1.8	-	1.8
5020	Final	-	-	-	-	-	-
5021	Final	16.9	-	-	1.3	-	1.3
5022	Final	7.7	-	1.4	-	-	1.4
5024	Final	-	-	-	-	-	-
5025	Final	-	-	-	-	-	-
5060	Final	-	-	-	-	-	-
5068	Final	-	-	-	-	-	-
5071	Final	-	-	-	-	-	-
5073	Final	-	-	-	-	-	-
Grand Total		52.5	-	1.4	3.4	-	4.7

B8.9. City of Santa Fe Springs

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5019	Final	0.0	-	-	-	0.0	0.0
5020	Final	-	-	-	-	-	-
5022	Final	-	-	-	-	-	-
5024	Final	-	-	-	-	-	-
5025	Final	-	-	-	-	-	-
5060	Final	-	-	-	-	-	-
5061	Final	-	-	-	-	-	-
5062	Final	-	-	-	-	-	-
5067	Final	-	-	-	-	-	-
5068	Final	-	-	-	-	-	-
5069	Final	-	-	-	-	-	-
5071	Final	-	-	-	-	-	-
5072	Final	2.6	-	0.3	-	0.1	0.4
5073	Final	-	-	-	-	-	-
5084	Final	1.4	-	0.2	-	-	0.2
5089	Final	-	-	-	-	-	-
5092	Final	1.1	-	0.1	-	0.2	0.2
5093	Final	-	-	-	-	-	-
5094	Final	7.4	-	0.4	-	0.9	1.2
5095	35%	-	-	-	-	-	-
Grand Total		12.6	-	1.0	-	1.1	2.1

B8.10. City of Whittier

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5045	Final	0.0	-	-	-	0.0	0.0
5064	Final	-	-	-	-	-	-
5065	Final	3.7	-	0.8	-	-	0.8
5070	Final	0.0	-	-	-	0.0	0.0
5079	Final	11.7	-	2.5	-	-	2.5
5080	Final	26.0	-	5.5	-	-	5.5
5081	35%	-	-	-	-	-	-
5082	Final	0.2	-	0.0	-	-	0.0
5083	Final	-	-	-	-	-	-
5086	Final	-	-	-	-	-	-
5087	Final	20.8	-	4.1	-	-	4.1
5088	Final	24.7	-	5.4	-	-	5.4
5089	Final	0.5	-	0.1	-	-	0.1
5090	Final	0.8	-	0.2	-	-	0.2
5091	Final	5.7	-	1.1	-	-	1.1
5092	Final	8.9	-	1.7	-	-	1.7
5093	Final	0.0	-	-	-	0.0	0.0
5094	Final	0.6	-	0.1	-	0.0	0.1
5095	Final	21.1	-	3.9	-	-	3.9
5096	Final	3.8	-	0.7	-	-	0.7
5097	Final	5.2	-	1.0	-	-	1.0
5098	Final	47.9	-	8.7	-	-	8.7
5099	Final	10.6	-	1.9	-	-	1.9
5100	Final	7.3	-	1.4	-	-	1.4
5101	Final	0.6	-	0.1	-	-	0.1
Grand Total		200.1	-	39.0	-	0.0	39.1

Attachment C: Supporting Figures for Watershed Control Measures

Submitted to:

LLAR WMP Group

LCC WMP Group

LSGR WMP Group

Submitted by:

Tetra Tech
9444 Balboa Ave., Suite 215
San Diego, CA 92123

June 6, 2014

Figure 1. LLAR Downey Subwatershed IDs

RB-AR15071

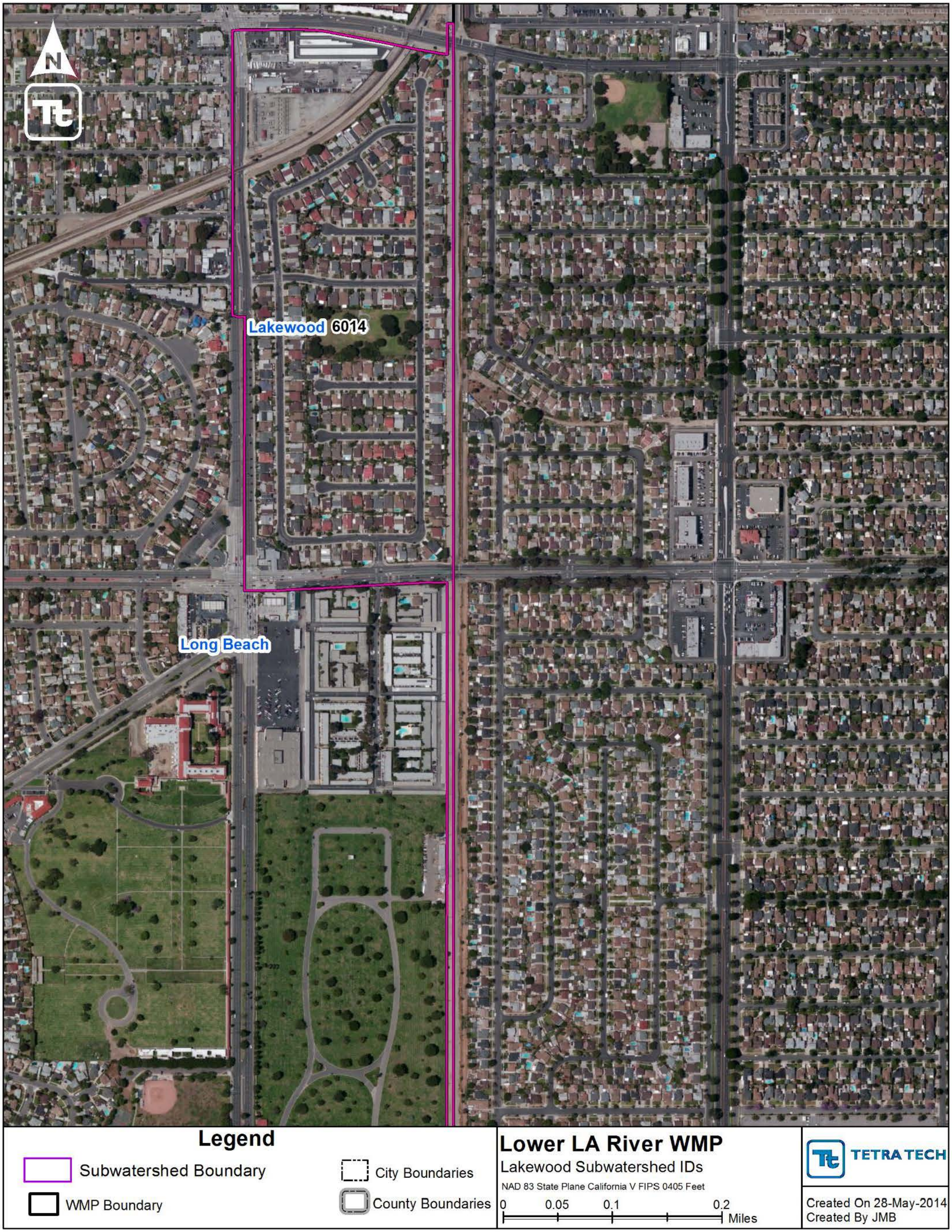

Figure 2. LLAR Lakewood Subwatershed IDs

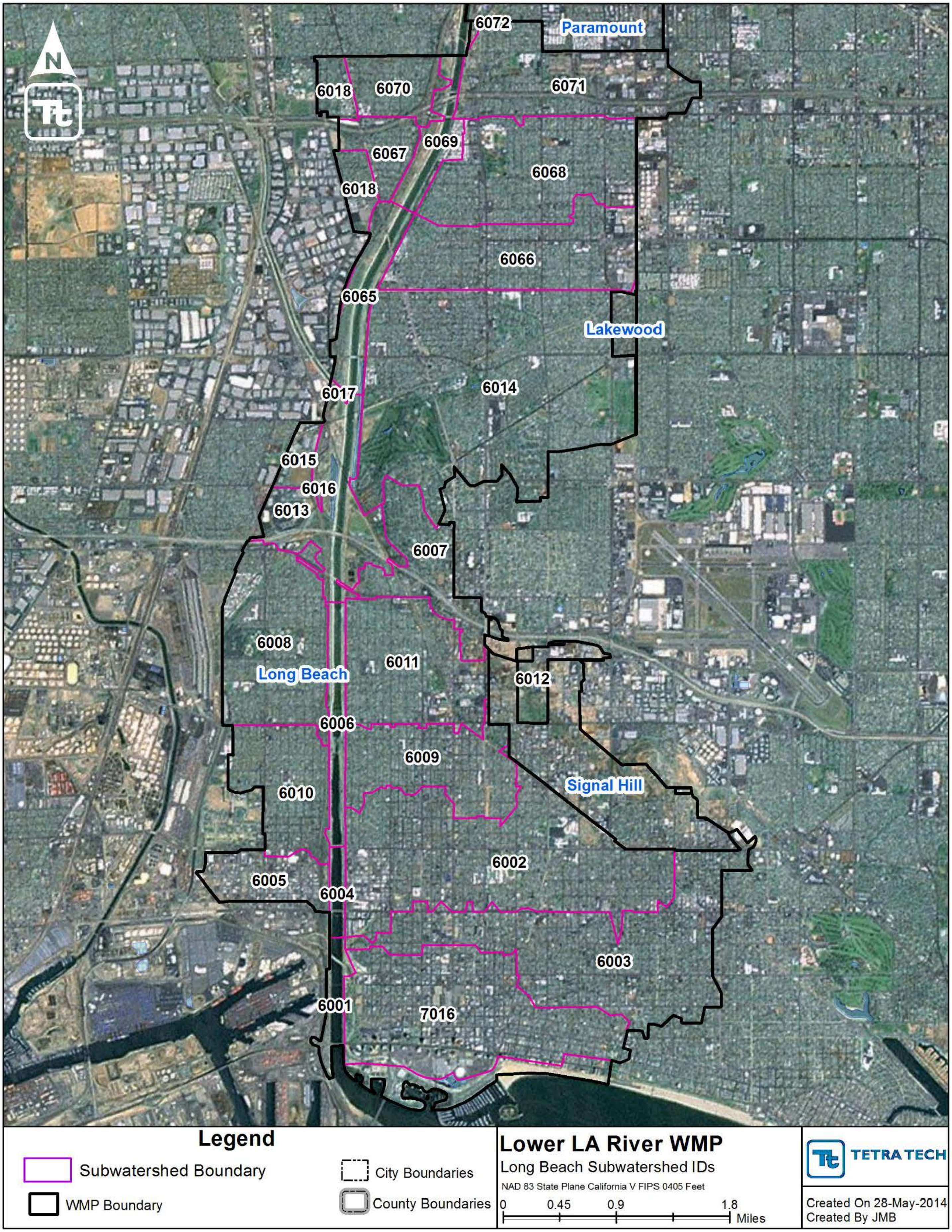

Figure 3. LLAR Long Beach Subwatershed IDs

Figure 4. LLAR Lynwood Subwatershed IDs

Figure 5. LLAR Paramount Subwatershed IDs

Figure 6. LLAR Pico Rivera Subwatershed IDs

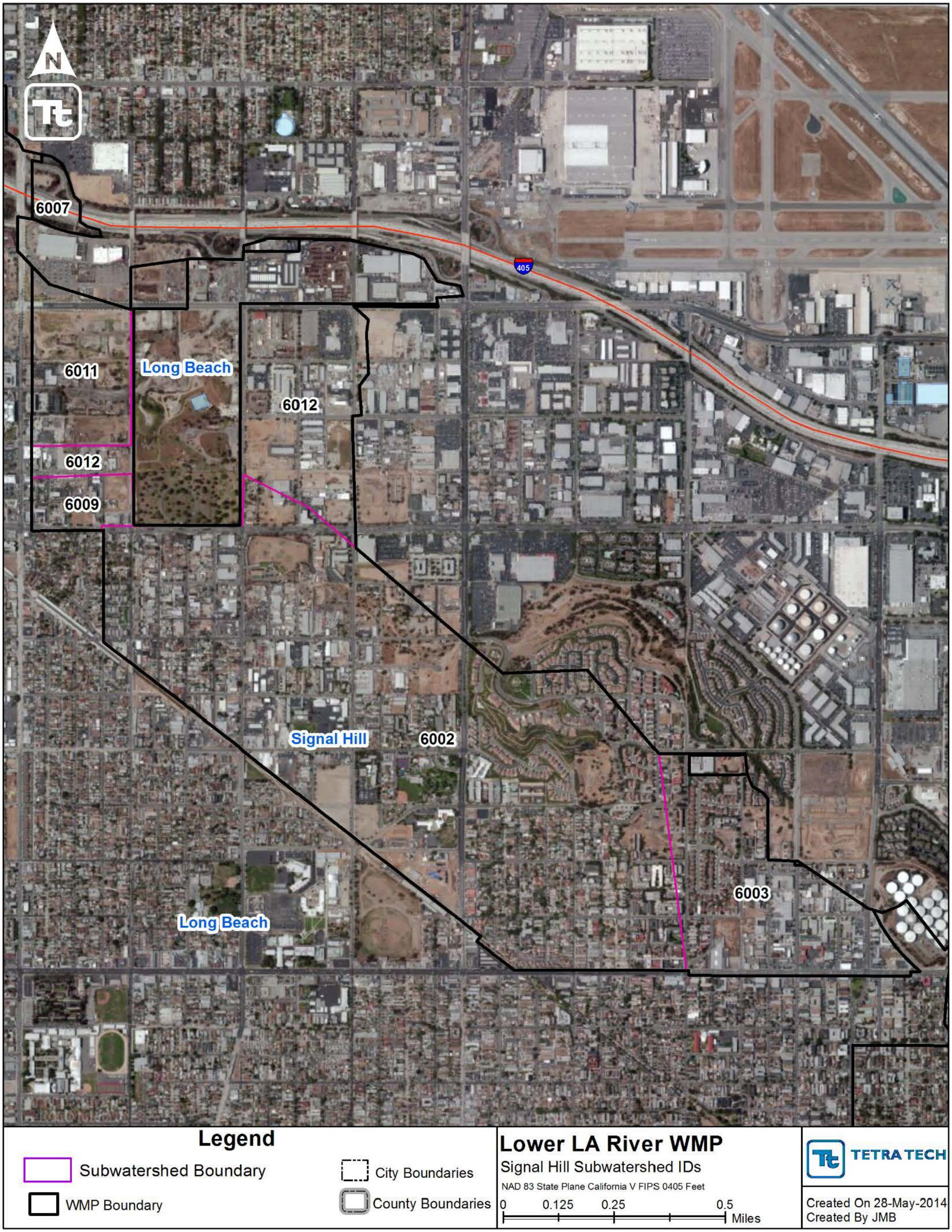

Figure 7. LLAR Signal Hill Subwatershed IDs

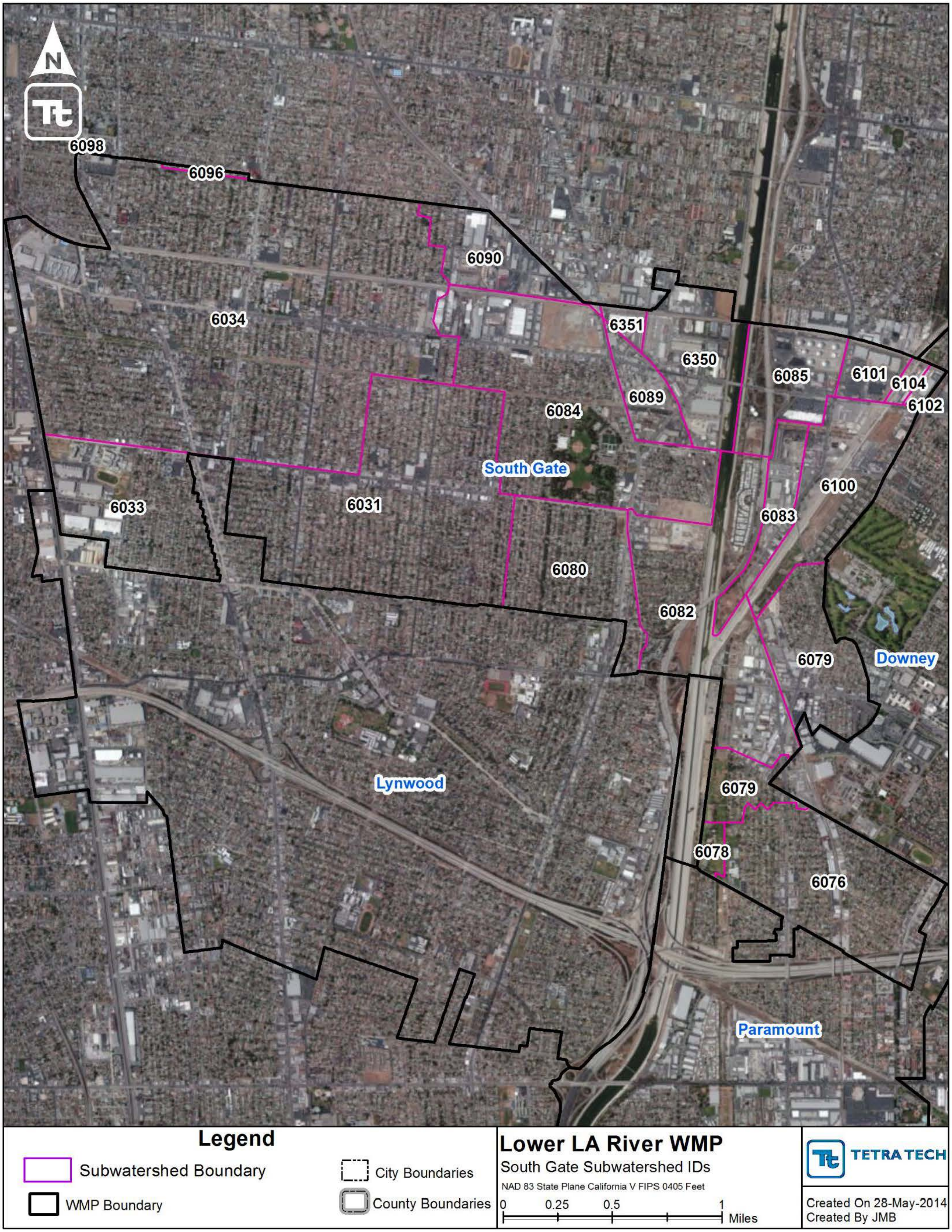

Figure 8. LLAR South Gate Subwatershed IDs

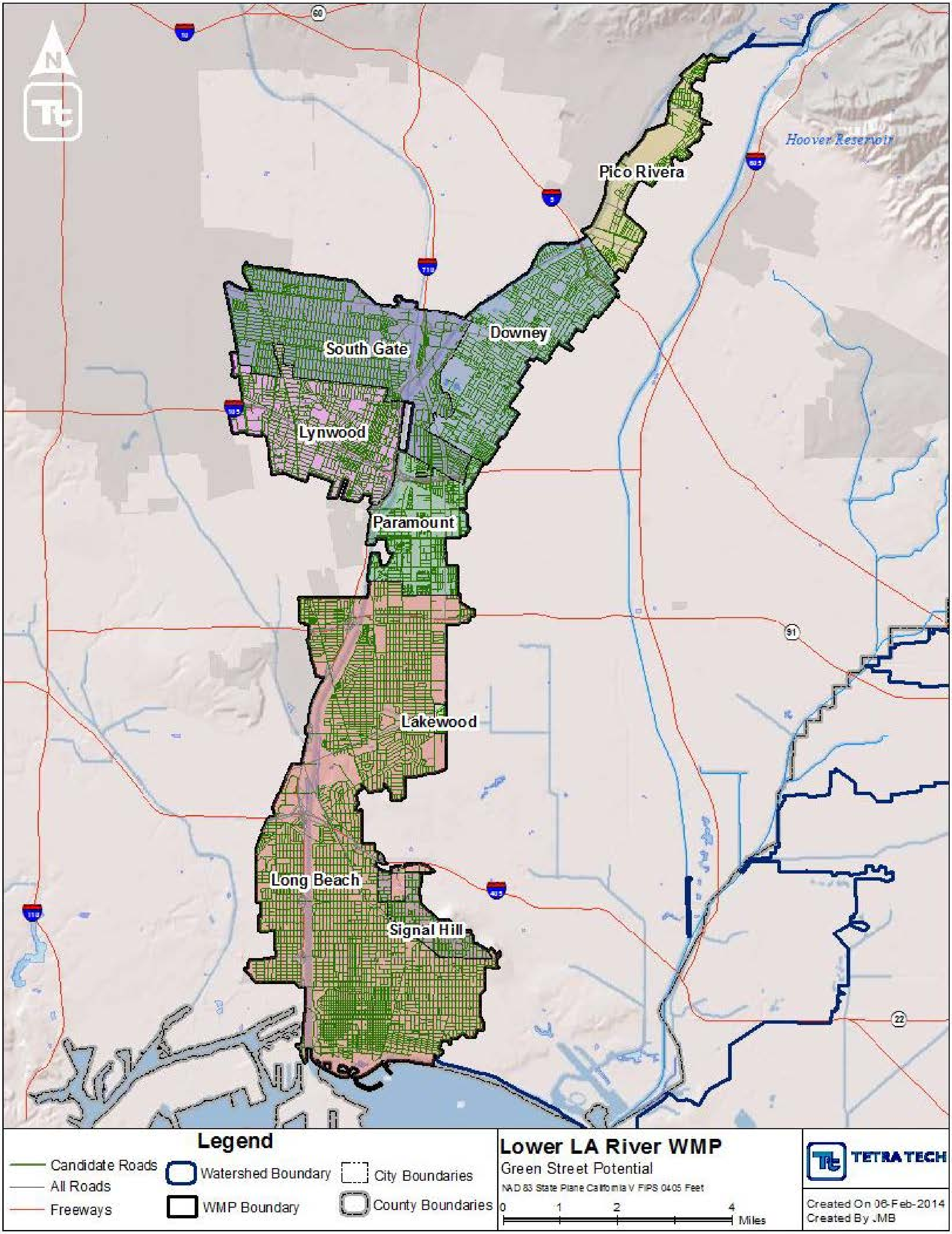

Figure 9. LLAR ROW BMP Potential Opportunities

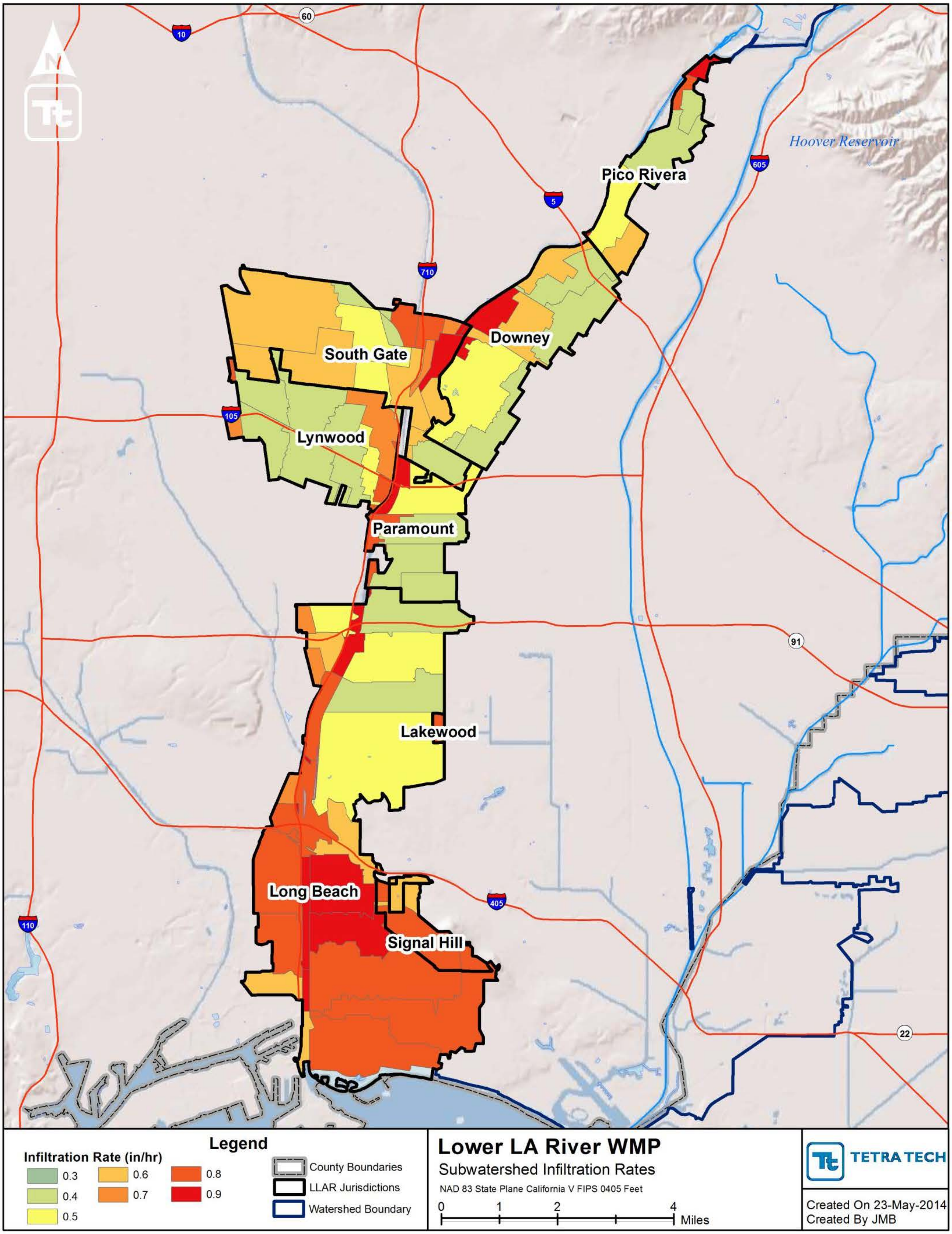

Figure 10. LLAR Subwatershed Infiltration Rates

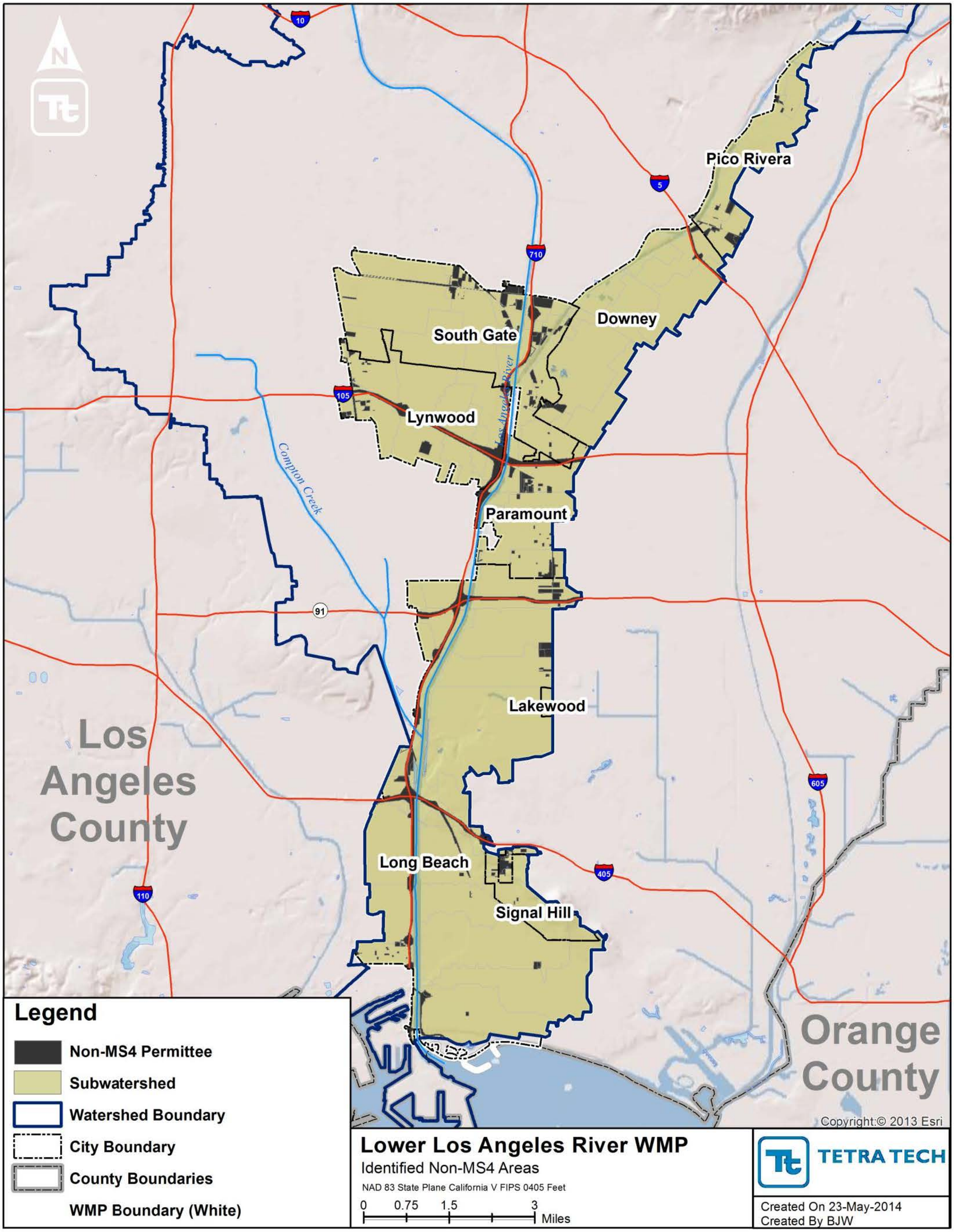

Figure 11. LLAR Non-MS4 Permittees

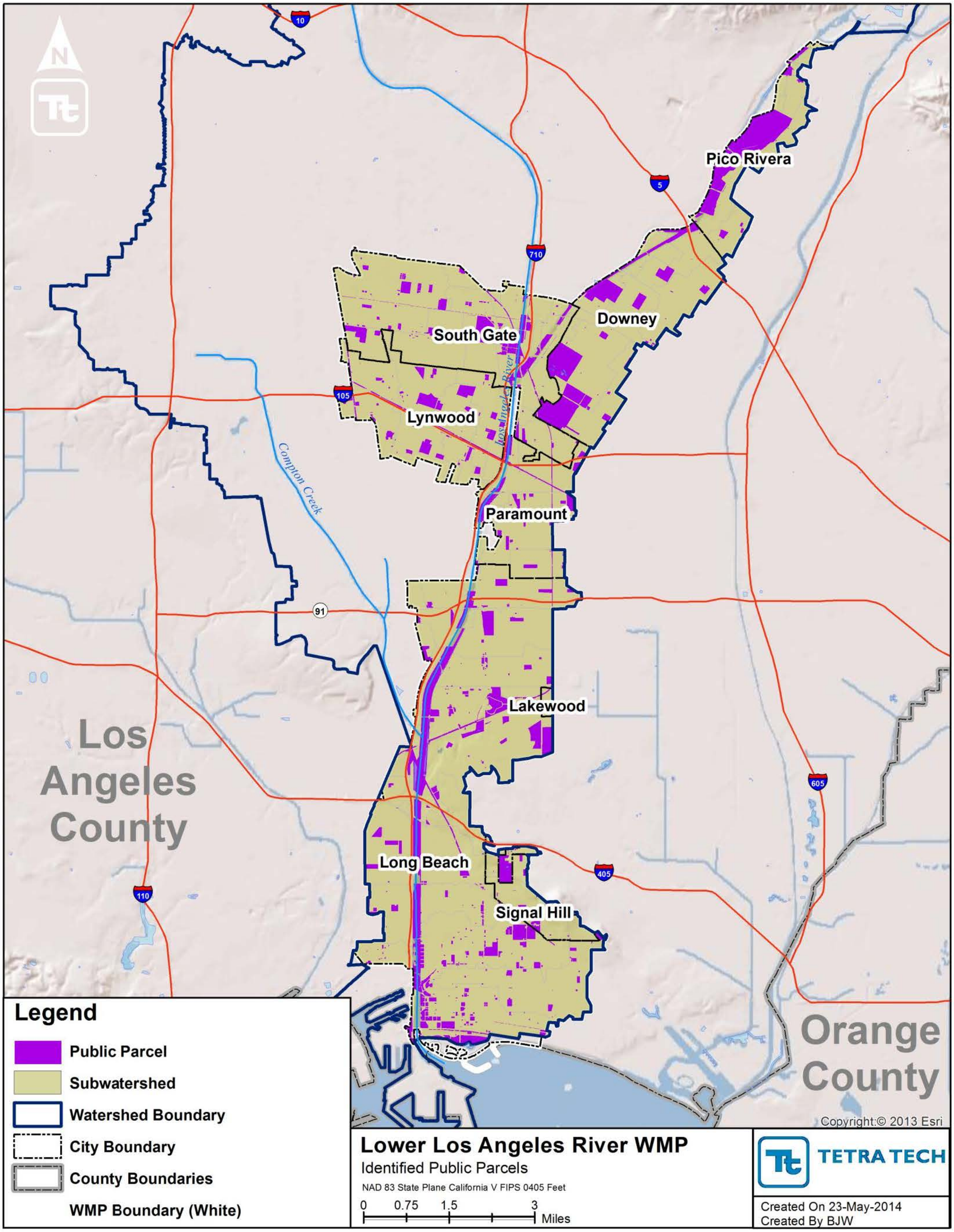

Figure 12. LLAR identified public parcels

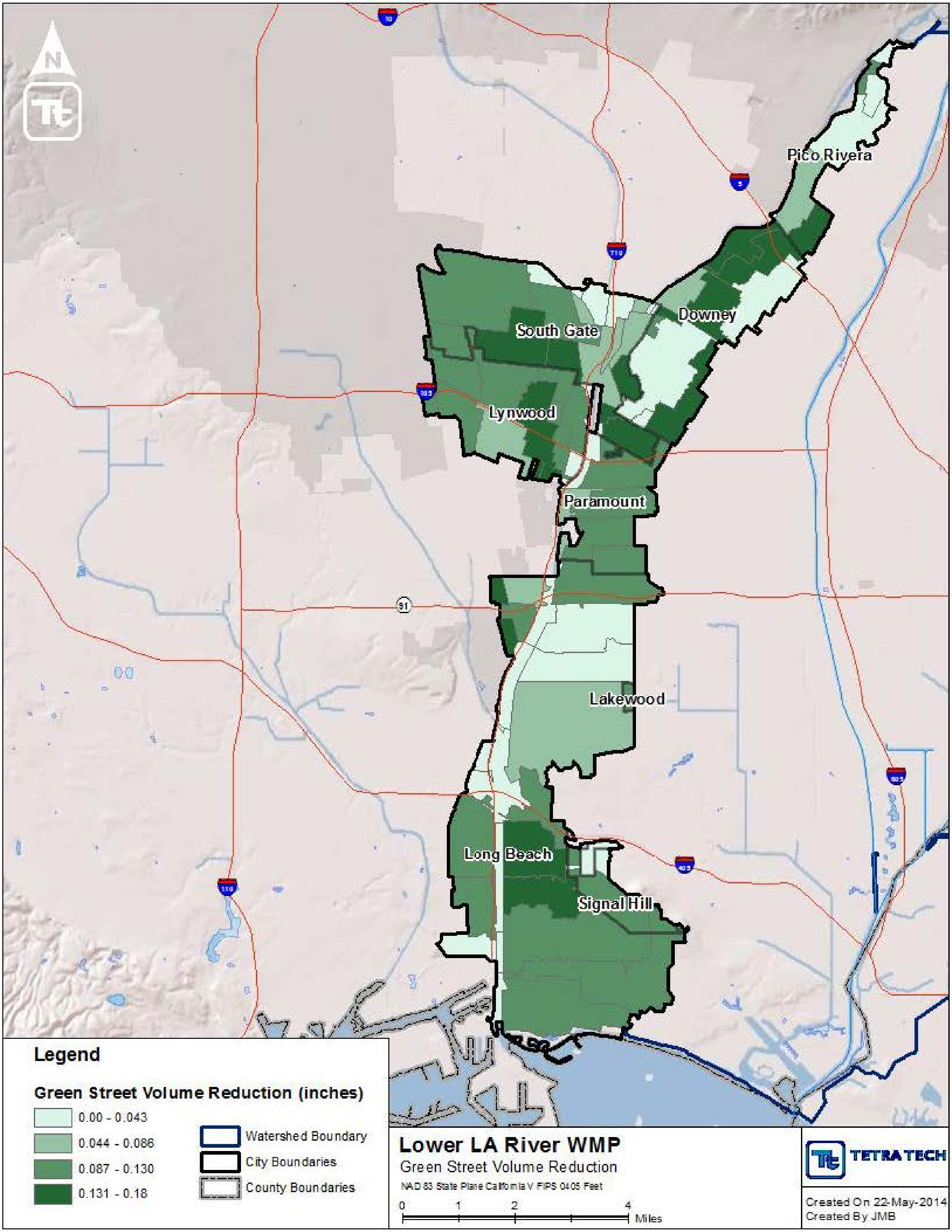

Figure 13. LLAR ROW BMP Volume Reduction

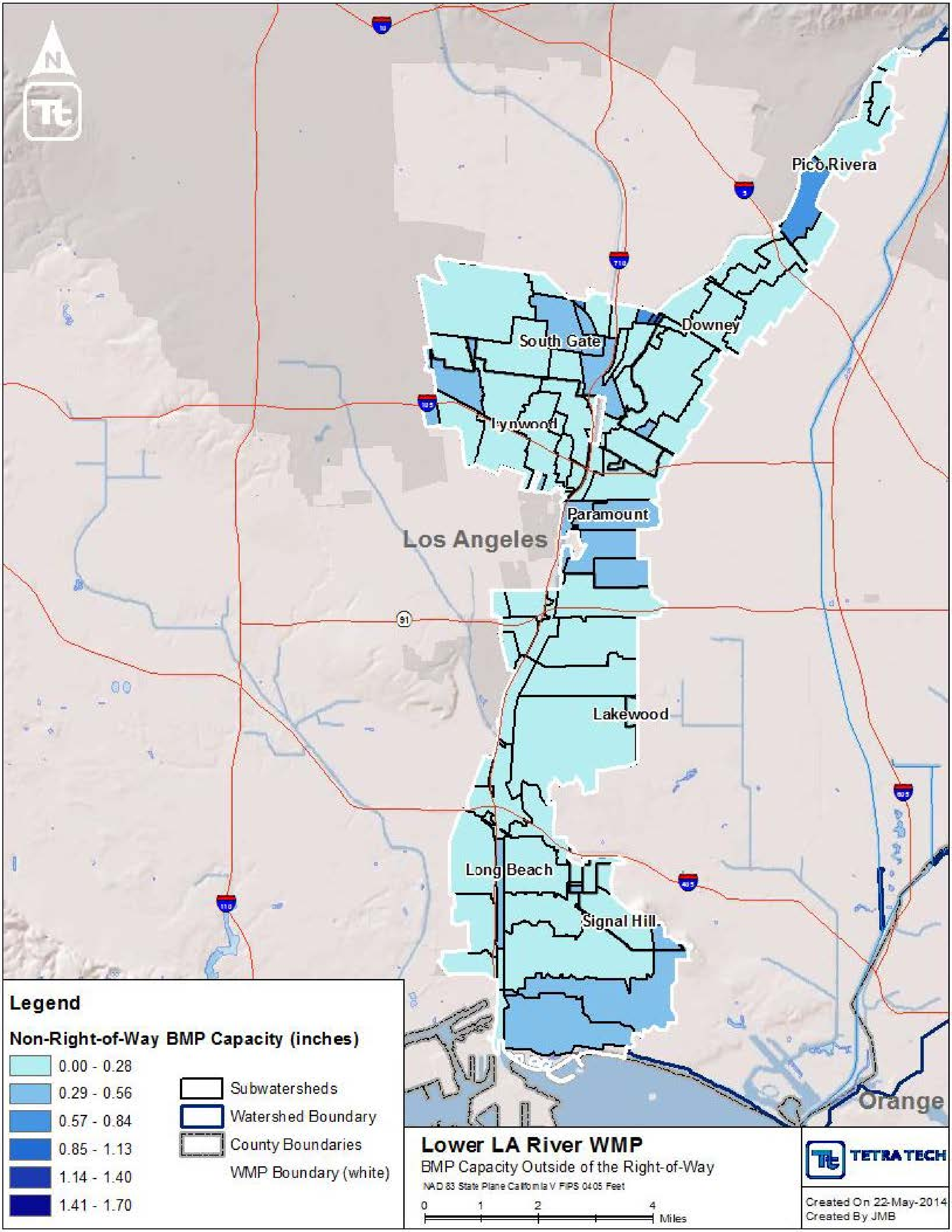

Figure 14. LLAR BMP capacity outside of the right-of-way

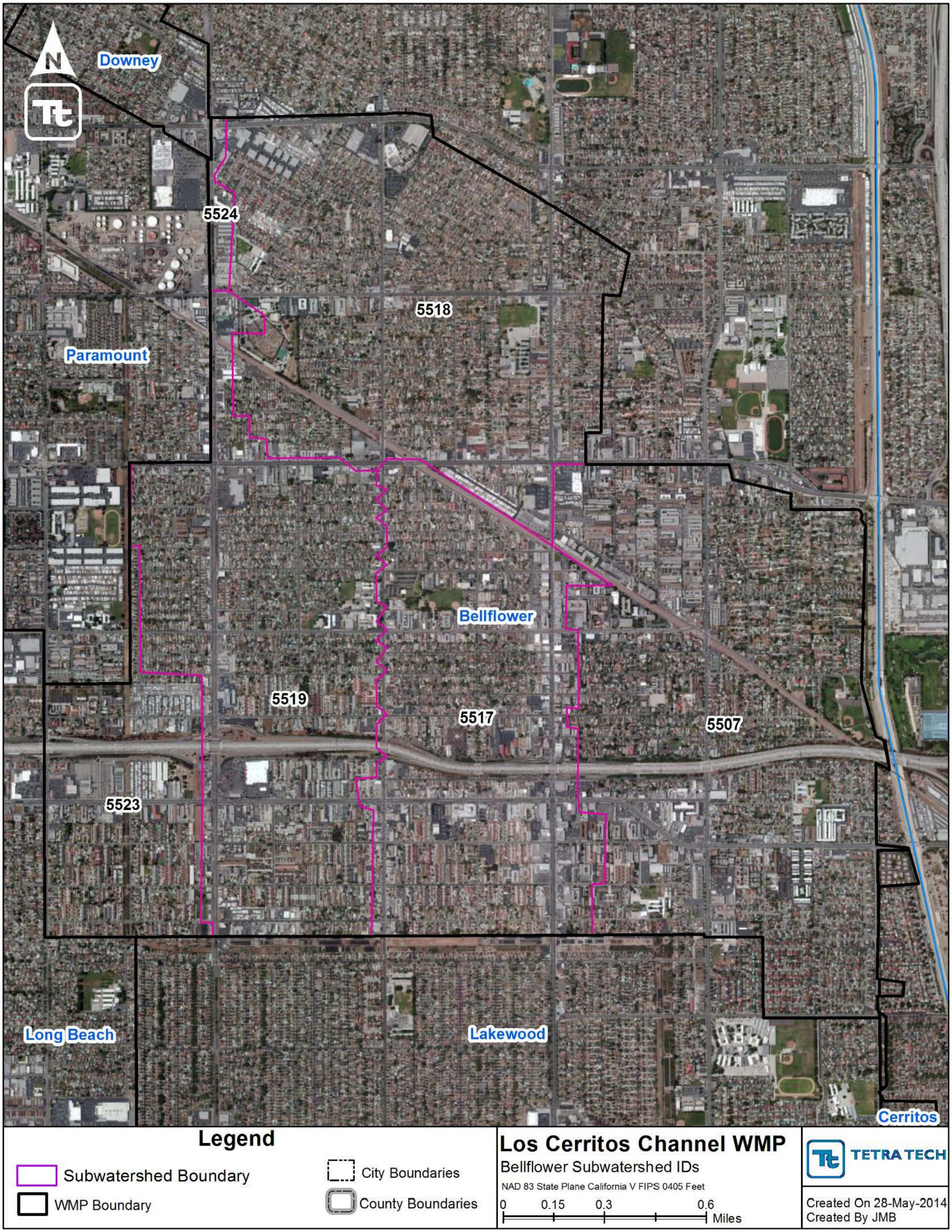

Figure 15. LCC Bellflower Subwatershed IDs

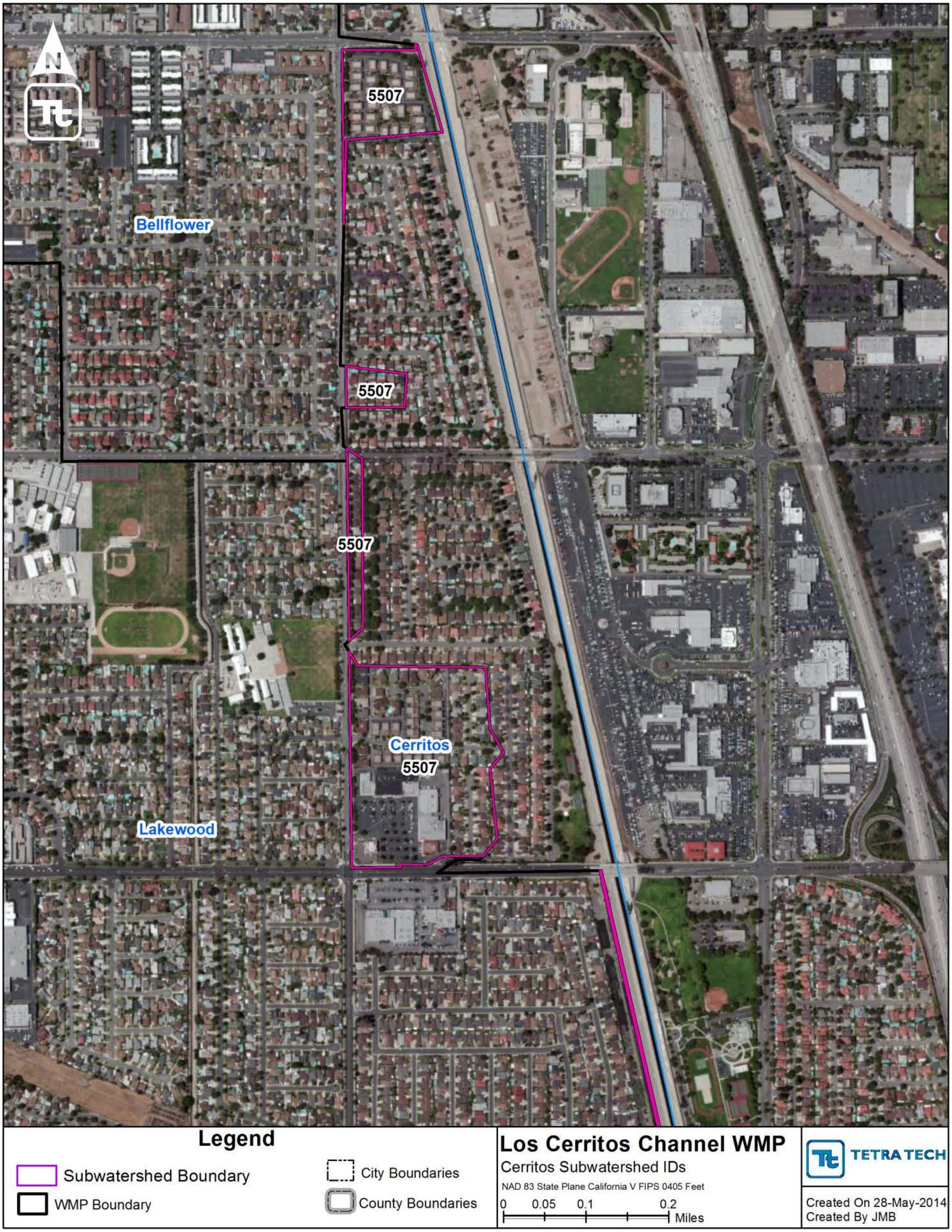

Figure 16. LCC Cerritos Subwatershed IDs

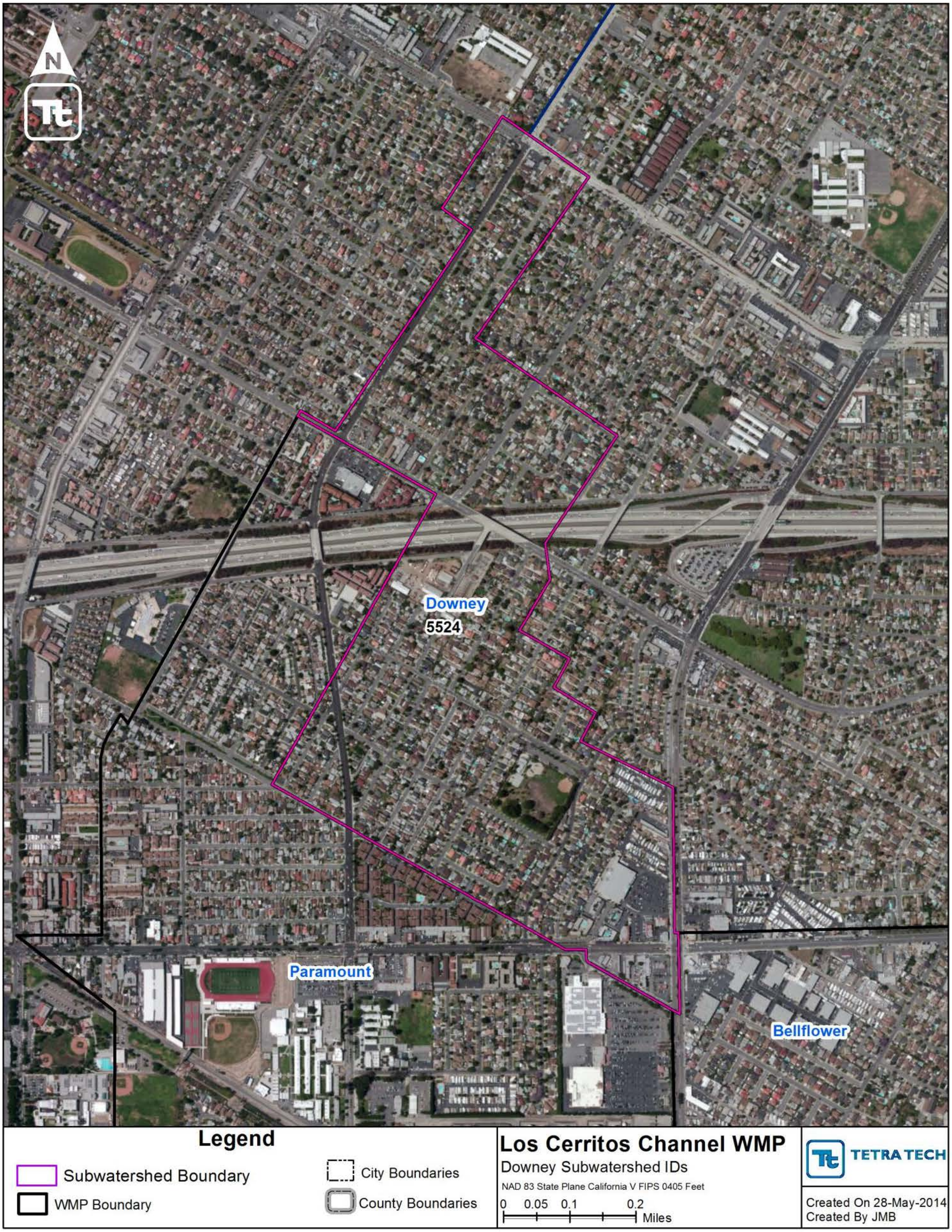

Figure 17. LCC Downey Subwatershed IDs

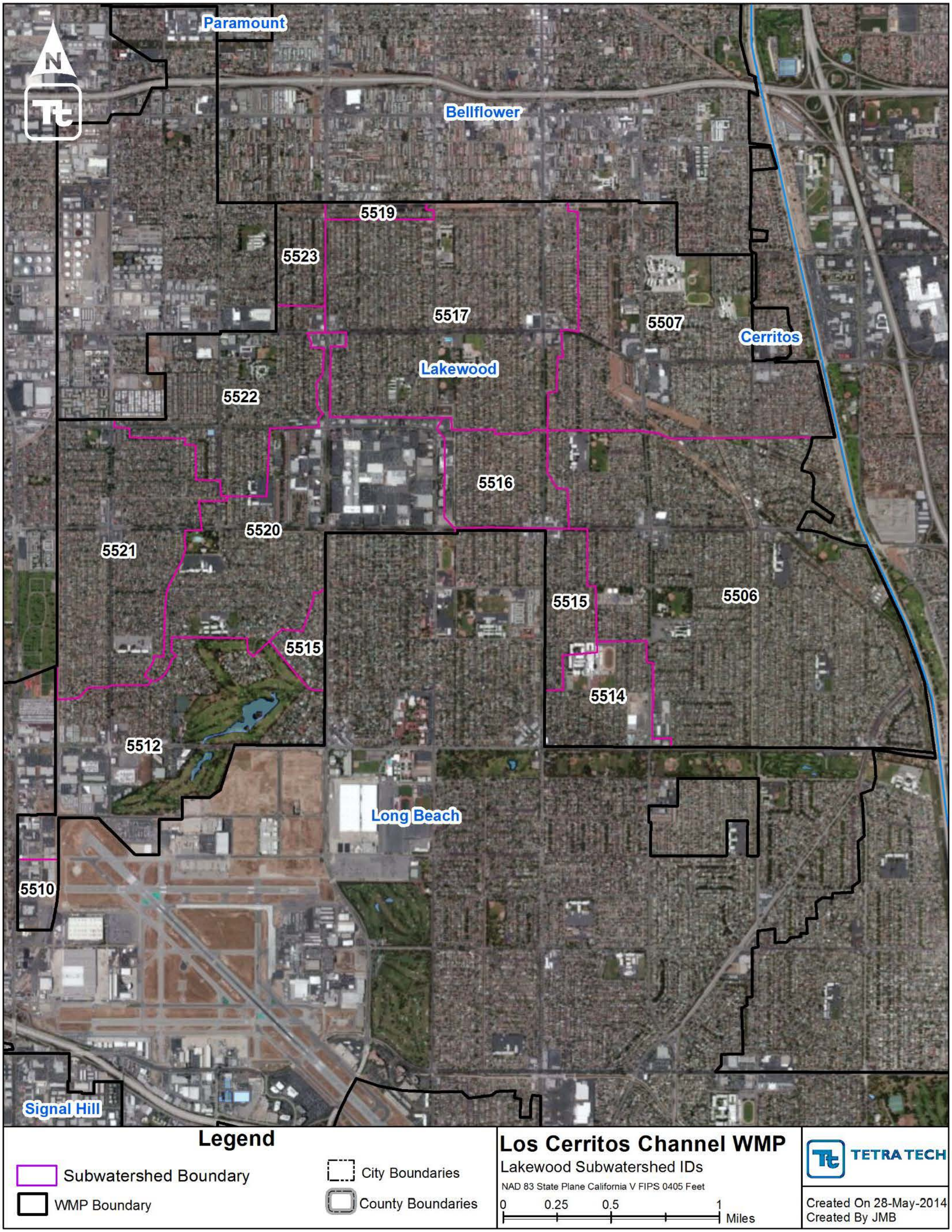

Figure 18. LCC Lakewood Subwatershed IDs

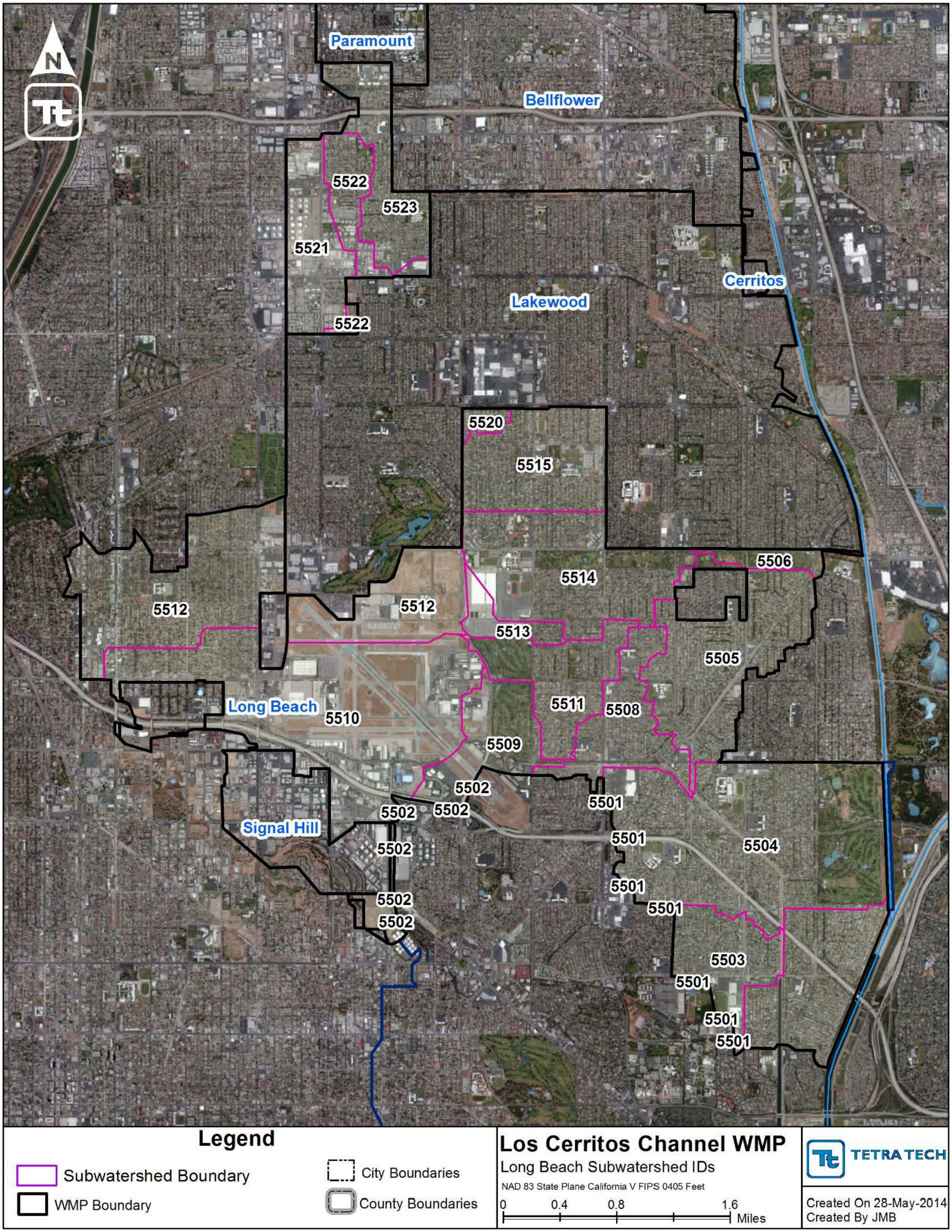

Figure 19. LCC Long Beach Subwatershed IDs

Figure 20. LCC Paramount Subwatershed IDs

RB-AR15090

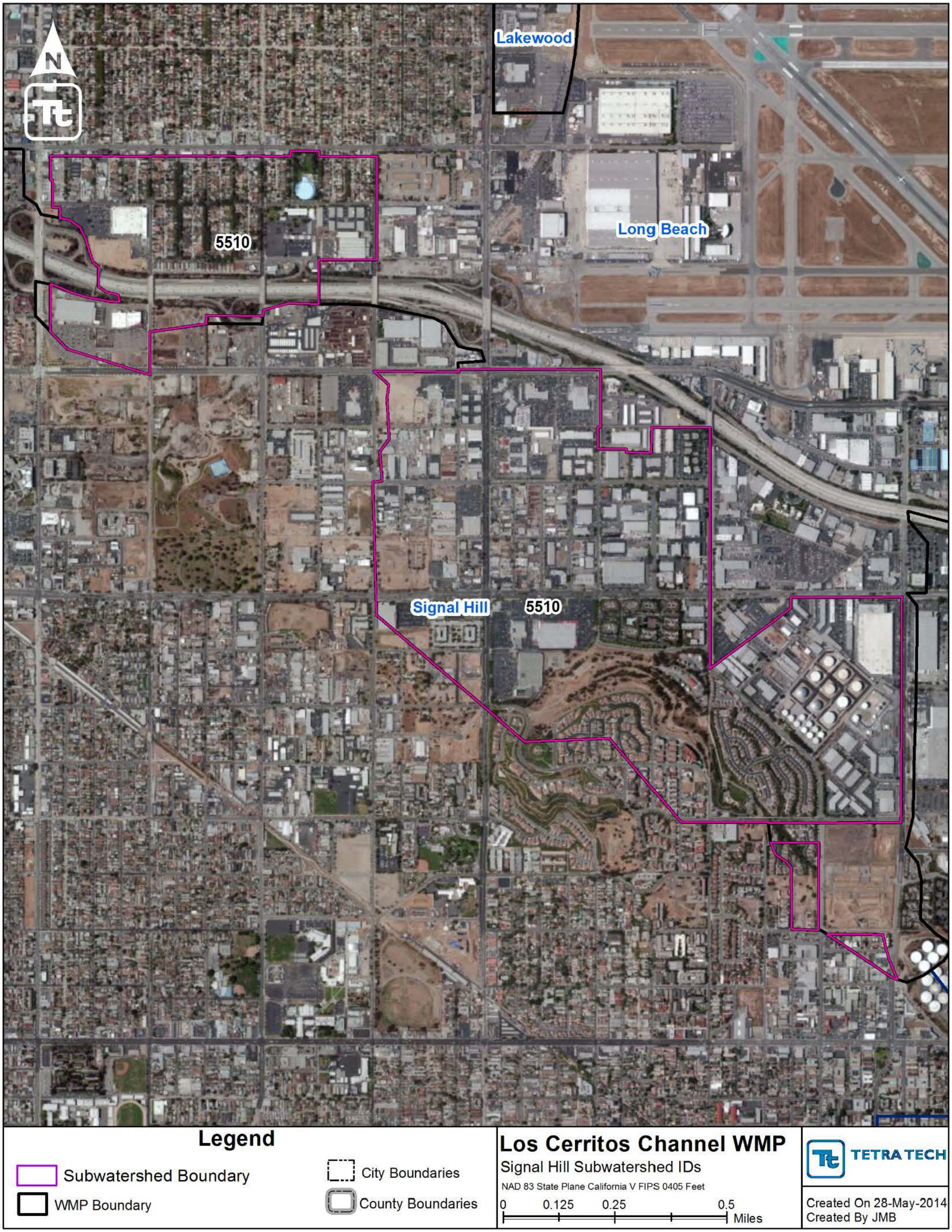

Figure 21. LCC Signal Hill Subwatershed IDs

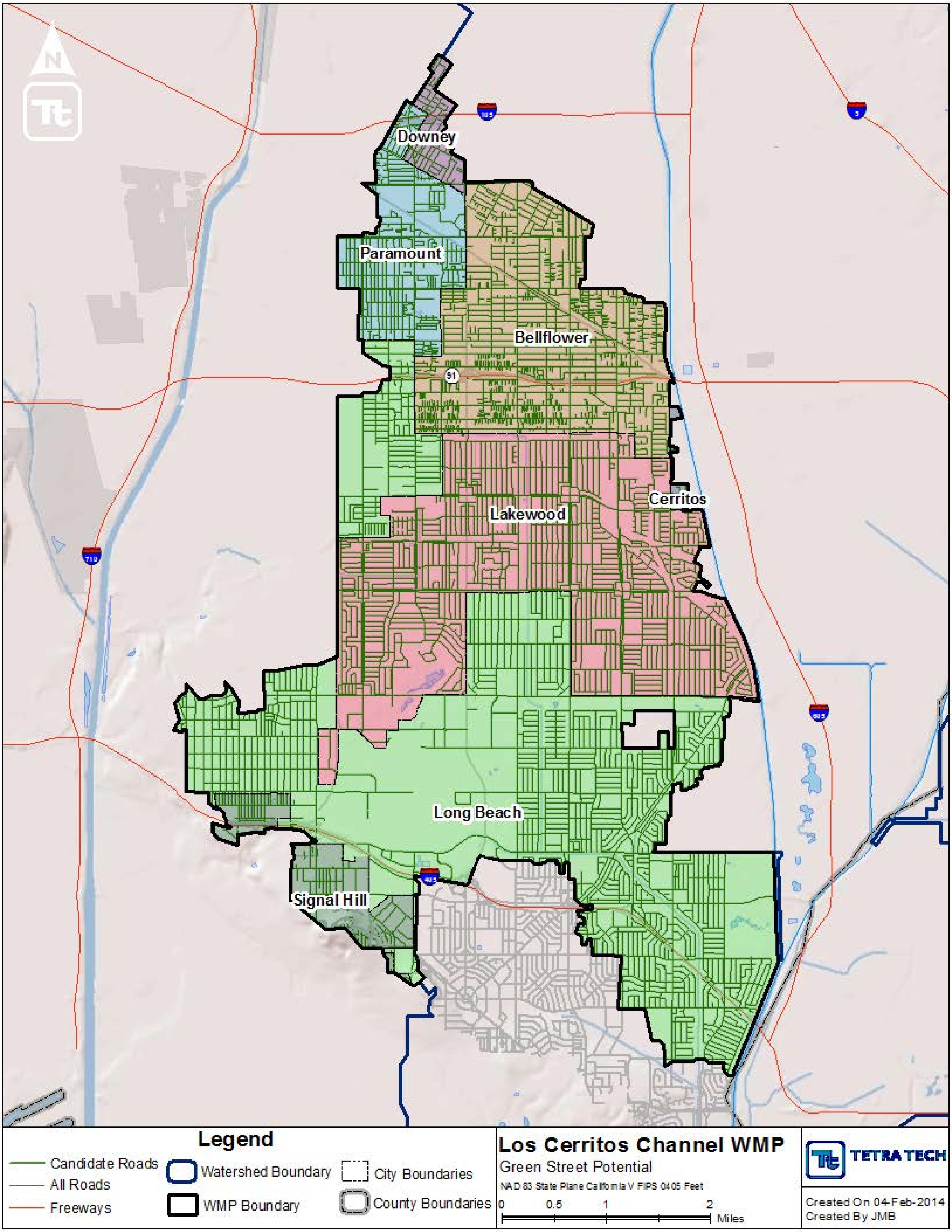

Figure 22. LCC ROW BMP Potential Opportunities

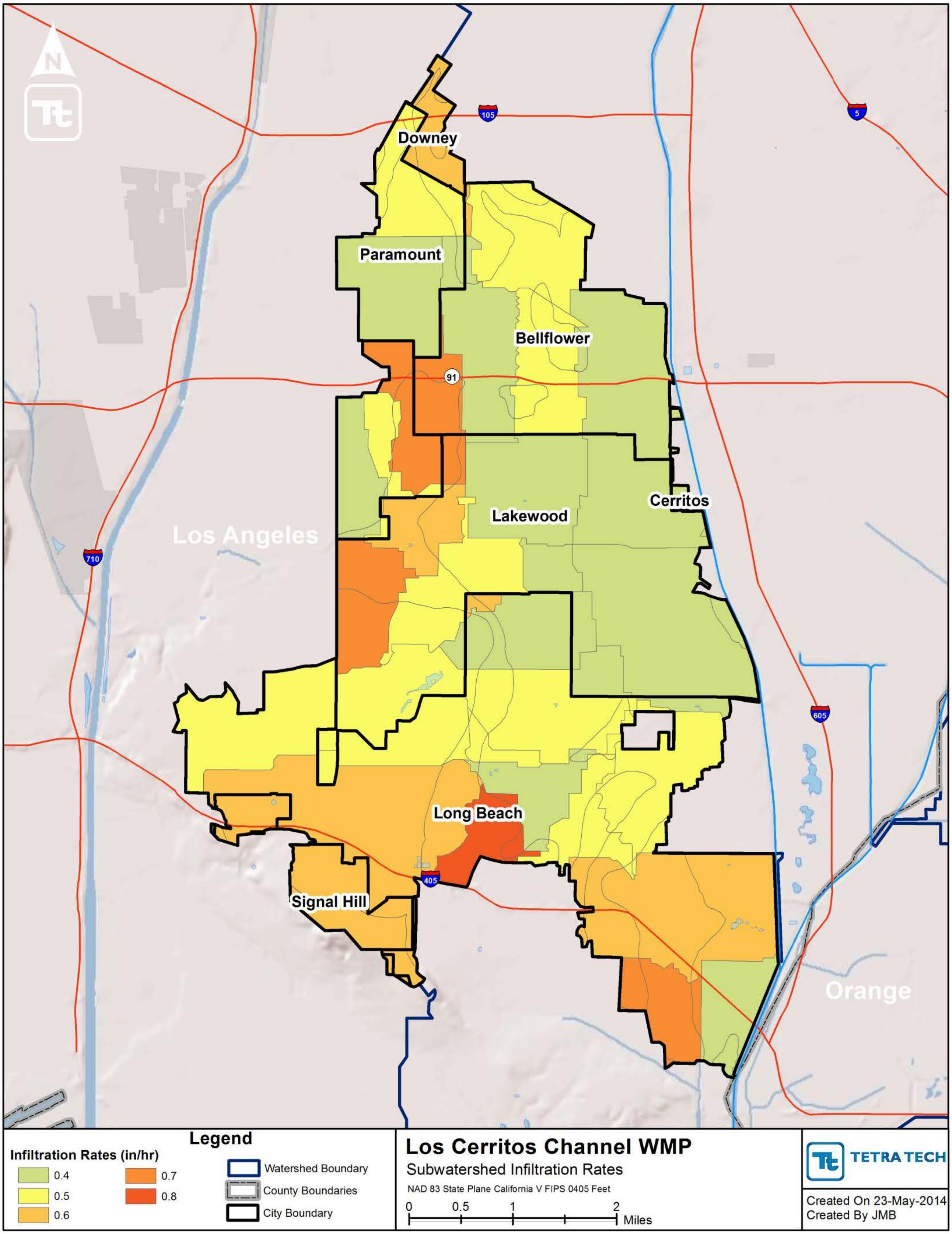

Figure 23. LCC Subwatershed Infiltration Rates

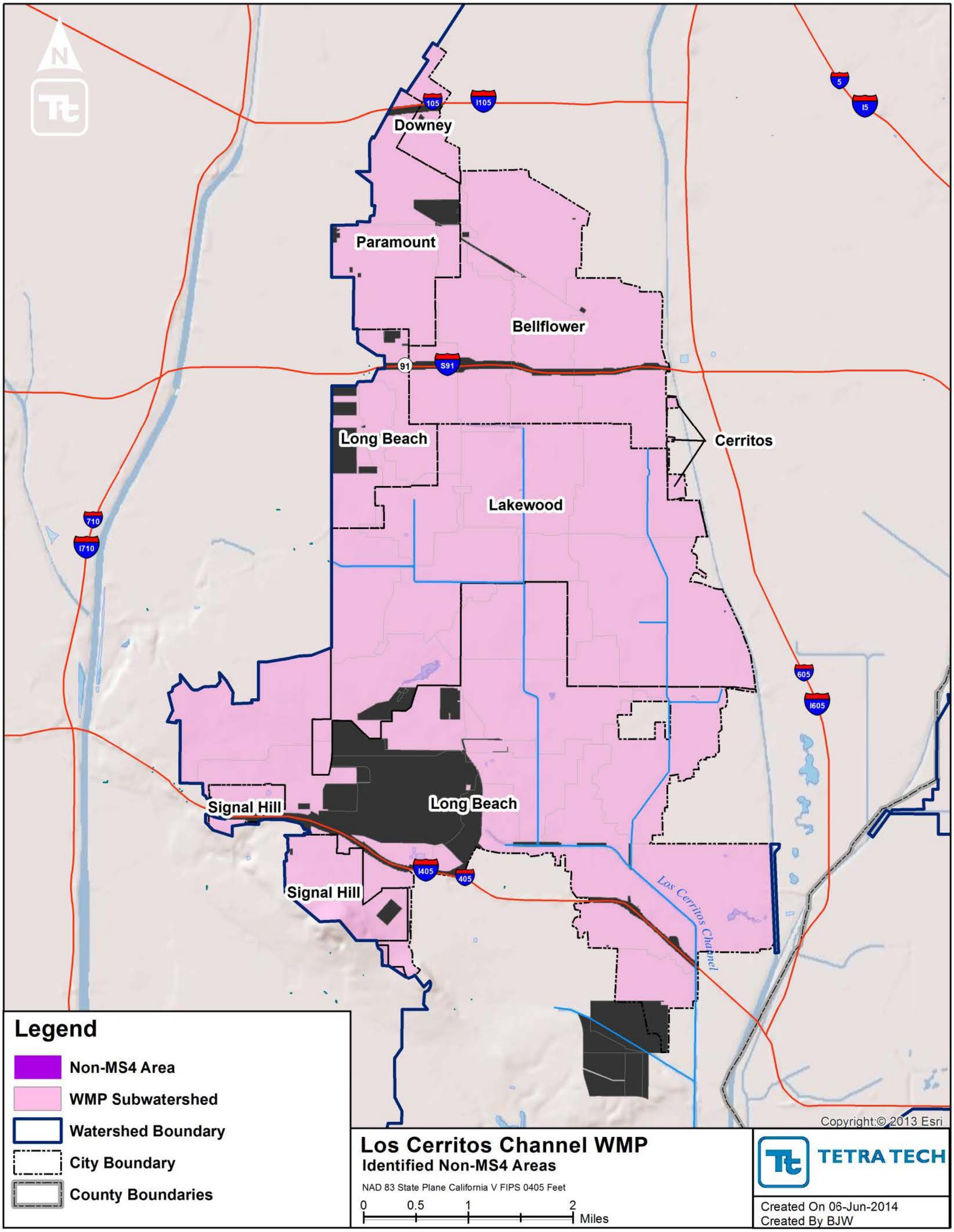

Figure 24. LCC Non-MS4 Permittees

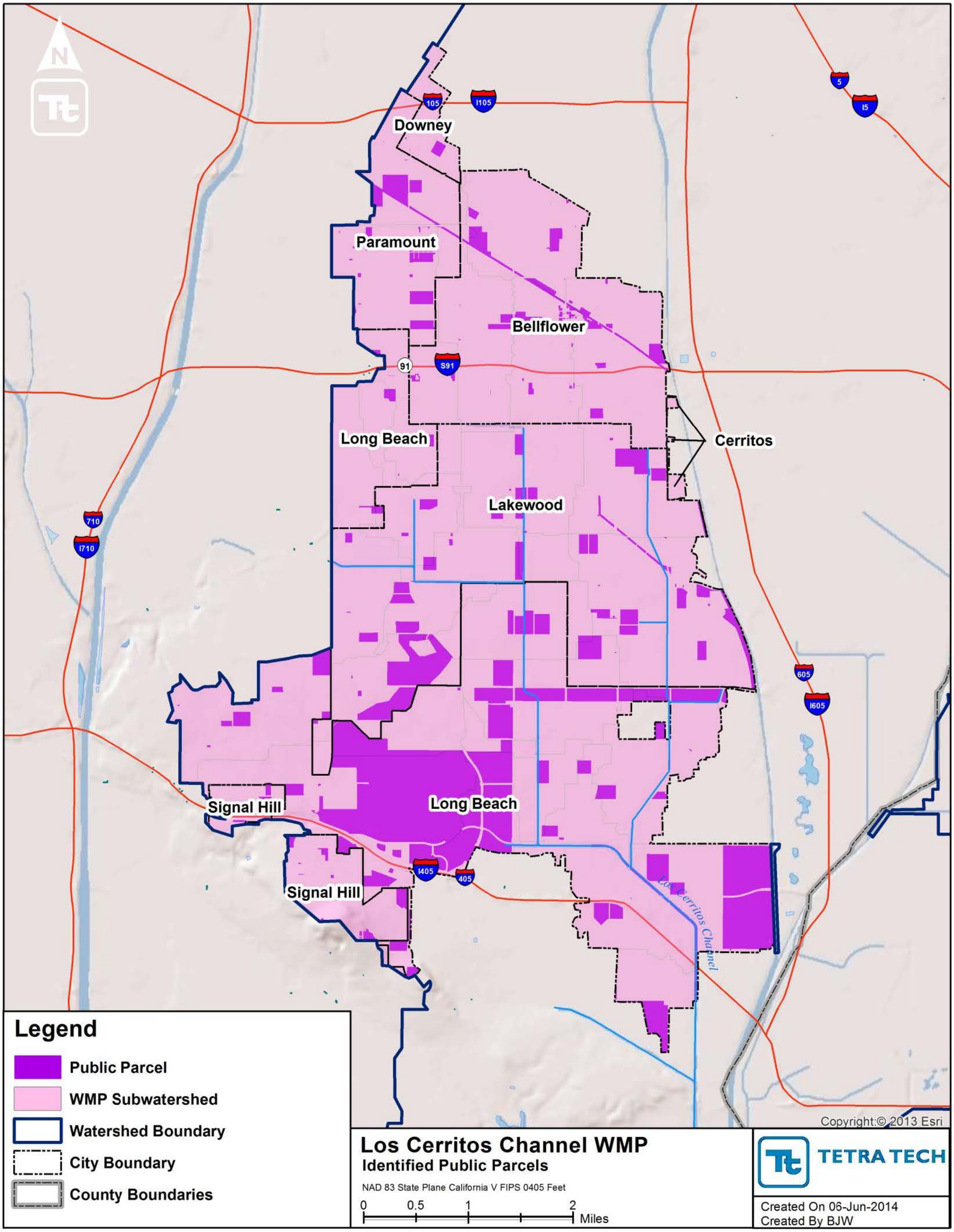

Figure 25. LCC identified public parcels

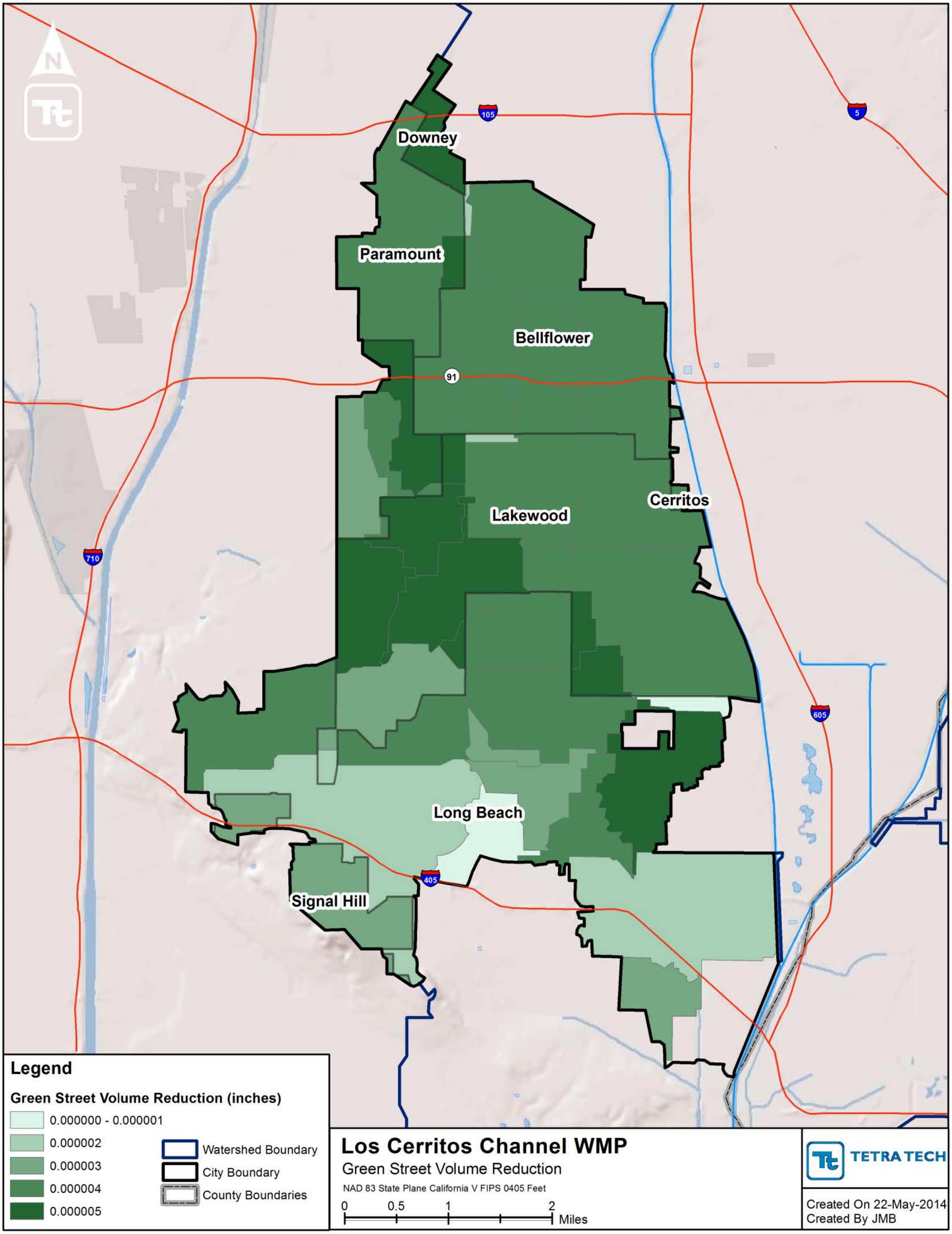

Figure 26. LCC ROW BMP Volume Reduction

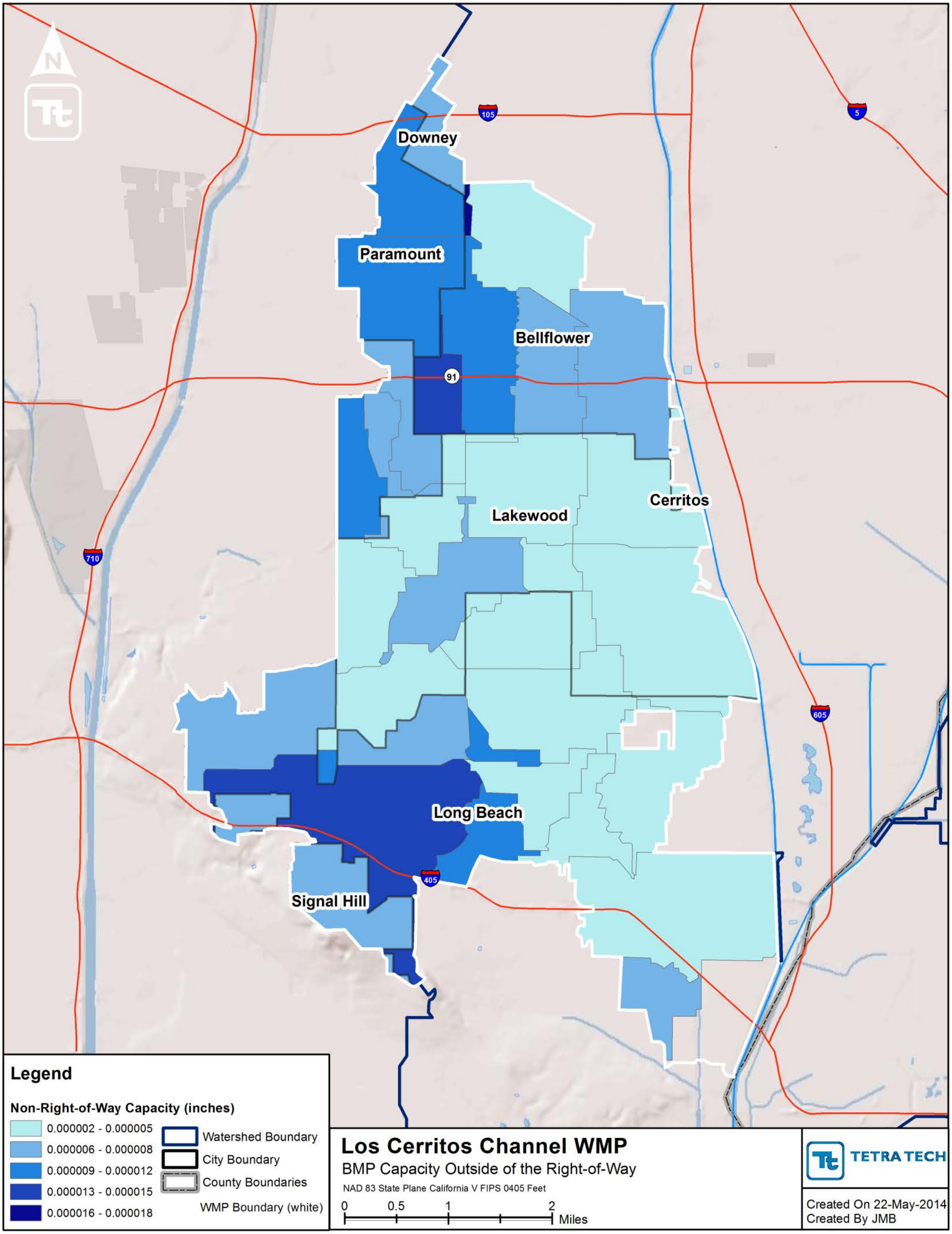

Figure 27. LCC BMP capacity outside of the right-of-way

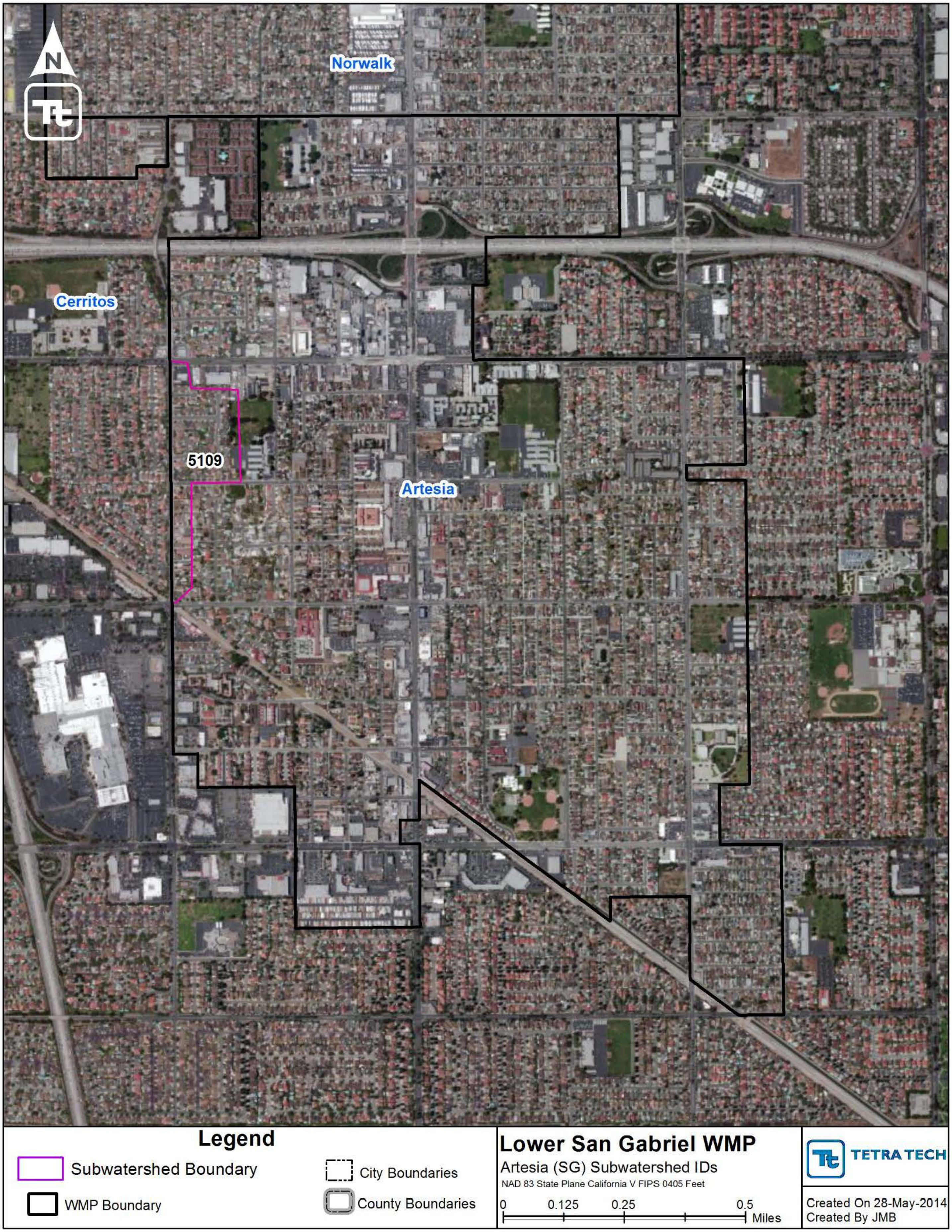

Figure 28. LSGR (SGR) Artesia Subwatershed IDs

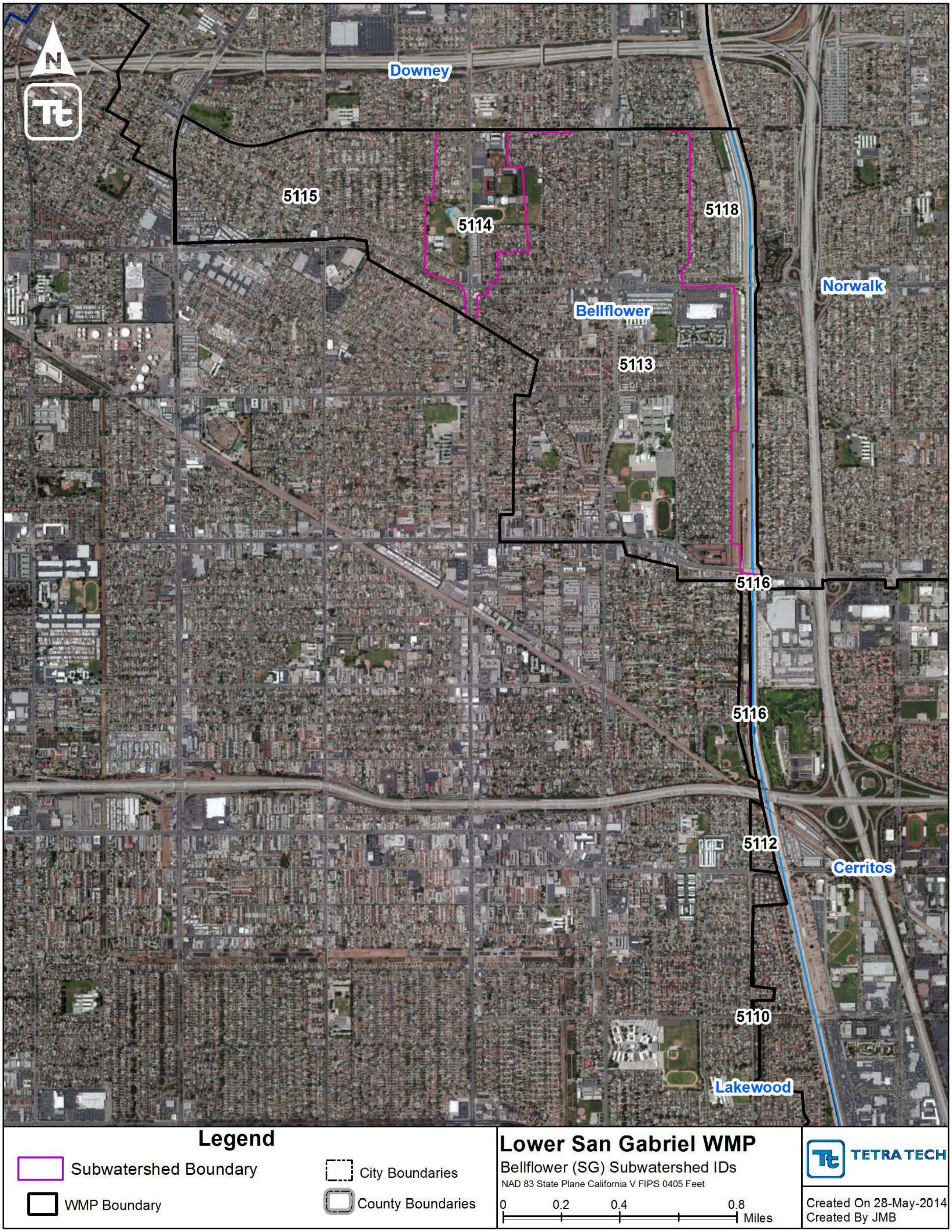

Figure 29. LSGR (SGR) Bellflower Subwatershed IDs

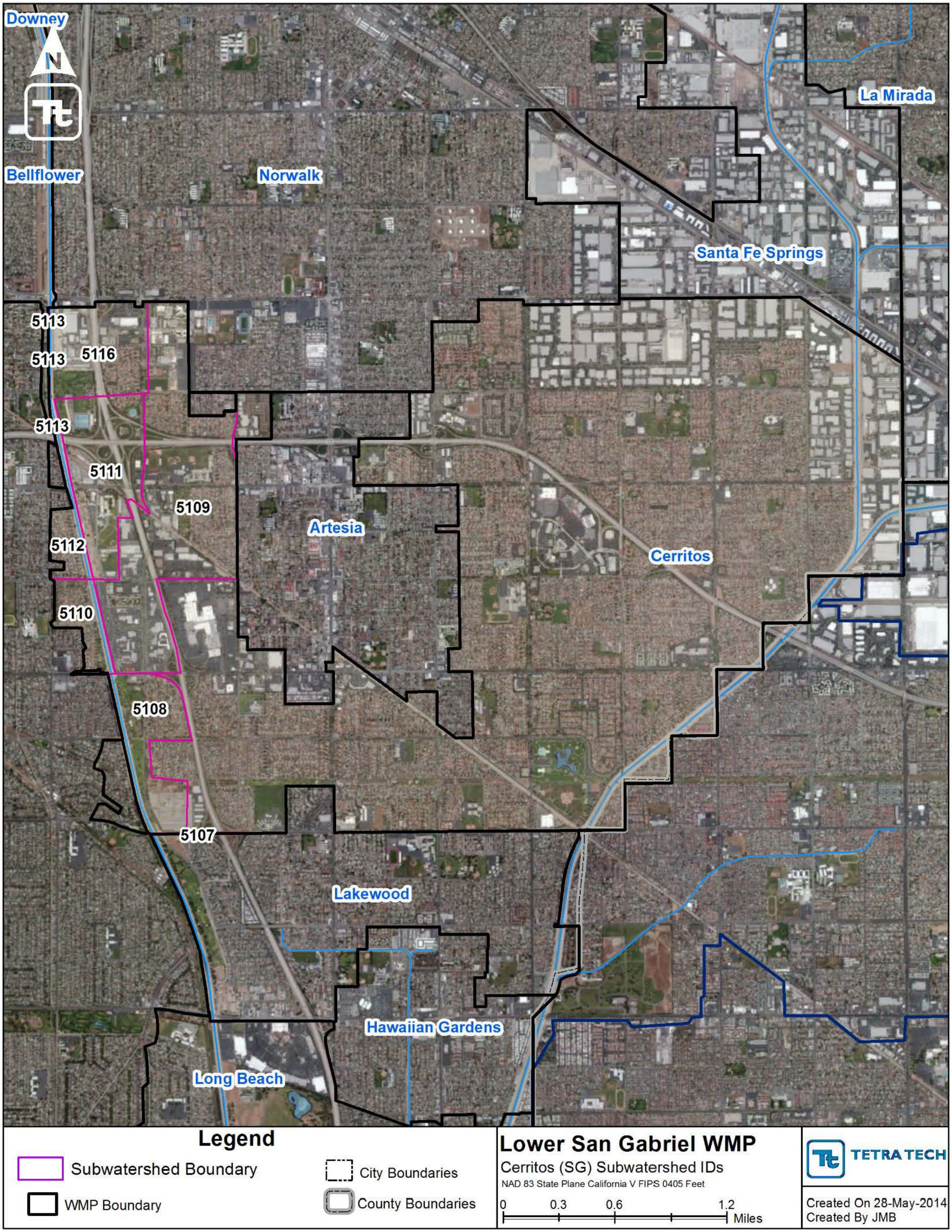

Figure 30. LSGR (SGR) Cerritos Subwatershed IDs

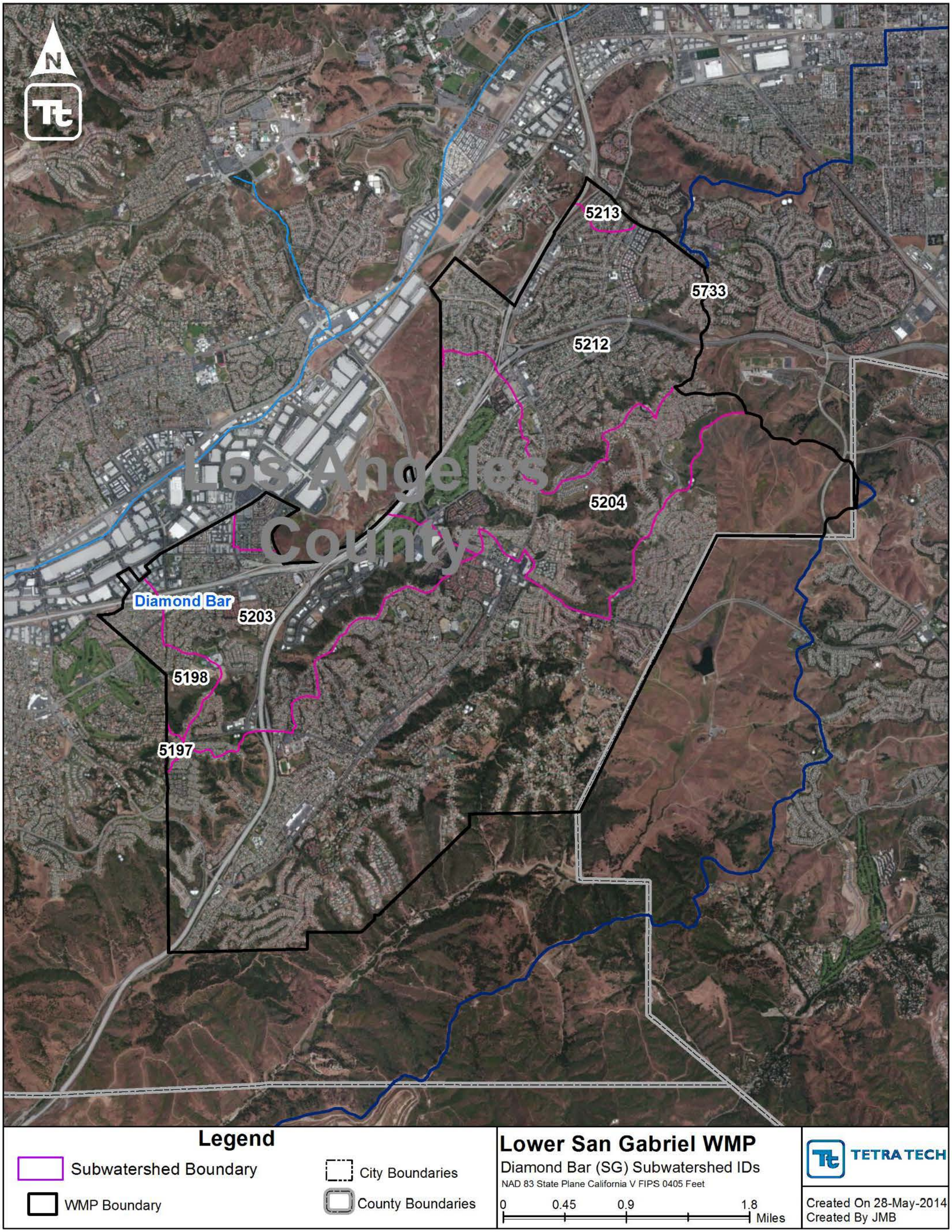

Figure 31. LSGR (SGR) Diamond Bar Subwatershed IDs

RB-AR15101

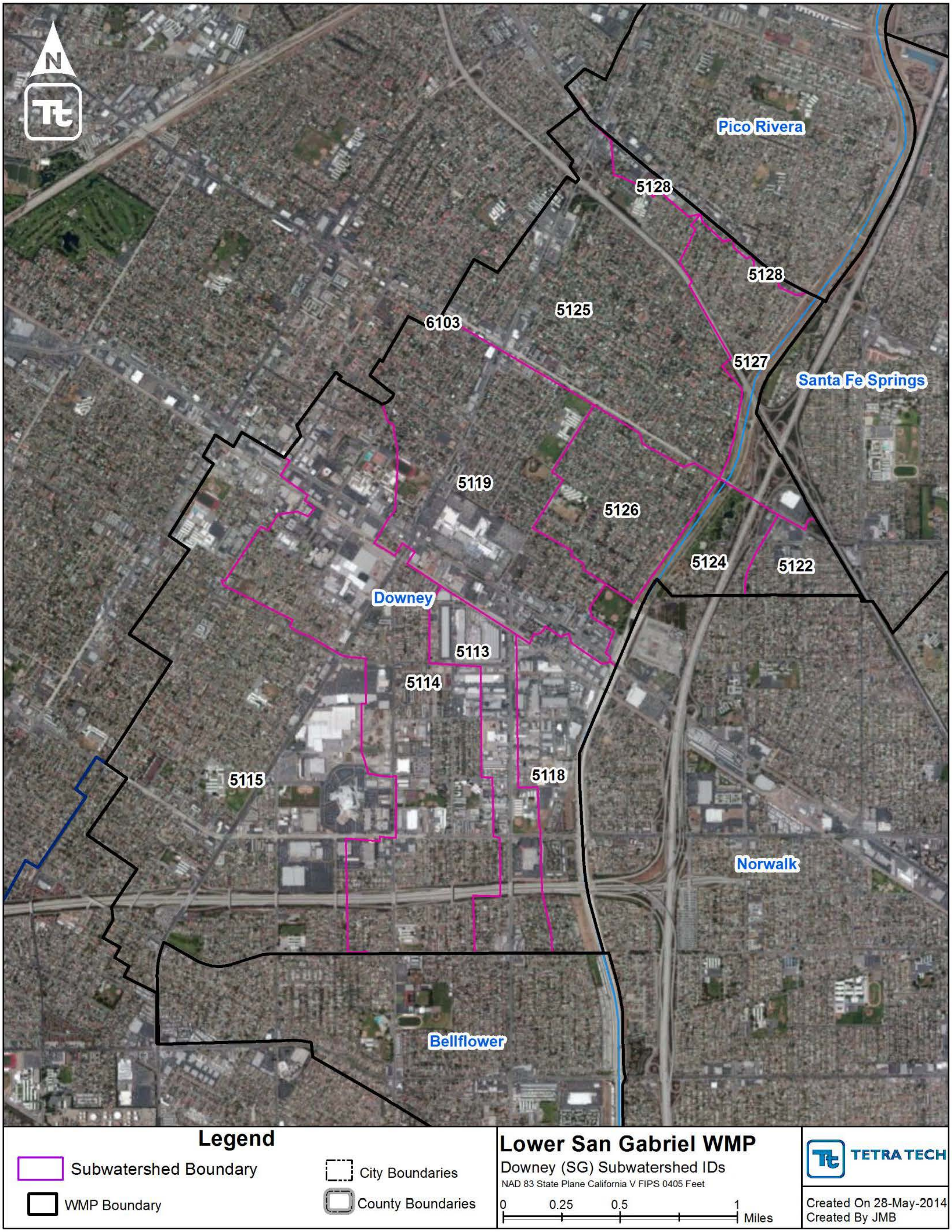

Figure 32. LSGR (SGR) Downey Subwatershed IDs

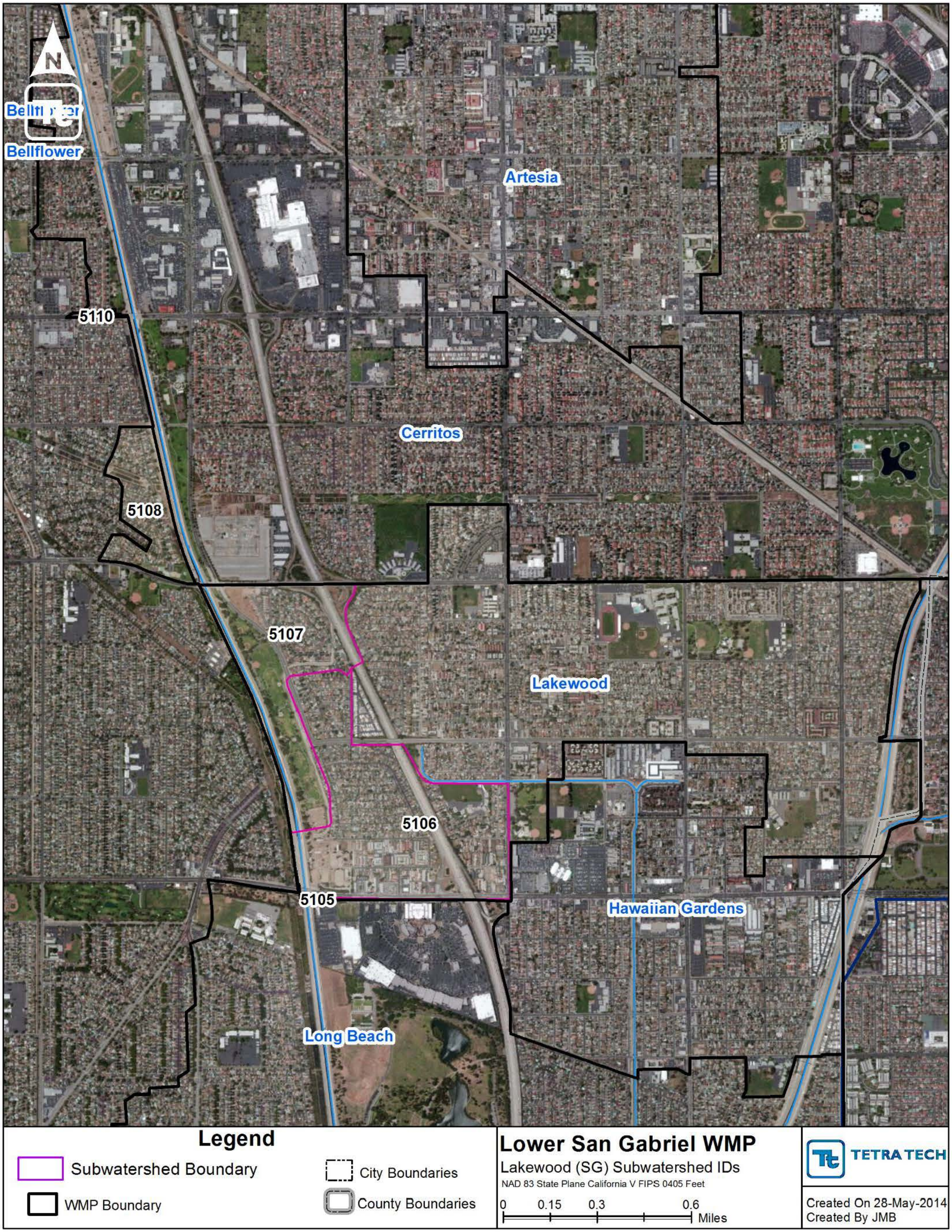

Figure 33. LSGR (SGR) Lakewood Subwatershed IDs

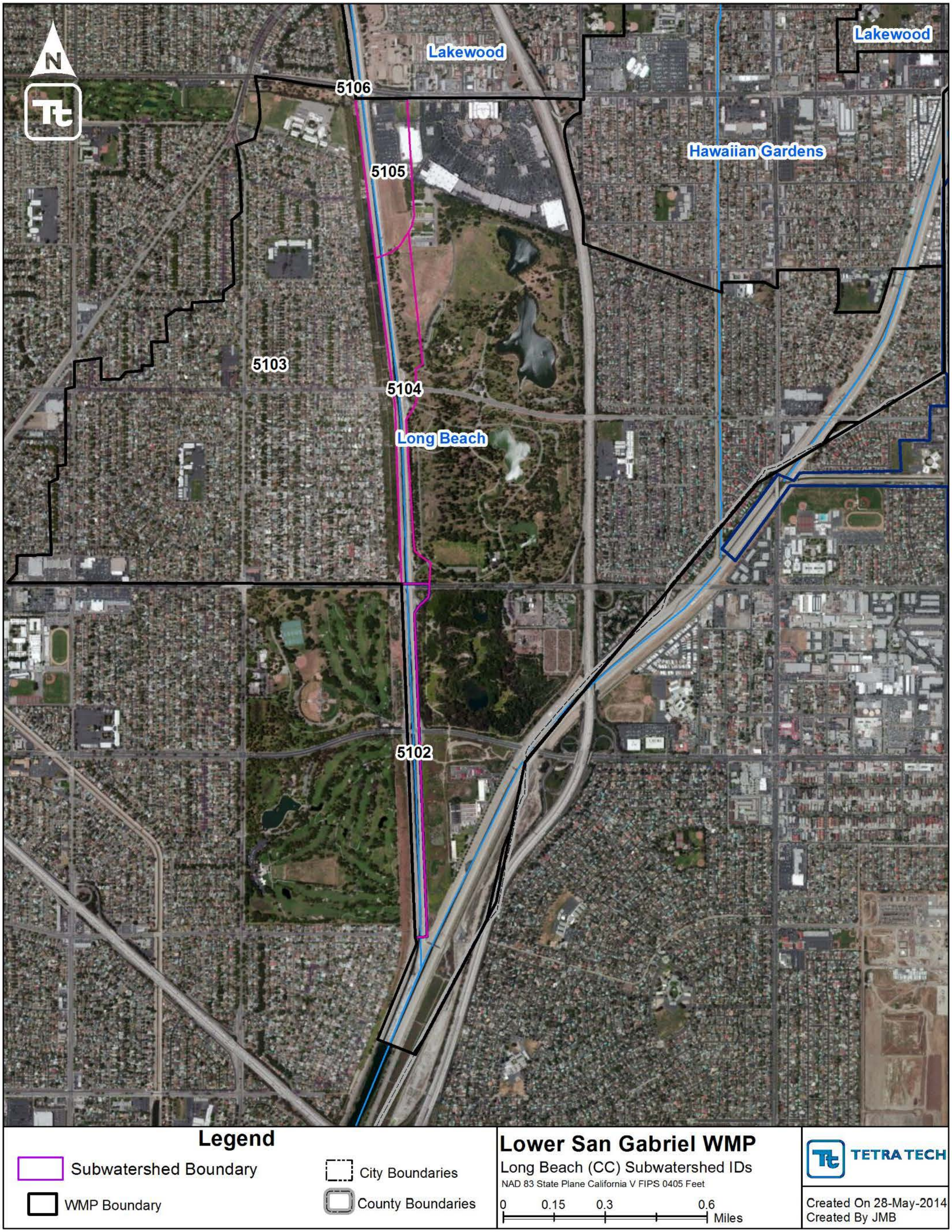

Figure 34. LSGR (SGR) Long Beach Subwatershed IDs

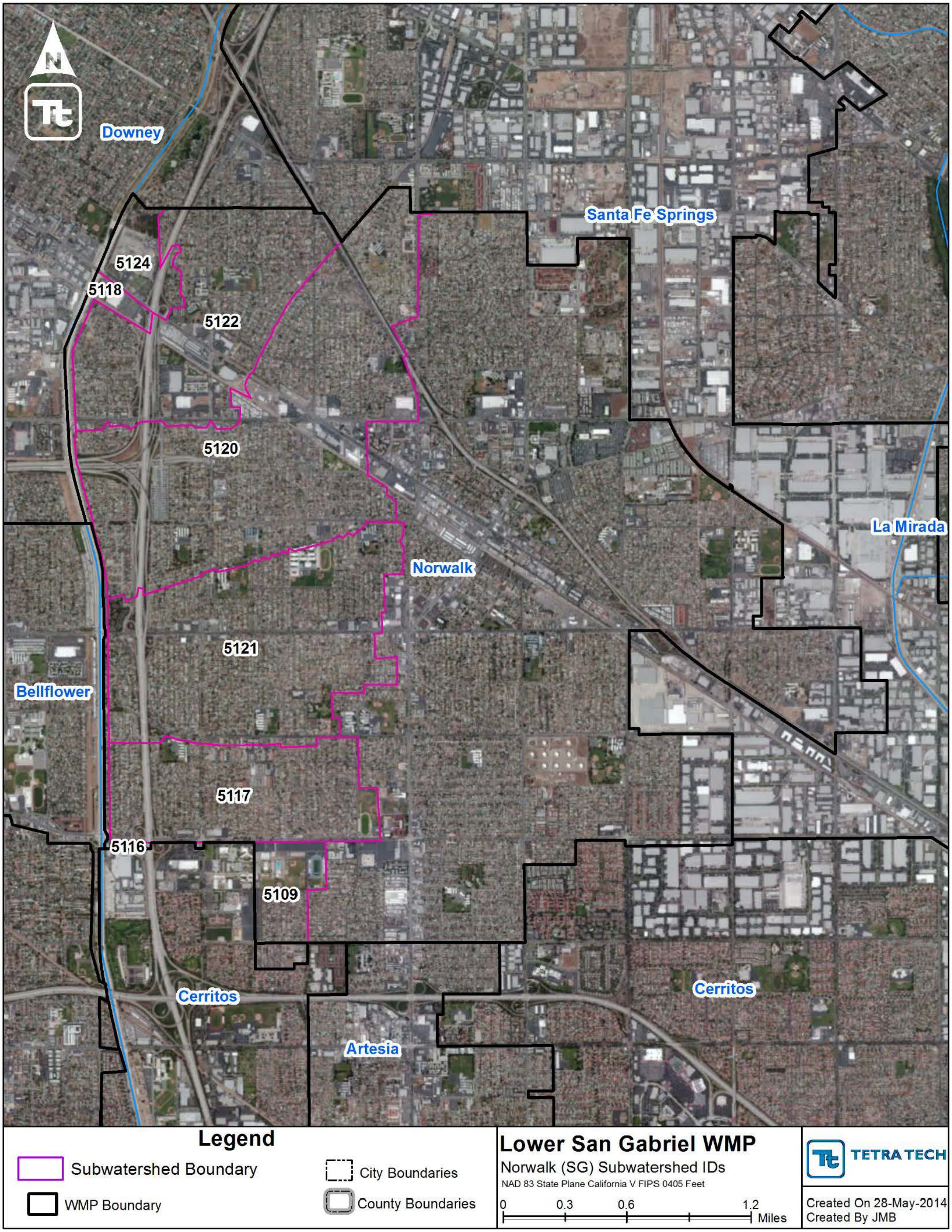

Figure 35. LSGR (SGR) Norwalk Subwatershed IDs

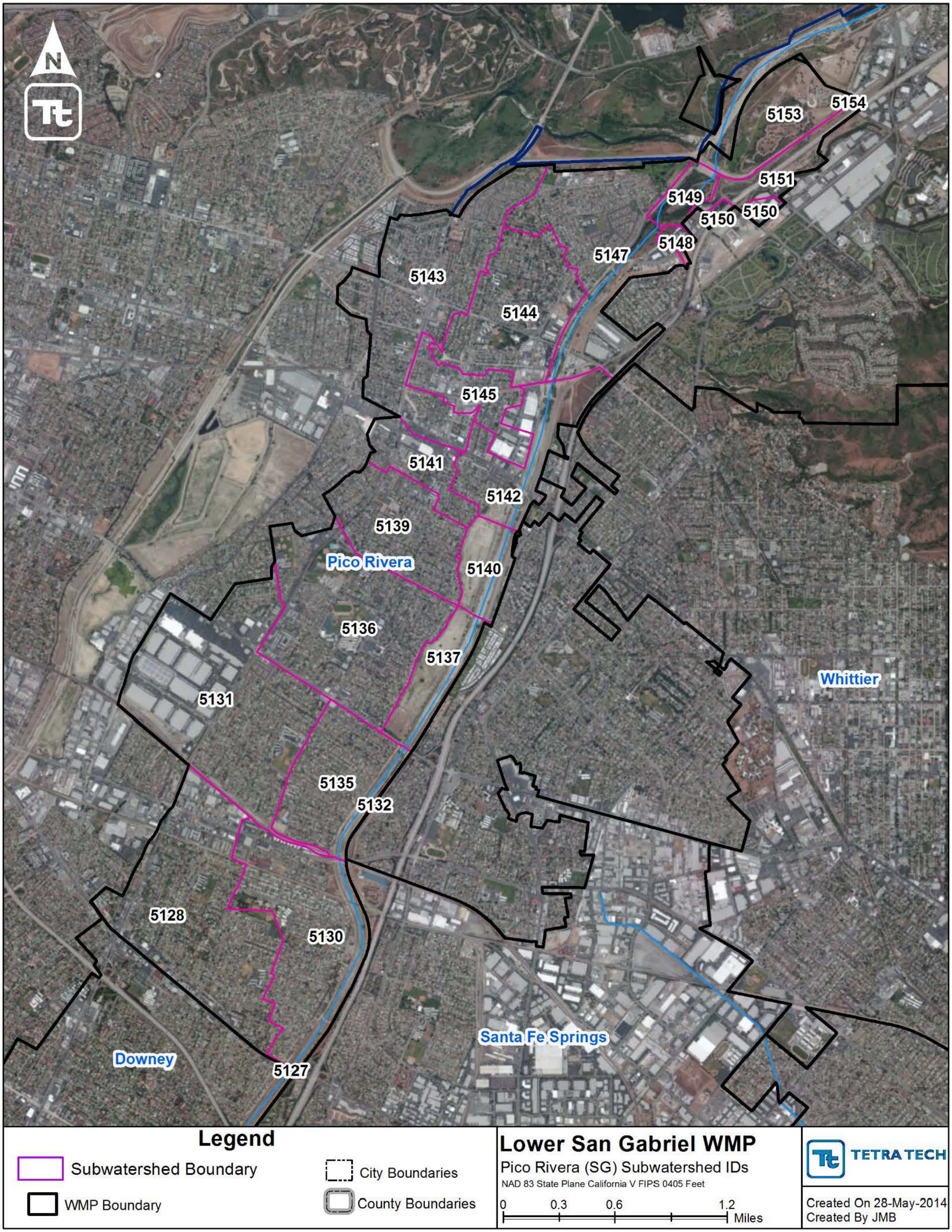

Figure 36. LSGR (SGR) Pico Rivera Subwatershed IDs

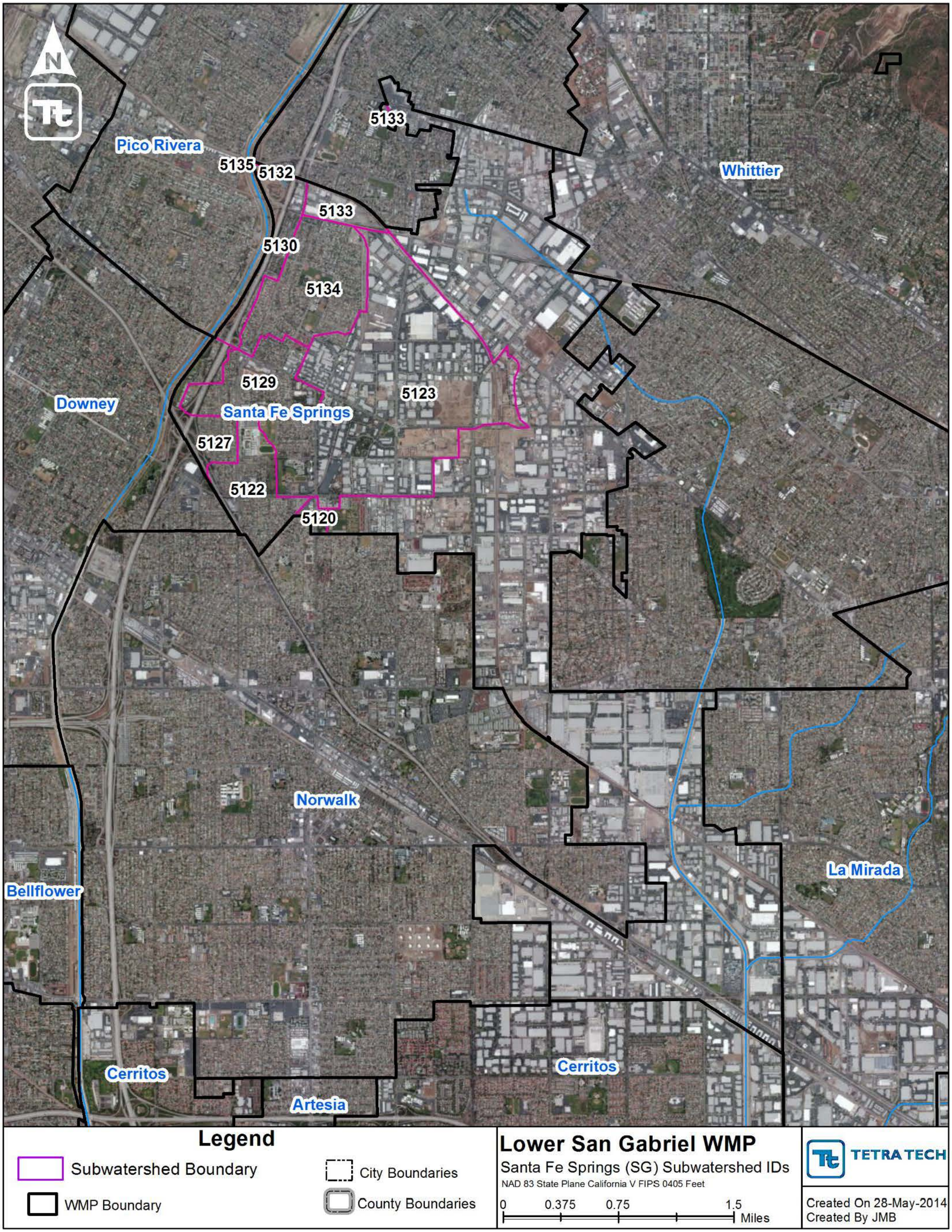

Figure 37. LSGR (SGR) Santa Fe Springs Subwatershed IDs

RB-AR15107

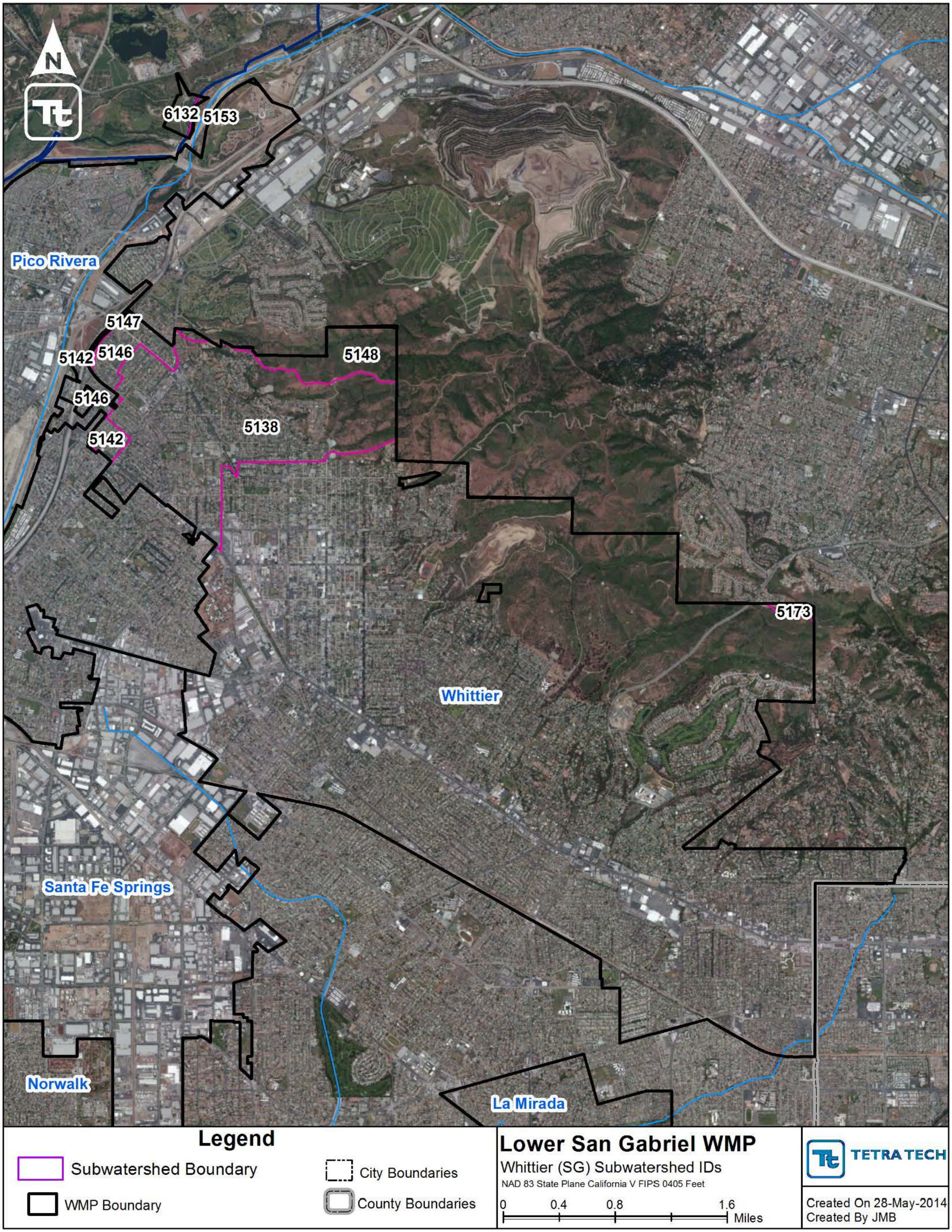

Figure 38. LSGR (SGR) Whittier Subwatershed IDs

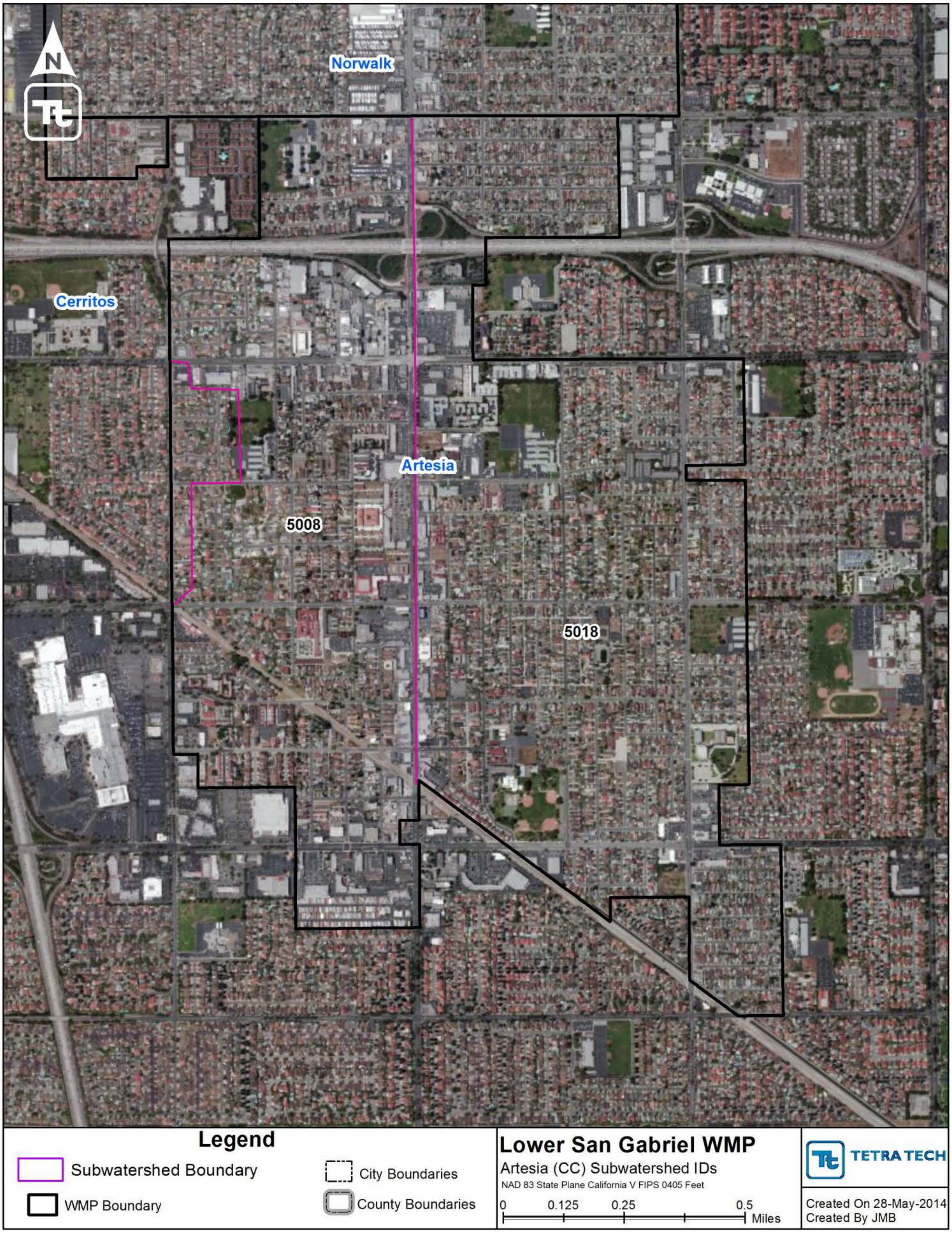

Figure 39. LSGR (CC) Artesia Subwatershed IDs

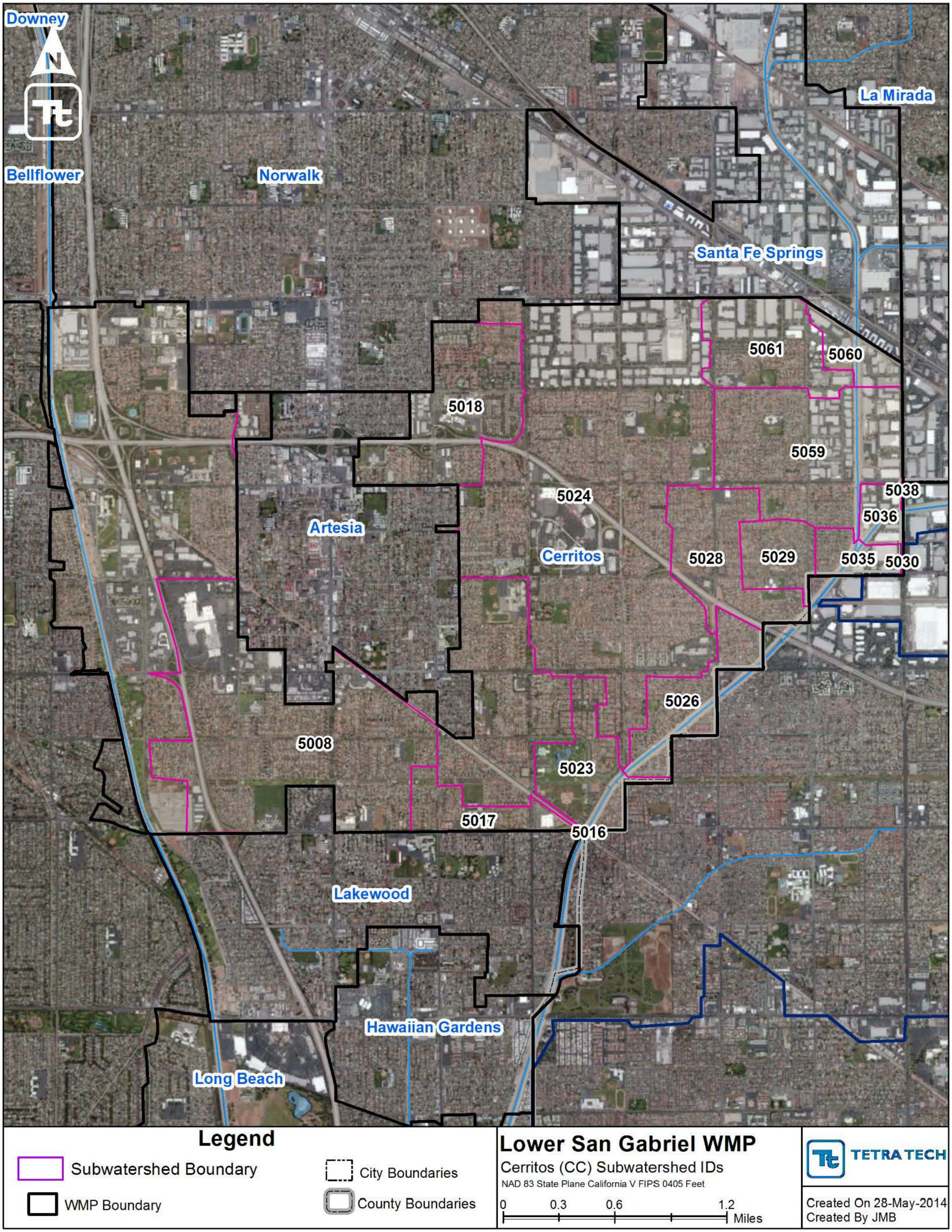

Figure 40. LSGR (CC) Cerritos Subwatershed IDs

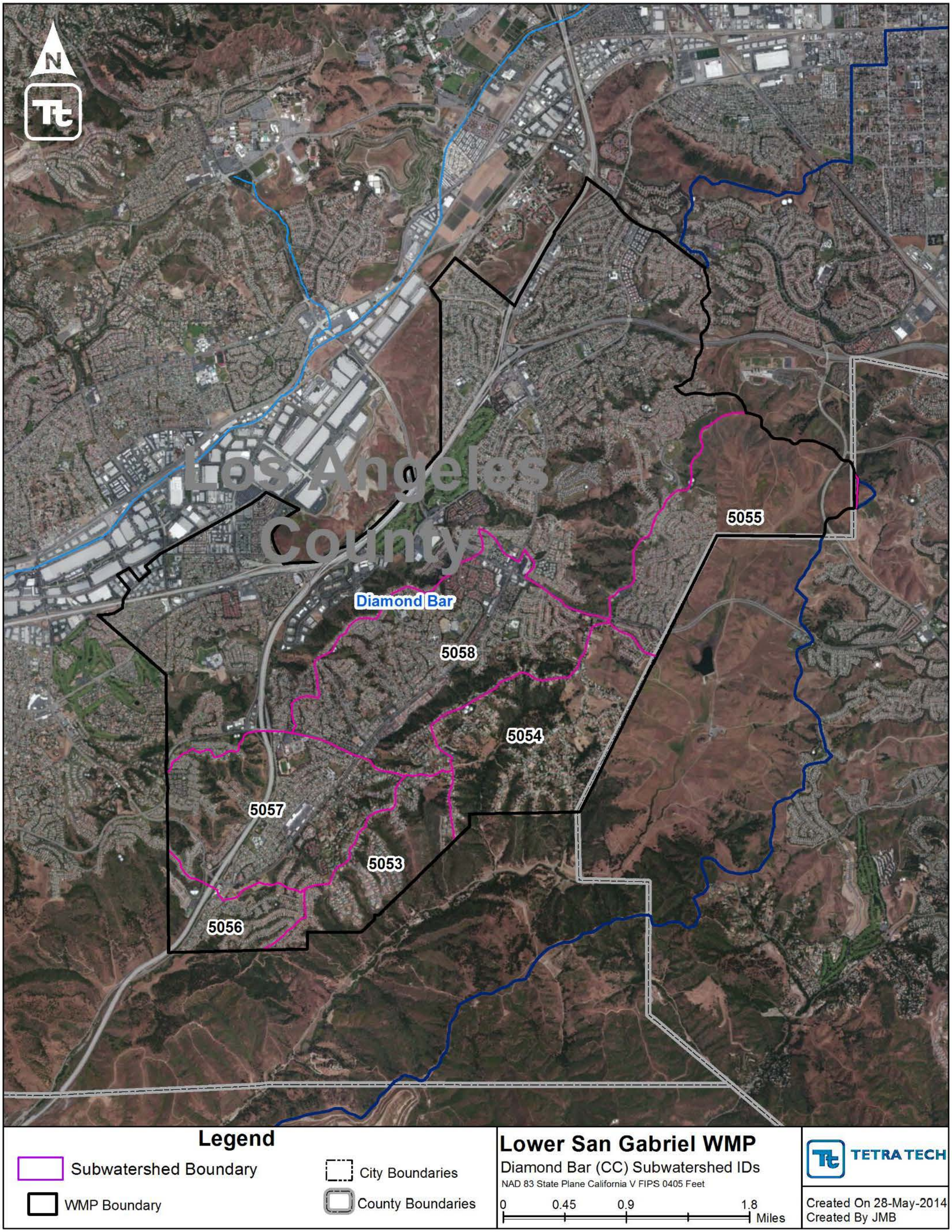

Figure 41. LSGR (CC) Diamond Bar Subwatershed IDs

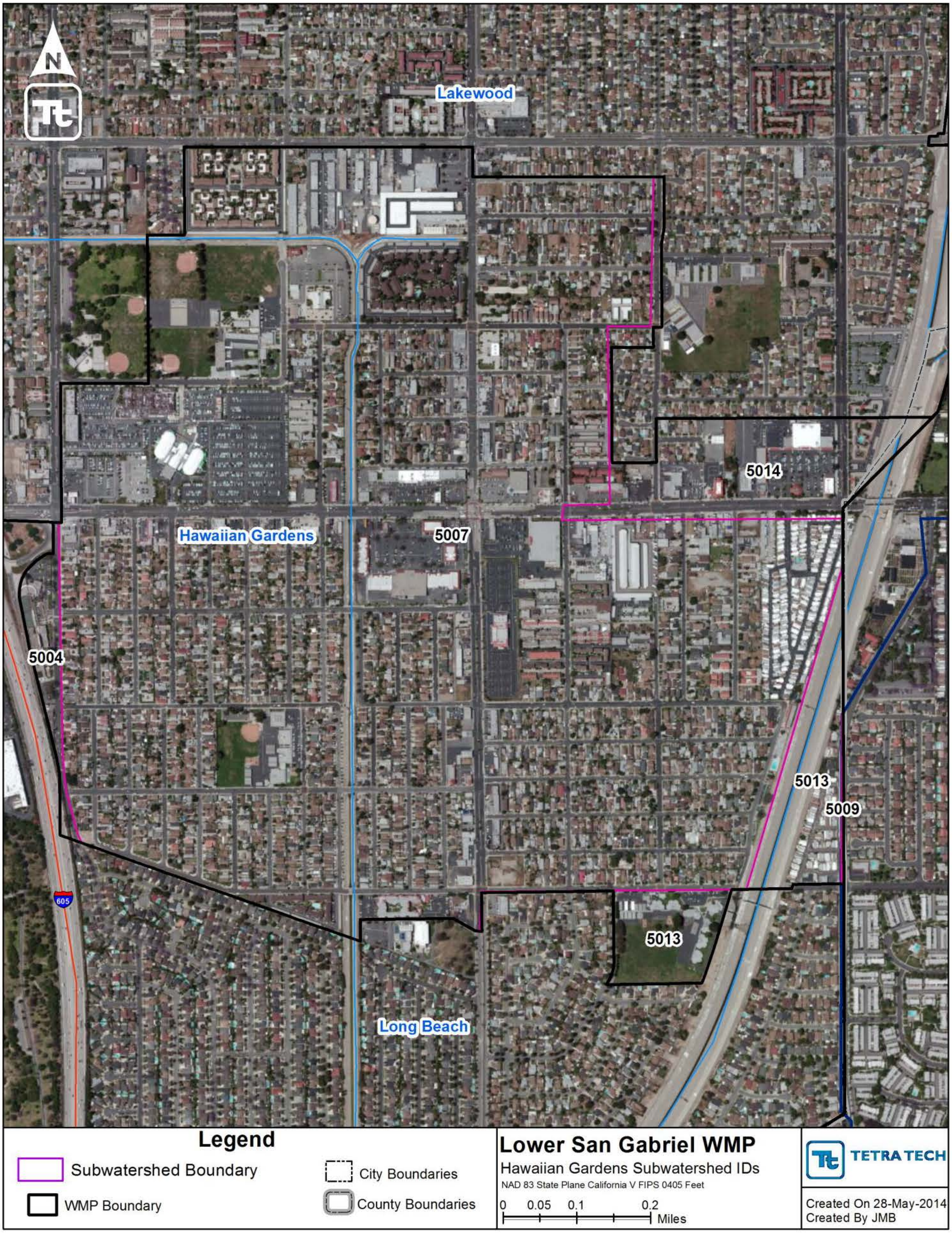

Figure 42. LSGR (CC) Hawaiian Gardens Subwatershed IDs

RB-AR15112

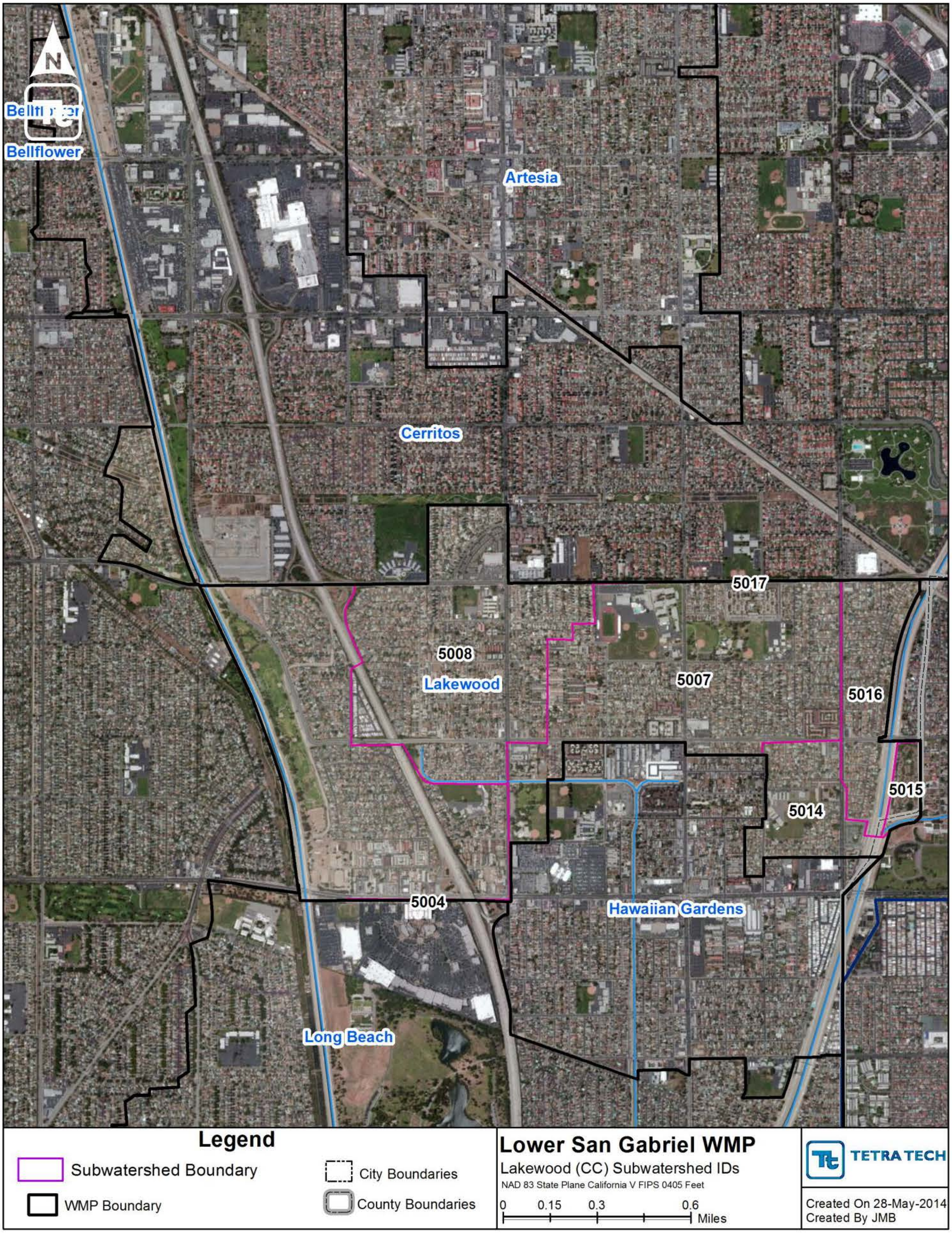

Figure 43. LSGR (CC) Lakewood Subwatershed IDs

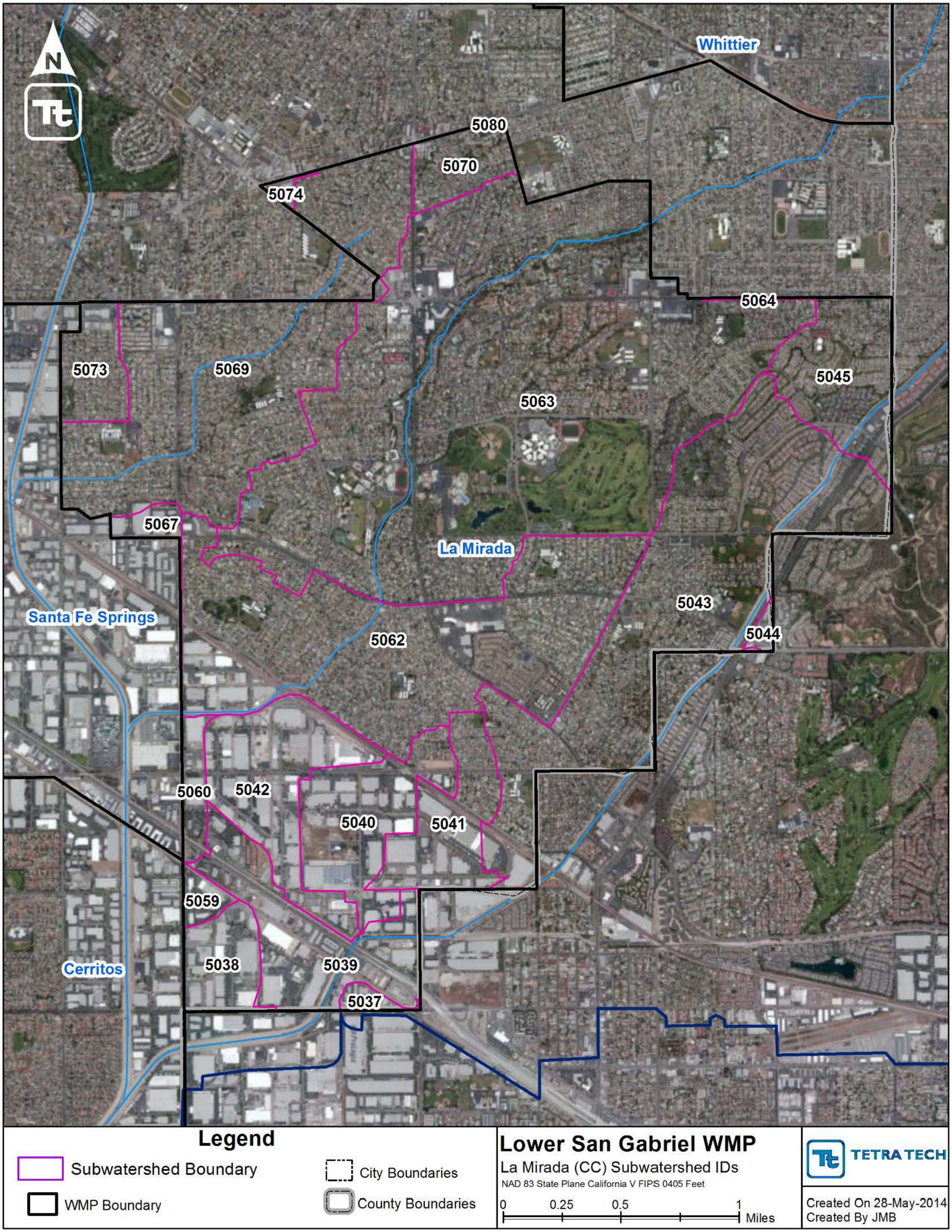

Figure 44. LSGR (CC) La Mirada Subwatershed IDs

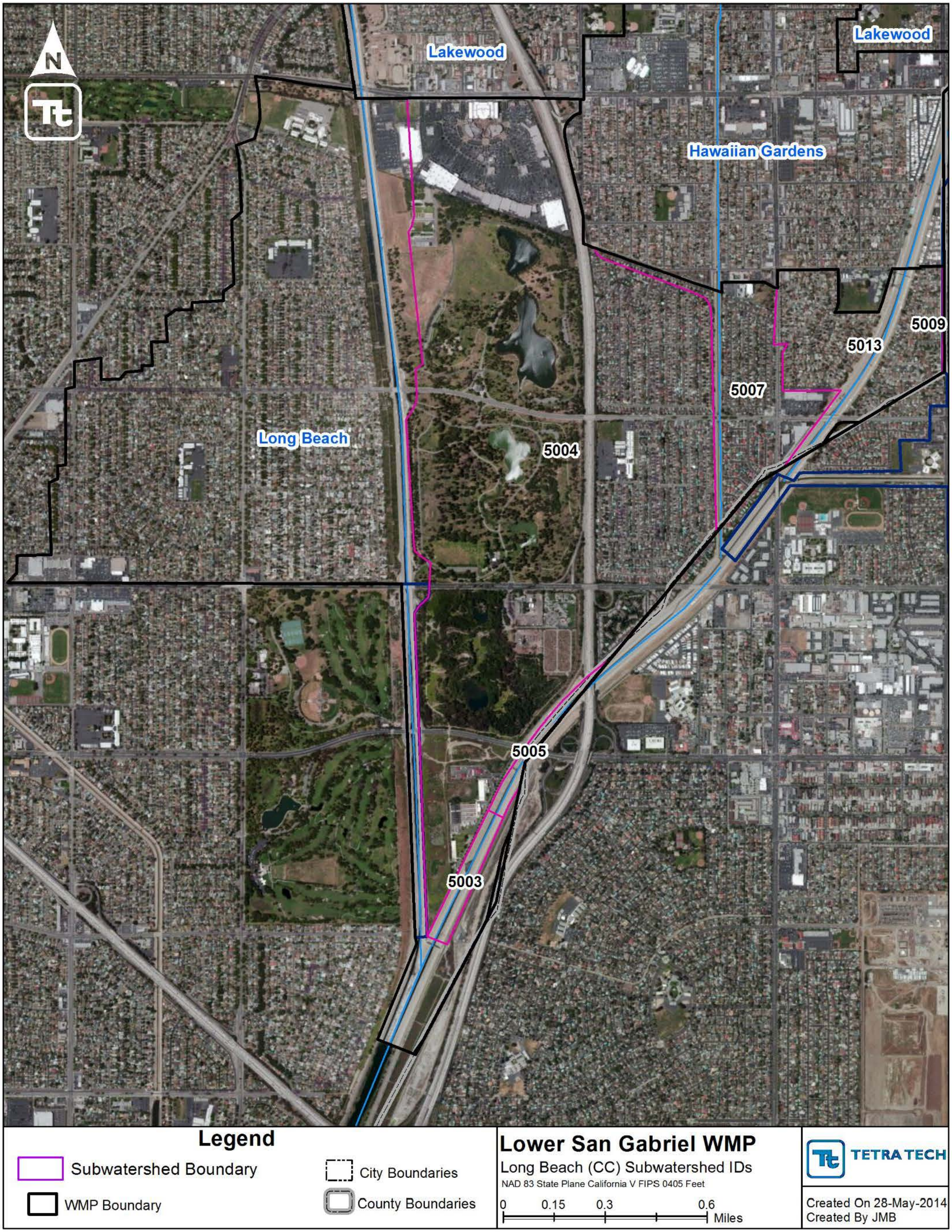

Figure 45. LSGR (CC) Long Beach Subwatershed IDs

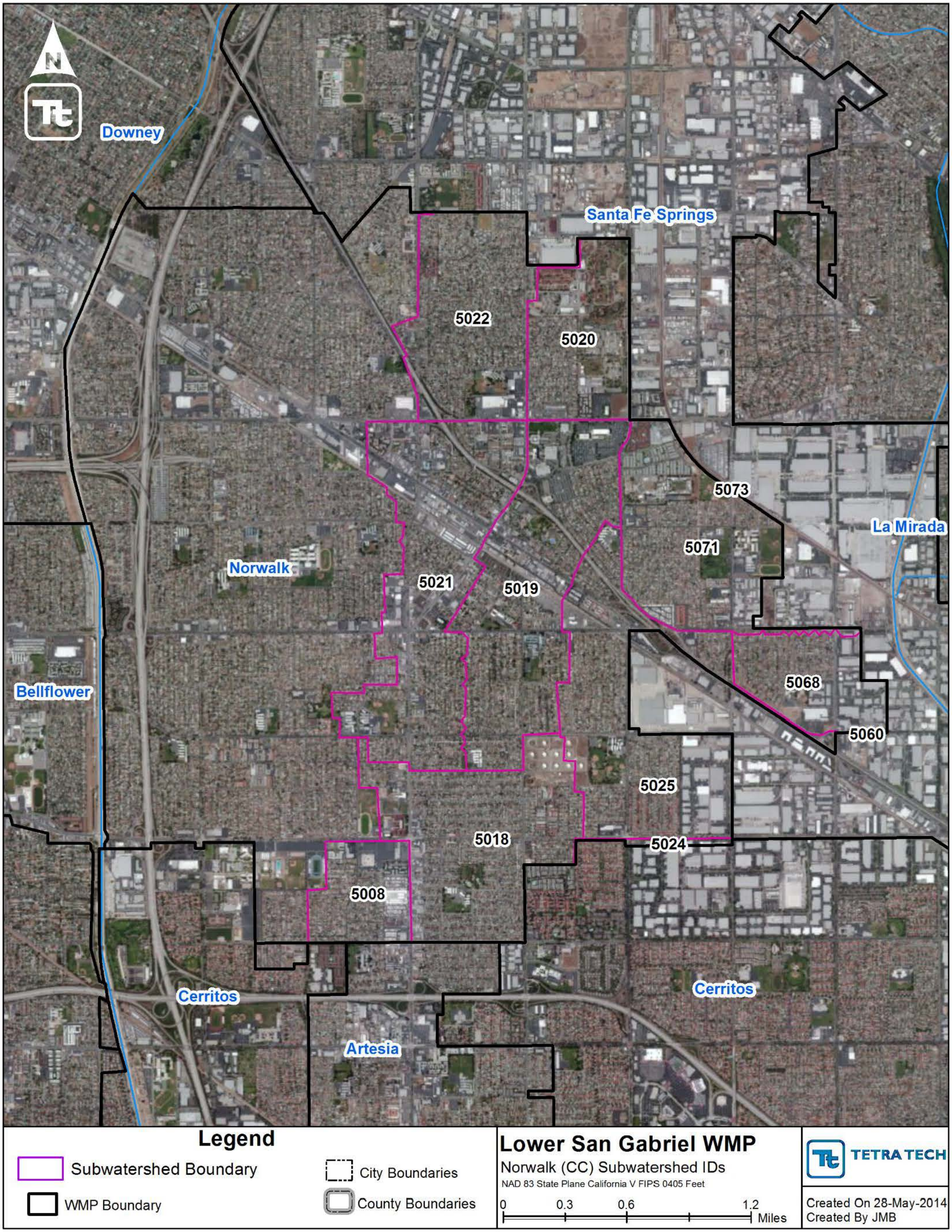

Figure 46. LSGR (CC) Norwalk Subwatershed IDs

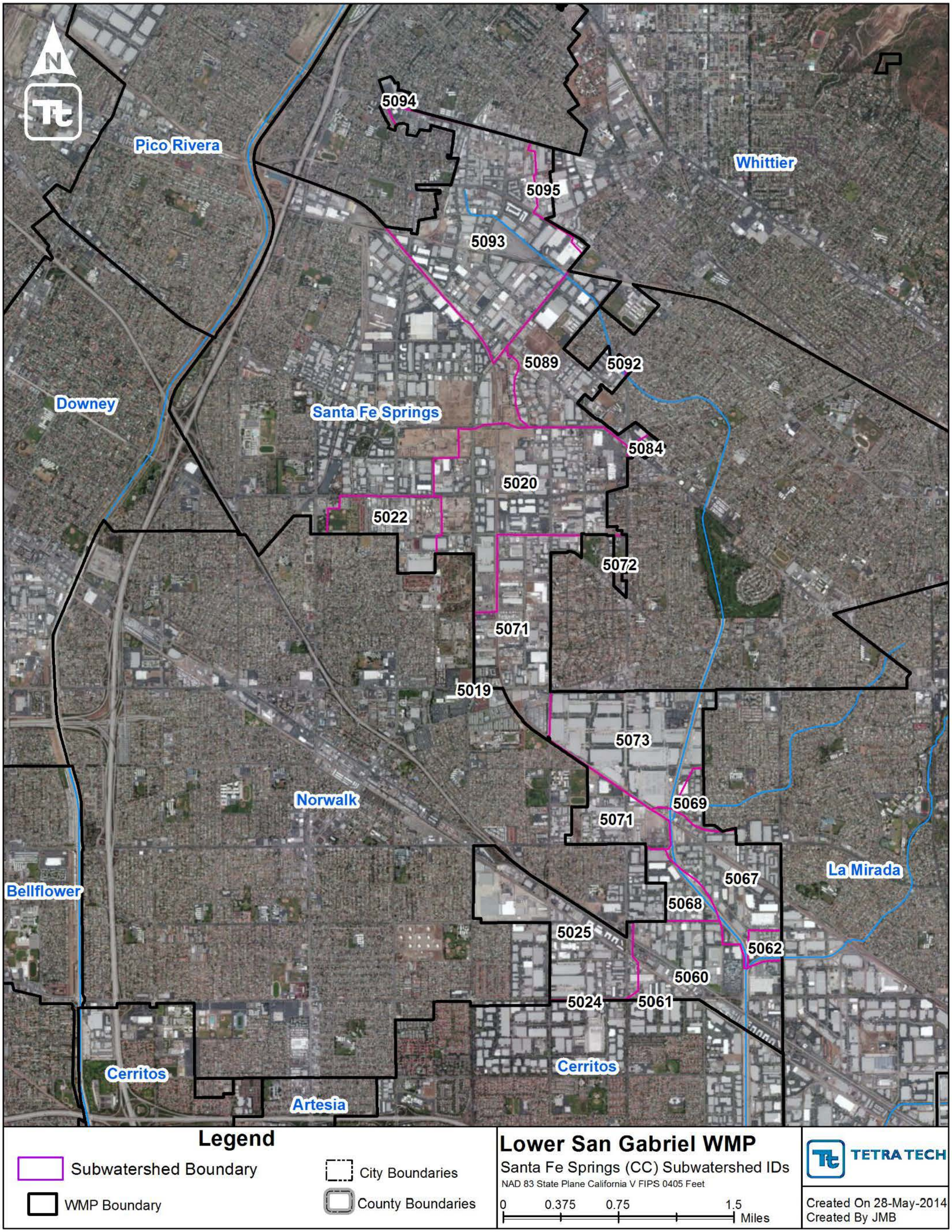

Figure 47. LSGR (CC) Santa Fe Springs Subwatershed IDs

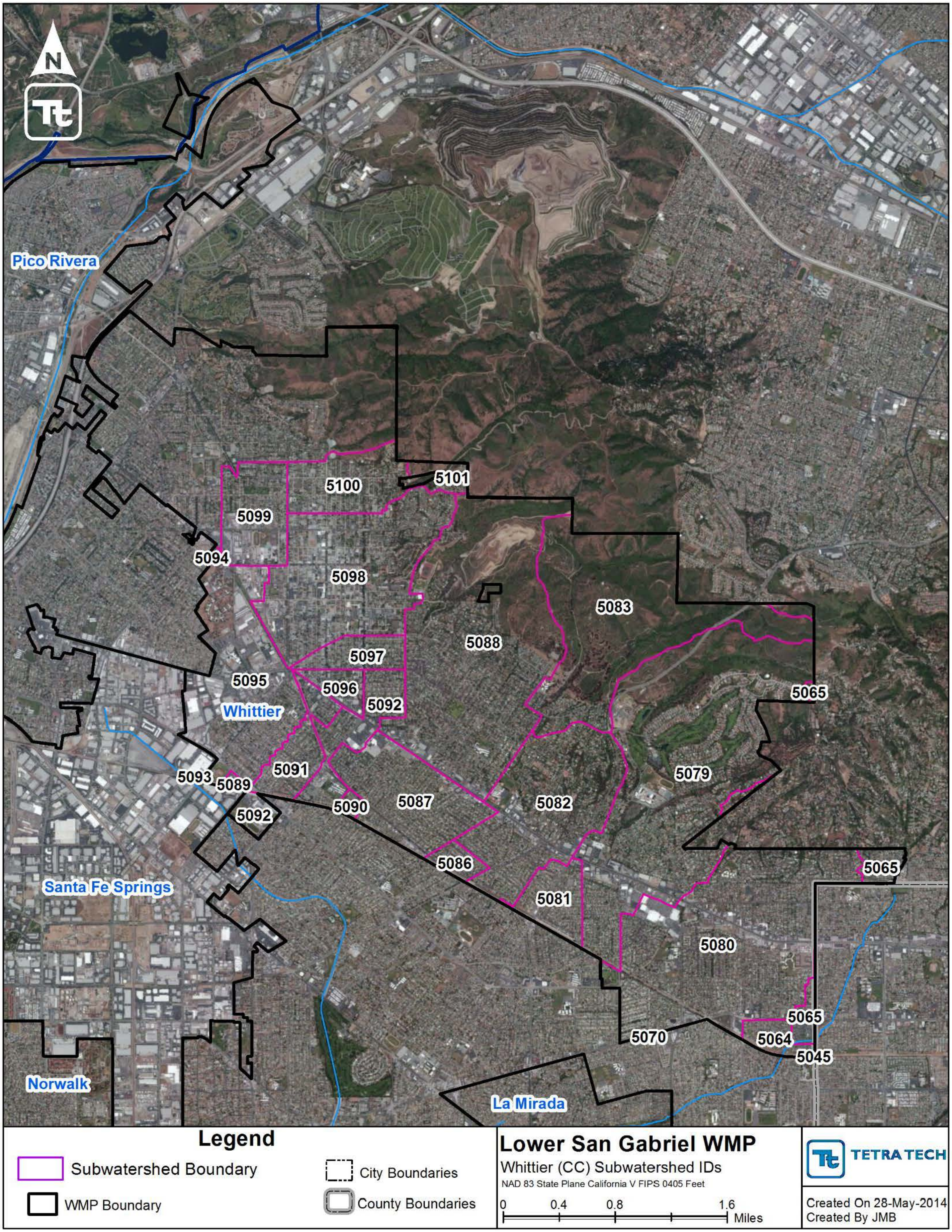

Figure 48. LSGR (CC) Whittier Subwatershed IDs

RB-AR15118

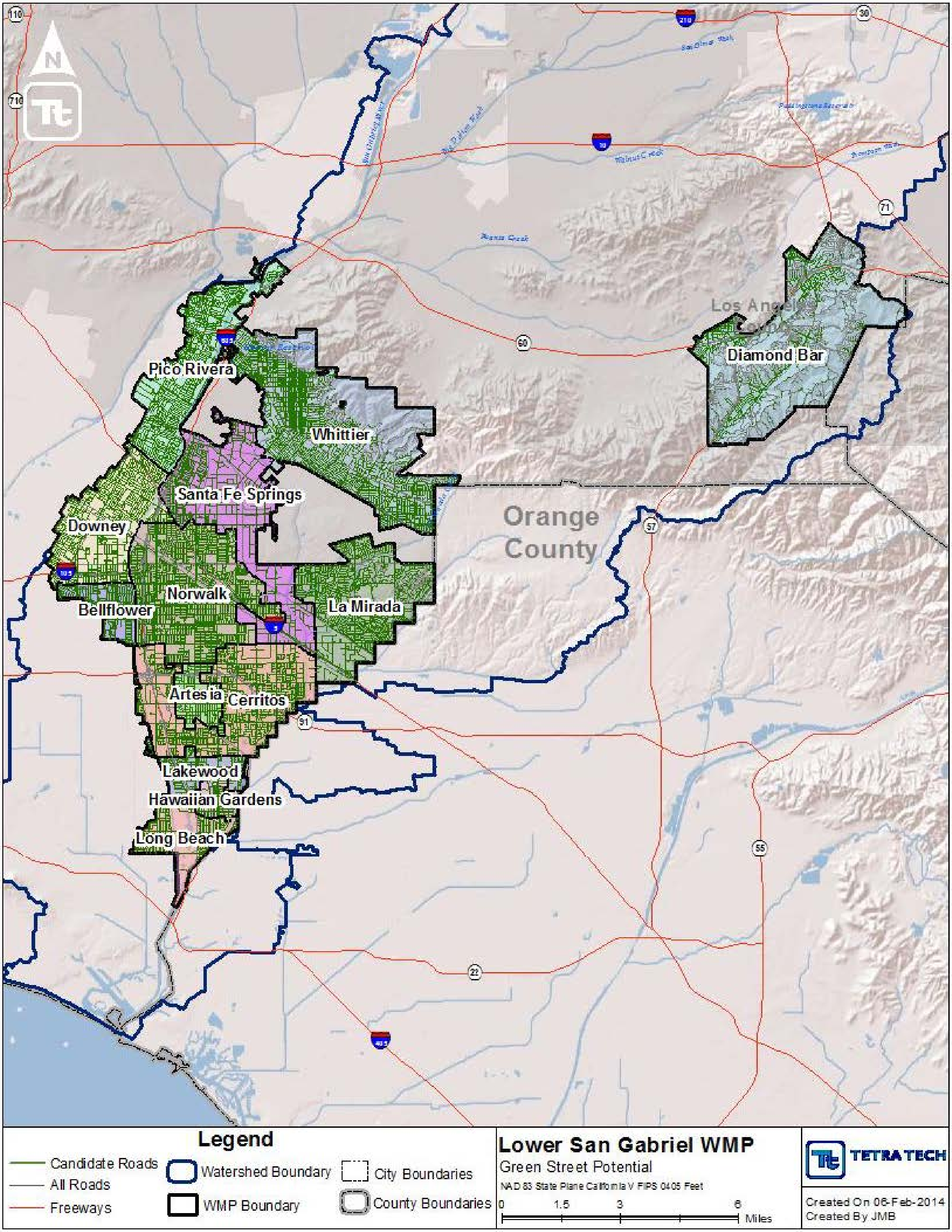

Figure 49. LSGR ROW BMP Potential Opportunities

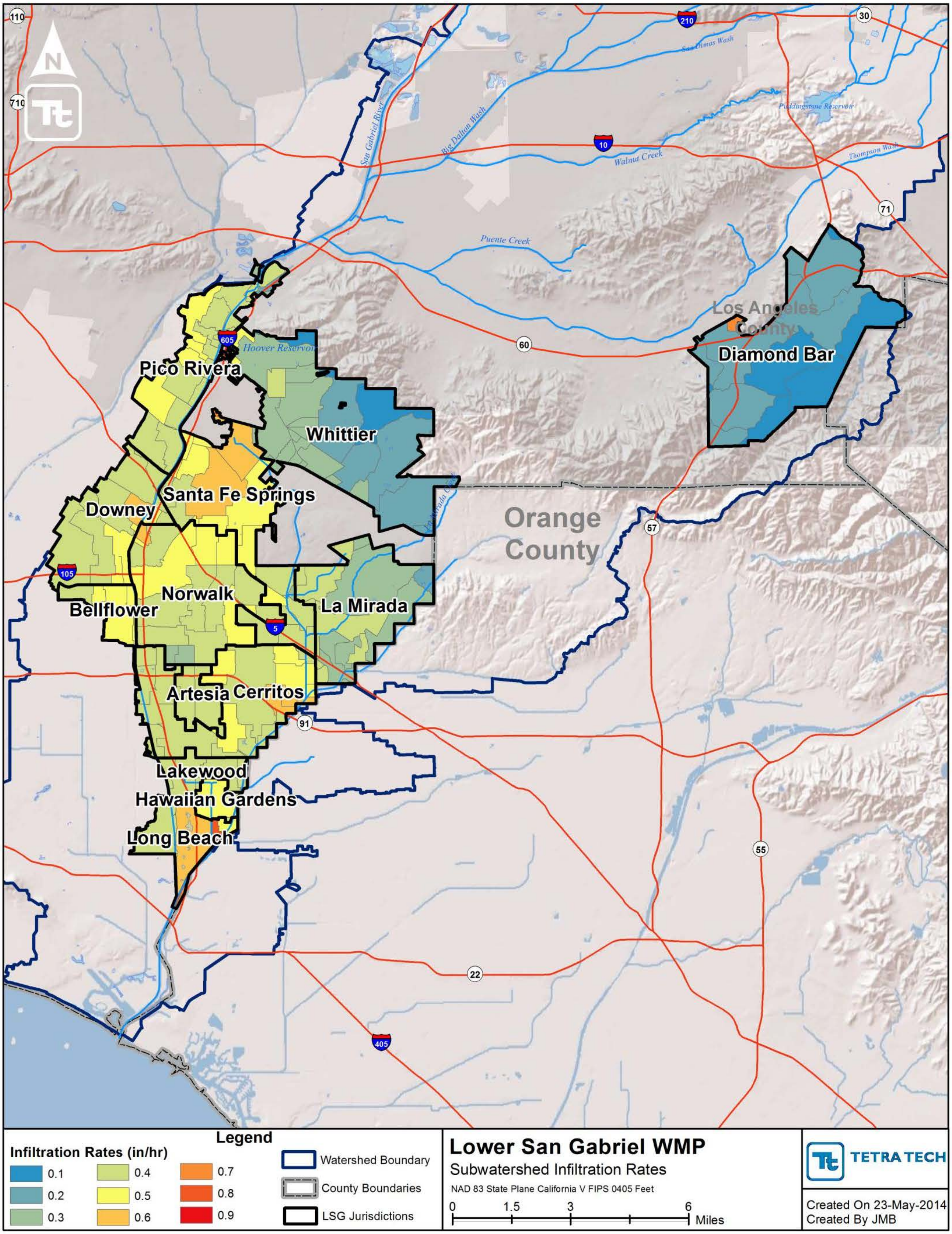

Figure 50. LSGR Subwatershed Infiltration Rates

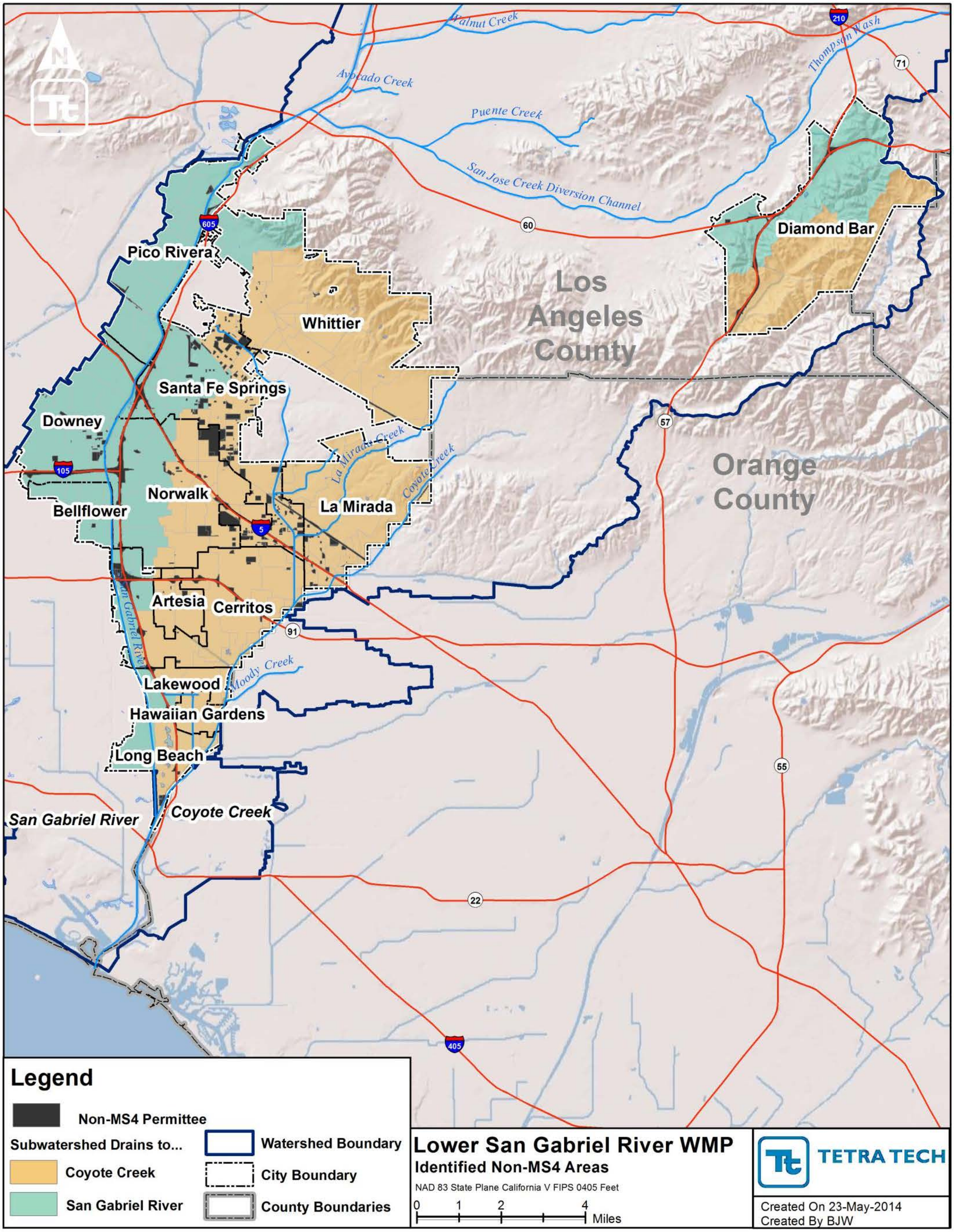

Figure 51. LSGR Non-MS4 Permittees

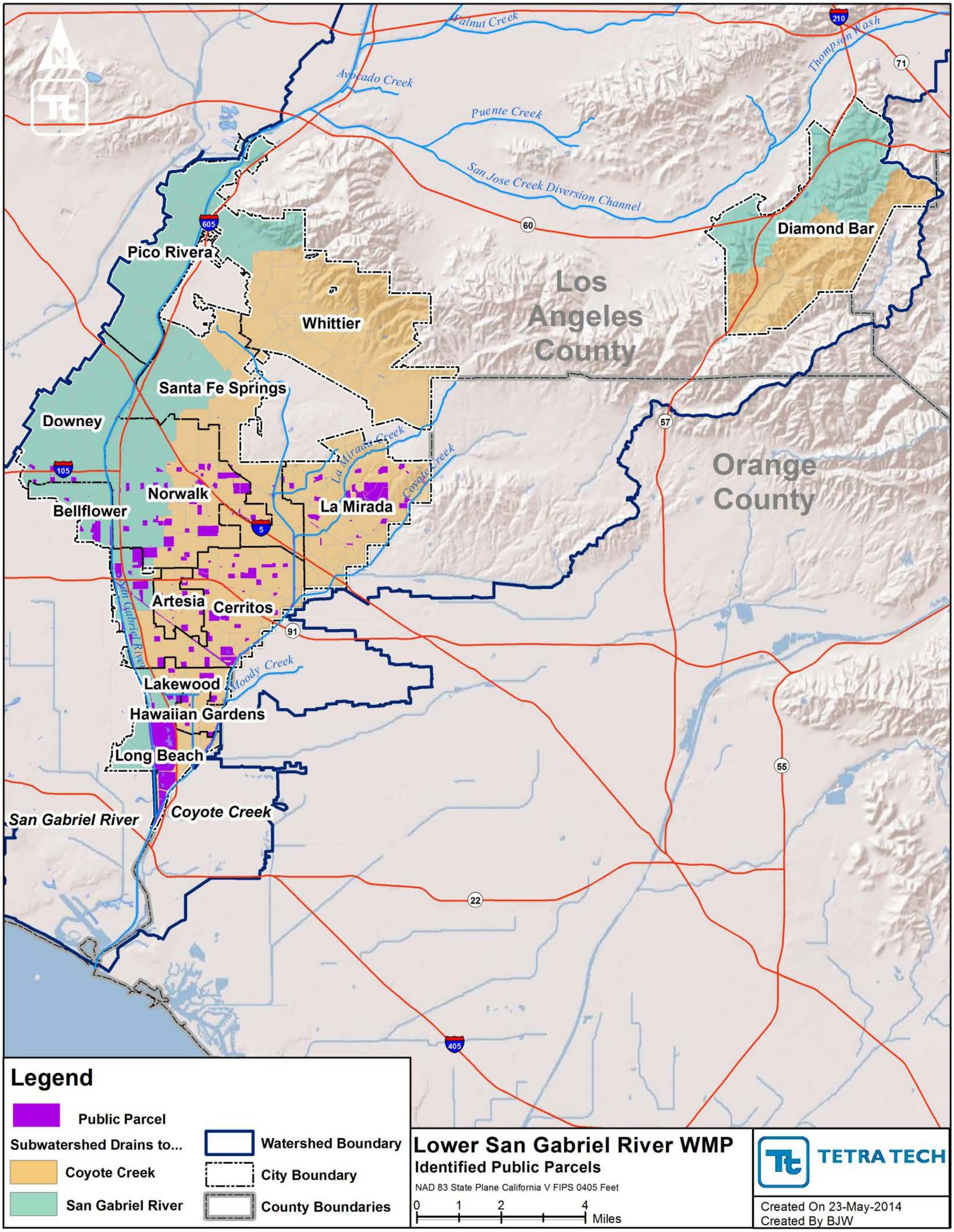

Figure 52. LSGR identified public parcels

RB-AR15122

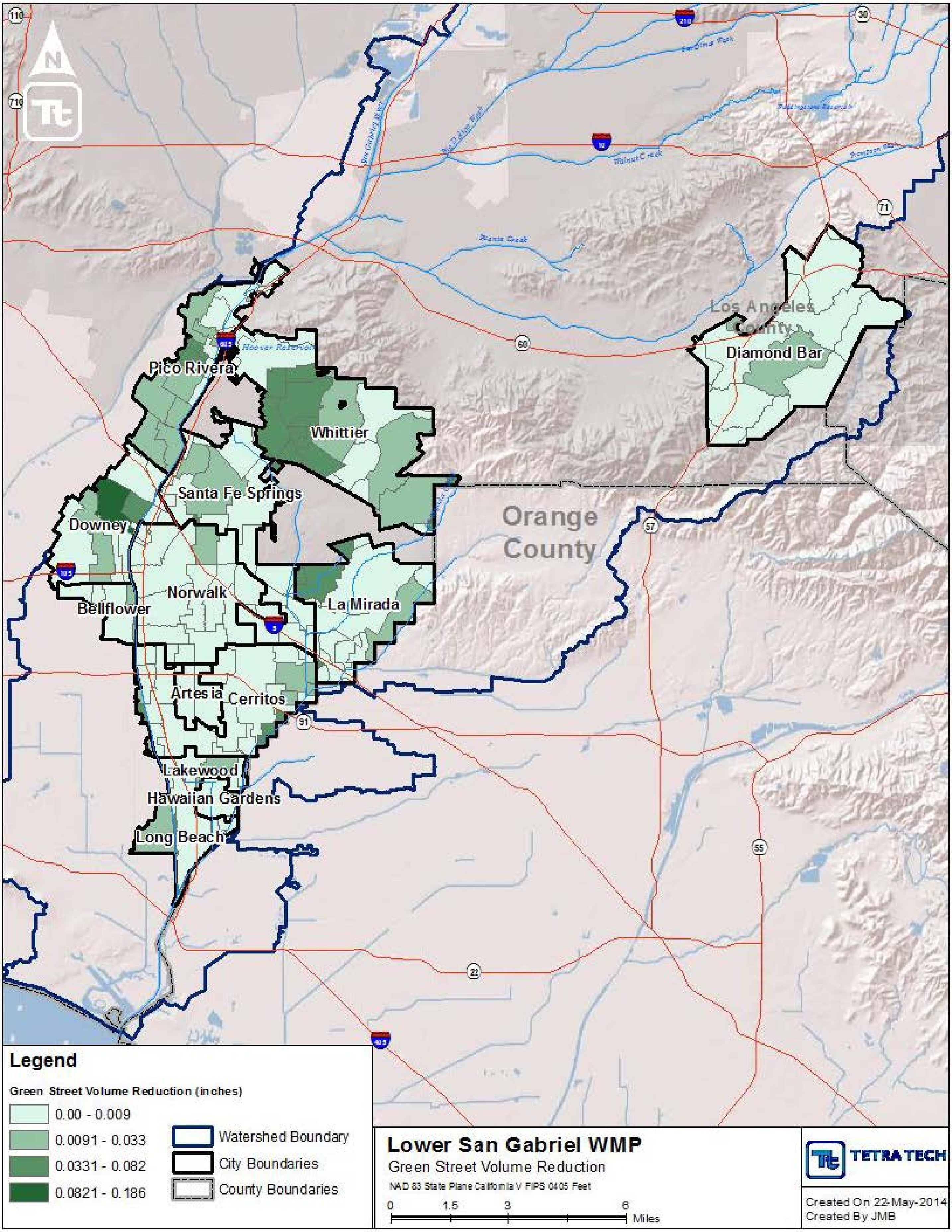

Figure 53. LSGR ROW BMP Volume Reduction

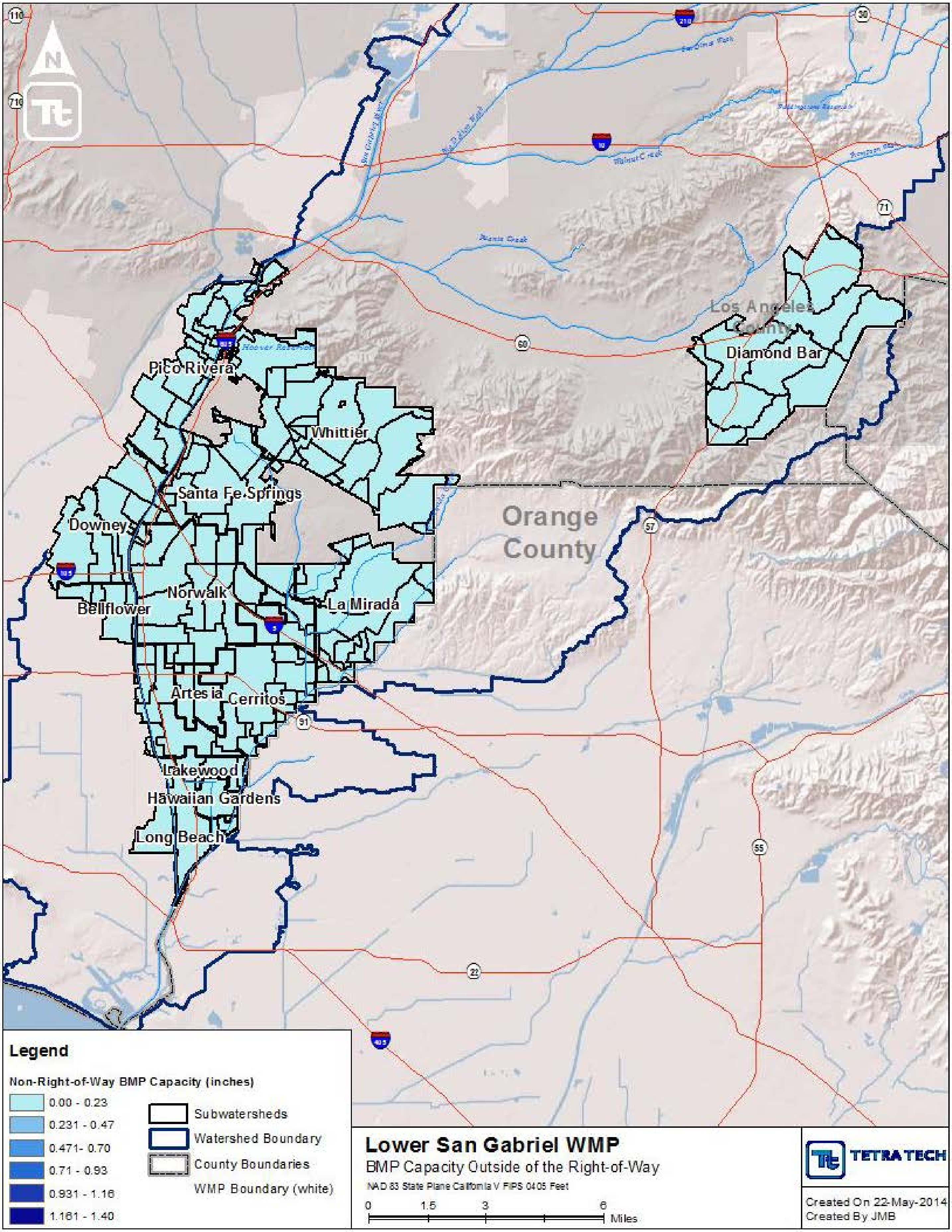

Figure 54. LSGR BMP capacity outside of the right-of-way

Attachment D: Existing and Planned BMPs

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

Tetra Tech

9444 Balboa Ave., Suite 215

San Diego, CA 92123

January 15, 2015

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D1. Existing and Planned BMPs

The following tables summarize existing and planned BMPs in each jurisdiction.

D1.1. City of Bellflower

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration	Existing	Riverview Park Infiltration Trenches	2012	10500 Somerset Blvd.	33.896662	-118.11016	105113	16	ac		
Bioretention / Biofiltration	Existing	Riverview Park Infiltration Trenches	2012	10500 Somerset Blvd.	33.896662	-118.11016	105113	16	ac		
Flow-Through Treatment BMP	Existing	Commercial Gas Station and mart	2008	14300 Bellflower Blvd	33.901581	-118.124915	105114	0.42	ac		
Flow-Through Treatment BMP	Existing	Commercial Storage	2005	10526 Rosecrans	33.902009	-118.108102	575118	19.5	ac		
Infiltration BMPs	Existing	St George Church	2012	15725 Cornuta	33.890539	-118.120735	105113	1.36	ac		
Infiltration BMPs	Existing	Autozone	2012	10239 Rosecrans	33.902265	-118.114834	105113	0.78	ac		

D1.2. City of Downey

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow Through Treatment BMP	Existing	8314 SECOND ST	2/14/2014		33.9409	-118.13243	245114	1322	sf	0.153	cfs
Flow Through Treatment BMP	Existing	10030 LAKEWOOD	8/17/2007		33.9477	-118.11664	245125	24560	sf	0.17	cfs
Infiltration BMP	Existing	12327 WOODRUFF AV	2/14/2014		33.91989	-118.11706	245113	6894.4	sf	430.9	cf
Infiltration BMP	Existing	12145 WOODRUFF	7/8/2008		33.92338	-118.11805	245113	3200	sf	200	cf
Infiltration BMP	Existing	9500 WASHBURN	2/14/2014		33.92366	-118.1172	245113	342000	sf	9500	cf
Infiltration BMP	Existing	9236 HALL	4/17/2007		33.92972	-118.12155	245113	411840	sf	25740	cf
Infiltration BMP	Existing	9737 IMPERIAL	6/22/2010		33.91761	-118.11961	245114	5600	sf	350	cf
Infiltration BMP	Existing	12254 BELLFLOWER	9/13/2003		33.9214	-118.1239	245114	57600	sf	3600	cf
Infiltration BMP	Existing	11904 BELLFLOWER	2/14/2014		33.92607	-118.12515	245114	5400	sf	300	cf
Infiltration BMP	Existing	11610 LAKEWOOD	9/28/2007		33.93101	-118.12594	245114	91520	sf	5720	cf
Infiltration BMP	Existing	8329 DAVIS	6/15/2010		33.9366	-118.13379	245114	12608	sf	788	cf
Infiltration BMP	Existing	8522 FIRESTONE	2/16/2005		33.93678	-118.12978	245114	105456	sf	6591	cf
Infiltration BMP	Existing	8320 FIRESTONE BLVD	1/1/2010		33.9387	-118.13176	245114	90660	sf	525	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9060 IMPERIAL	4/15/2005		33.91646	-118.13532	245115	7056	sf	441	cf
Infiltration BMP	Existing	8141 DE PALMAQ	6/30/2003		33.93618	-118.1402	245115	443008	sf	27688	cf
Infiltration BMP	Existing	8317 DAVIS ST	2/14/2014		33.93683	-118.13441	245115	13920	sf	870	cf
Infiltration BMP	Existing	8333 IOWA	10/11/2001		33.93756	-118.13356	245115	9808	sf	613	cf
Infiltration BMP	Existing	8100 PHLOX	5/20/2004		33.93956	-118.13854	245115	14400	sf	900	cf
Infiltration BMP	Existing	11040 BROOKSHIRE	1/1/2014		33.93932	-118.12496	245119	1923616	sf	120226	cf
Infiltration BMP	Existing	11136 DOLLISON	6/22/2010		33.93448	-118.09613	245122	13824	sf	864	cf
Infiltration BMP	Existing	10239 PICO VISTA	4/7/2003		33.939	-118.10316	245126	2176	sf	136	cf
Infiltration BMP	Existing	10233 PICO VISTA	4/7/2003		33.93914	-118.10305	245126	2176	sf	136	cf
Infiltration BMP	Existing	10228 PICO VISTA	4/7/2003		33.93919	-118.10235	245126	5856	sf	366	cf
Infiltration BMP	Existing	10229 PICO VISTA	4/7/2003		33.93928	-118.10295	245126	2176	sf	136	cf
Infiltration BMP	Existing	10223 PICO VISTA	4/7/2003		33.93946	-118.10289	245126	2048	sf	128	cf
Infiltration BMP	Existing	10218 PICO VISTA	4/7/2003		33.93947	-118.10223	245126	5952	sf	372	cf
Infiltration BMP	Existing	10215 PICO VISTA	4/7/2003		33.93962	-118.10237	245126	2112	sf	132	cf
Infiltration BMP	Existing	10211 PICO VISTA	4/7/2003		33.93969	-118.10255	245126	2304	sf	144	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10219 PICO VISTA	4/7/2003		33.93975	-118.10273	245126	2304	sf	144	cf
Infiltration BMP	Existing	12800 PARAMOUNT	9/16/2008		33.92108	-118.15383	246077	3168	sf	198	cf
Infiltration BMP	Existing	7930 STEWARD & GRAY	11/18/2004		33.93539	-118.14527	246077	1600	sf	100	cf
Infiltration BMP	Existing	12229 JULIUS	1/1/2006		33.93343	-118.1561	246079	944	sf	59	cf
Infiltration BMP	Existing	7845 BENARES ST	6/14/2001		33.93839	-118.14549	246079	3568	sf	223	cf
Infiltration BMP	Existing	7841 BENARES ST	6/14/2001		33.93851	-118.14537	246079	1760	sf	110	cf
Infiltration BMP	Existing	7837 BENARES ST	6/14/2001		33.93863	-118.14528	246079	1760	sf	110	cf
Infiltration BMP	Existing	7848 BENARES ST	6/14/2001		33.93863	-118.14598	246079	10640	sf	665	cf
Infiltration BMP	Existing	7833 BENARES ST	6/14/2001		33.93875	-118.14518	246079	1760	sf	110	cf
Infiltration BMP	Existing	7844 BENARES ST	6/14/2001		33.93876	-118.14591	246079	2000	sf	125	cf
Infiltration BMP	Existing	7840 BENARES ST	6/14/2001		33.93886	-118.14578	246079	2000	sf	125	cf
Infiltration BMP	Existing	11706 RIVES	6/14/2001		33.93888	-118.14506	246079	1760	sf	110	cf
Infiltration BMP	Existing	7816 BENARES ST	6/14/2001		33.93896	-118.14553	246079	9600	sf	600	cf
Infiltration BMP	Existing	7812 BENARES ST	6/14/2001		33.93904	-118.14568	246079	1760	sf	110	cf
Infiltration BMP	Existing	11726 RIVES	6/14/2001		33.93904	-118.14614	246079	1920	sf	120	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7808 BENARES ST	6/14/2001		33.93911	-118.14583	246079	1760	sf	110	cf
Infiltration BMP	Existing	7808 BENARES ST	6/14/2001		33.93919	-118.14598	246079	1760	sf	110	cf
Infiltration BMP	Existing	7821 BENARES ST	6/14/2001		33.93921	-118.14506	246079	1872	sf	117	cf
Infiltration BMP	Existing	7804 BENARES ST	6/14/2001		33.93926	-118.14613	246079	9760	sf	610	cf
Infiltration BMP	Existing	7817 BENARES ST	6/14/2001		33.93931	-118.14525	246079	1760	sf	110	cf
Infiltration BMP	Existing	7813 BENARES ST	6/14/2001		33.93938	-118.14542	246079	1760	sf	110	cf
Infiltration BMP	Existing	7809 BENARES ST	6/14/2001		33.93945	-118.14557	246079	1760	sf	110	cf
Infiltration BMP	Existing	7805 BENARES ST	6/14/2001		33.93953	-118.14572	246079	1760	sf	110	cf
Infiltration BMP	Existing	7801 BENARES ST	6/14/2001		33.93961	-118.14587	246079	9600	sf	600	cf
Infiltration BMP	Existing	7140 FIRESTONE	10/3/2005		33.94707	-118.15469	246079	24048	sf	1503	cf
Infiltration BMP	Existing	8233 FIRESTONE	6/21/2010		33.94076	-118.13358	246102	91648	sf	5728	cf
Infiltration BMP	Existing	7814 FIRESTONE	2/14/2014		33.94418	-118.14232	246102	3000	sf	125	cf
Infiltration BMP	Existing	7676 FIRESTONE	2/26/2004		33.94527	-118.144	246102	213824	sf	13364	cf
Infiltration BMP	Existing	7201 FIRESTONE	4/19/2007		33.94821	-118.15273	246102	34352	sf	2147	cf
Infiltration BMP	Existing	7360 FLORENCE	6/21/2010		33.95872	-118.141	246102	14496	sf	906	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8129 FLORENCE	6/23/2010		33.95231	-118.12677	246103	8880	sf	555	cf
Infiltration BMP	Existing	8605 GALLATIN ROAD	2/14/2014		33.95768	-118.11432	246103	85792	sf	5362	cf
Infiltration BMP	Existing	9276 DOWNEY	1/4/2007		33.95901	-118.11926	246103	6400	sf	400	cf
Infiltration BMP	Existing	8801 LAKEWOOD	7/14/2006		33.96317	-118.11498	246106	18352	sf	1147	cf
Infiltration BMP	Existing	7880 TELEGRAPH	11/14/2004		33.97112	-118.12113	246111	123104	sf	7694	cf
Permeable Pavement	Existing	9449 IMPERIAL	6/22/2010		33.91809	-118.12656	245115	32160	sf	2010	cf
Permeable Pavement	Existing	9565 FIRESTONE	6/3/2008		33.93043	-118.11175	245119	18928	sf	1183	cf
Permeable Pavement	Existing	12628 PARAMOUNT	2/14/2014		33.92329	-118.15283	246077	15000	sf	284	cf
Permeable Pavement	Existing	11555 PARAMOUNT	2/14/2014		33.94116	-118.14067	246077	8125	sf	400	cf
Permeable Pavement	Existing	8043 SECOND ST	1/1/2009		33.94254	-118.13737	246102	105023	sf	6787	cf
Permeable Pavement	Existing	9250 LAKEWOOD	2/14/2014		33.95768	-118.1153	246103	24662	sf	939	cf
Regional Detention Facility	Existing	9341 IMPERIAL	5/6/2004		33.91918	-118.12898	245115	664624	sf	41539	cf
Regional Infiltration Facility	Existing	12074 LAKEWOOD	5/22/2005		33.9257	-118.13203	245115	960800	sf	60050	cf
Regional Infiltration Facility	Existing	12002 LAKEWOOD	5/22/2005		33.9261	-118.13169	245115	605264	sf	37829	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8764 FIRESTONE	8/14/2008	6523923.595890	6523923.595890	1798908.496460	245119	20064	sf	1254	cf
Infiltration BMP	Existing	9915 DOWNEY	9/27/2005	6523909.682530	6523909.682530	1805554.600030	246103	2265	sf	142	cf
Infiltration BMP	Existing	7602 RUNDELL	1/27/2006	6514863.657960	6514863.657960	1798182.489930	246079	2265	sf	142	cf
Infiltration BMP	Existing	10403 SAMOLINE	10/3/2005	6521224.982130	6521224.982130	1804890.047210	246102	2265	sf	142	cf
Infiltration BMP	Existing	12516 DOLAN	11/18/2005	6518146.741440	6518146.741440	1794105.551200	245115	1698	sf	106	cf
Infiltration BMP	Existing	7845 QUILL	3/28/2006	6515351.811960	6515351.811960	1796427.555720	246079	1698	sf	106	cf
Infiltration BMP	Existing	10435 BIRCHDALE	5/19/2005	6524444.362750	6524444.362750	1802478.415410	245119	1132	sf	71	cf
Infiltration BMP	Existing	8538 ALBIA	9/23/2005	6520089.101510	6520089.101510	1795567.094110	245115	566	sf	35	cf
Infiltration BMP	Existing	12159 CORNUTA	9/16/2005	6525392.928460	6525392.928460	1794233.560240	245114	566	sf	35	cf
Infiltration BMP	Existing	8064 DACOSTA	7/7/2005	6523365.354910	6523365.354910	1805913.806160	246103	566	sf	35	cf
Infiltration BMP	Existing	8551 DALEN	10/6/2005	6518205.327280	6518205.327280	1792517.271110	245115	566	sf	35	cf
Infiltration BMP	Existing	8318 DINSDALE	6/15/2006	6523907.628300	6523907.628300	1804895.972630	246103	566	sf	35	cf
Infiltration BMP	Existing	12641 DOLAN	9/2/2005	6517370.498610	6517370.498610	1793094.154440	245115	566	sf	35	cf
Infiltration BMP	Existing	12837 DOWNEY	6/13/2008	6516221.544620	6516221.544620	1792552.216840	246077	566	sf	35	cf
Infiltration BMP	Existing	12608 DUNROBIN	1/1/2007	6525044.715110	6525044.715110	1792041.222140	245114	566	sf	35	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7715 GAINFORD	5/9/2006	6521302.031220	6521302.031220	1807578.393730	246106	566	sf	35	cf
Infiltration BMP	Existing	12337 HORLEY	6/20/2007	6514828.837130	6514828.837130	1797233.894880	246079	566	sf	35	cf
Infiltration BMP	Existing	12619 IBBETSON	4/7/2008	6525826.717640	6525826.717640	1791950.694670	245114	566	sf	35	cf
Infiltration BMP	Existing	12142 MARBEL	5/5/2008	6521265.537710	6521265.537710	1794924.230550	245115	566	sf	35	cf
Infiltration BMP	Existing	12228 NORLAIN	6/24/2005	6513924.473210	6513924.473210	1798288.206130	246079	566	sf	35	cf
Infiltration BMP	Existing	11733 PATTON	12/9/2005	6521629.388810	6521629.388810	1797656.681610	245114	566	sf	35	cf
Infiltration BMP	Existing	11712 PRUESS	3/29/2006	6518005.349510	6518005.349510	1799785.098800	246077	566	sf	35	cf
Infiltration BMP	Existing	8605 SAMOLINE	10/23/2006	6525562.919850	6525562.919850	1810382.622670	246106	566	sf	35	cf
Infiltration BMP	Existing	7814 SPRINGER	7/20/2005	6515325.745000	6515325.745000	1796943.250000	246079	566	sf	35	cf
Infiltration BMP	Existing	7406 THIRD	9/23/2005	6517102.209740	6517102.209740	1803992.224080	246102	566	sf	35	cf
Infiltration BMP	Existing	8836 TWEEDY	8/21/2006	6524333.205540	6524333.205540	1809897.996880	246106	566	sf	35	cf
Infiltration BMP	Existing	9702 TWEEDY	8/30/2005	6522704.033740	6522704.033740	1807211.824630	246103	566	sf	35	cf
Infiltration BMP	Existing	11414 PARAMOUNT	11/17/2006	6519592.558830	6519592.558830	1800943.348310	245115	37135	sf	2321	cf
Infiltration BMP	Existing	8077 FLORENCE AV	1/1/2009	6523000.000000	6523000.000000	1805200.000000	246103	31872	sf	1992	cf
Infiltration BMP	Existing	8351 FLORENCE	11/29/2005	6524092.726100	6524092.726100	1804613.455750	246103	8252	sf	516	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11003 LAKEWOOD	1/1/2006	6524400.000000	6524400.000000	1799800.000000	245119	8252	sf	516	cf
Infiltration BMP	Existing	9288 LUBEC	6/21/2010	6528705.843900	6528705.843900	1803218.787040	245125	8252	sf	516	cf
Infiltration BMP	Existing	13240 BARLIN	6/24/2005	6517118.017720	6517118.017720	1789361.126310	245524	6189	sf	387	cf
Infiltration BMP	Existing	9802 BROOKSHIRE	4/24/2007	6525737.765210	6525737.765210	1805415.750650	246103	6189	sf	387	cf
Infiltration BMP	Existing	9026 SUVA	10/5/2006	6527186.692380	6527186.692380	1804858.393970	245125	6189	sf	387	cf
Infiltration BMP	Existing	7325 IRWINGROVE	4/27/2005	6518419.969630	6518419.969630	1807291.337240	246102	5158	sf	322	cf
Infiltration BMP	Existing	10064 PANGBORN	8/16/2005	6529846.676910	6529846.676910	1801177.429270	245125	5158	sf	322	cf
Infiltration BMP	Existing	8102 THIRD	3/4/2009	6520617.238210	6520617.238210	1801805.039980	246103	7616	sf	476	cf
Infiltration BMP	Existing	12200 BELLFLOWER	11/4/2008	6524061.916580	6524061.916580	1794195.827920	245114	4126	sf	258	cf
Infiltration BMP	Existing	9818 BIRCHDALE	12/28/2005	6526194.448530	6526194.448530	1804634.814020	245125	4126	sf	258	cf
Infiltration BMP	Existing	10419 BROOKSHIRE	7/30/2007	6523842.460000	6523842.460000	1803179.994160	245119	4126	sf	258	cf
Infiltration BMP	Existing	10432 BROOKSHIRE	2/14/2007	6523911.001360	6523911.001360	1803018.354450	245119	4126	sf	258	cf
Infiltration BMP	Existing	10329 CASANES	1/1/2006	6528565.218740	6528565.218740	1800358.453120	245126	4126	sf	258	cf
Infiltration BMP	Existing	13221 CORRIGAN	3/9/2006	6523120.117490	6523120.117490	1789965.324450	245114	4126	sf	258	cf
Infiltration BMP	Existing	8816 ELSTON	12/28/2005	6526840.850650	6526840.850650	1808666.263650	246103	4126	sf	258	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9278 GAINFORD	6/15/2005	6528421.969980	6528421.969980	1803000.469050	245125	4126	sf	258	cf
Infiltration BMP	Existing	7340 IRWINGROVE	12/6/2005	6518415.507880	6518415.507880	1806990.616650	246102	4126	sf	258	cf
Infiltration BMP	Existing	9055 IRWINGROVE	10/17/2006	6526414.238800	6526414.238800	1802422.724820	245119	4126	sf	258	cf
Infiltration BMP	Existing	9005 KRISTIN	1/1/2006	6524171.005660	6524171.005660	1809376.398810	246106	4126	sf	258	cf
Infiltration BMP	Existing	9015 KRISTIN	1/1/2006	6524137.396040	6524137.396040	1809320.713720	246106	4126	sf	258	cf
Infiltration BMP	Existing	10014 LA REINA	11/3/2005	6523603.973220	6523603.973220	1805275.605180	246103	4126	sf	258	cf
Infiltration BMP	Existing	8334 LEXINGTON	3/20/2006	6523900.000000	6523900.000000	1804200.000000	246103	4126	sf	258	cf
Infiltration BMP	Existing	7114 LUXOR	7/27/2005	6513446.571340	6513446.571340	1802395.175860	246100	4126	sf	258	cf
Infiltration BMP	Existing	10348 PANGBORN	10/12/2006	6529020.867850	6529020.867850	1800144.106260	245126	4126	sf	258	cf
Infiltration BMP	Existing	7268 PELLET	12/8/2005	6516203.991240	6516203.991240	1804244.566160	246104	4126	sf	258	cf
Infiltration BMP	Existing	9821 RIVES	9/12/2005	6521261.613640	6521261.613640	1807221.725140	246106	4126	sf	258	cf
Infiltration BMP	Existing	10427 STAMPS	2/27/2006	6523141.588150	6523141.588150	1803526.008280	246103	4126	sf	258	cf
Infiltration BMP	Existing	8325 TEXAS	8/30/2007	6520789.744350	6520789.744350	1799109.948610	245114	4126	sf	258	cf
Infiltration BMP	Existing	9211 ARRINGTON	6/21/2010	6527822.609270	6527822.609270	1805896.813180	245125	3095	sf	193	cf
Infiltration BMP	Existing	10372 BIRCHDALE	1/17/2006	6524786.108330	6524786.108330	1802711.833690	245119	2660	sf	166	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9509 BROCK	10/6/2005	6524084.133490	6524084.133490	1807438.122200	246103	3095	sf	193	cf
Infiltration BMP	Existing	9600 CORD	5/12/2008	6529842.639410	6529842.639410	1803668.379590	245125	3095	sf	193	cf
Infiltration BMP	Existing	10943 CORD	3/13/2007	6526539.555830	6526539.555830	1798046.595190	245119	3095	sf	193	cf
Infiltration BMP	Existing	12569 DOLAN	9/27/2006	6517675.526540	6517675.526540	1793796.546690	245115	3095	sf	193	cf
Infiltration BMP	Existing	9252A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9252B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9622 HALEDON	3/16/2006	6528283.868130	6528283.868130	1804260.791520	245125	3095	sf	193	cf
Infiltration BMP	Existing	11442 JULIUS	7/26/2007	6517126.240320	6517126.240320	1802109.297720	246079	3095	sf	193	cf
Infiltration BMP	Existing	10026 MATTOCK	1/1/2006	6530326.462180	6530326.462180	1801330.602850	245125	3095	sf	193	cf
Infiltration BMP	Existing	9303 PARAMOUNT	3/14/2006	6523934.101920	6523934.101920	1808355.150660	246106	3095	sf	193	cf
Infiltration BMP	Existing	8739 PARKCLIFF	1/23/2006	6516653.896010	6516653.896010	1788072.265990	245524	2063	sf	129	cf
Infiltration BMP	Existing	9303 PARROT	1/4/2007	6524270.384450	6524270.384450	1808221.036420	246106	3095	sf	193	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7313 PELLET	6/22/2010	6516478.702600	6516478.702600	1804386.841100	246104	3095	sf	193	cf
Infiltration BMP	Existing	10473 PICO VISTA	1/21/2009	6529579.260180	6529579.260180	1798825.132300	245126	3095	sf	193	cf
Infiltration BMP	Existing	7840 THIRD	8/29/2007	6519254.945150	6519254.945150	1802616.251380	246102	3095	sf	193	cf
Infiltration BMP	Existing	8347 VISTA DEL ROSA	7/26/2007	6527061.884710	6527061.884710	1808864.927170	246106	3095	sf	193	cf
Infiltration BMP	Existing	11632 ADENMOOR	6/15/2005	6524141.212380	6524141.212380	1797138.142940	245114	2063	sf	129	cf
Infiltration BMP	Existing	7124 ADWEN	12/20/2007	6513937.816490	6513937.816490	1803059.644840	246100	2063	sf	129	cf
Infiltration BMP	Existing	7258 ADWEN	1/3/2008	6515068.905460	6515068.905460	1802384.347520	246079	2063	sf	129	cf
Infiltration BMP	Existing	7646 ADWEN	10/6/2005	6517037.957040	6517037.957040	1801170.785850	246079	2063	sf	129	cf
Infiltration BMP	Existing	7702 ADWEN	5/11/2006	6517121.727310	6517121.727310	1801116.179360	246079	2063	sf	129	cf
Infiltration BMP	Existing	13032 AIRPOINT	5/14/2007	6517972.459000	6517972.459000	1790335.341940	245115	2063	sf	129	cf
Infiltration BMP	Existing	8455 ALAMEDA	8/7/2008	6519558.018350	6519558.018350	1795721.453060	245115	2063	sf	129	cf
Infiltration BMP	Existing	8632 ALAMEDA	11/2/2006	6520500.318510	6520500.318510	1795019.322380	245115	2063	sf	129	cf
Infiltration BMP	Existing	7945 ALBIA	10/11/2005	6516993.544600	6516993.544600	1797608.073070	246079	2063	sf	129	cf
Infiltration BMP	Existing	8704 ALBIA	5/28/2008	6520928.243910	6520928.243910	1795073.644330	245115	2063	sf	129	cf
Infiltration BMP	Existing	7845 ARNETT	6/18/2010	6518353.322440	6518353.322440	1801165.354440	246079	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9217 ARRINGTON	3/27/2006	6527795.727670	6527795.727670	1805838.303240	245125	2063	sf	129	cf
Infiltration BMP	Existing	7870 BAYSINGER	2/8/2008	6521311.922790	6521311.922790	1805484.679070	246102	2063	sf	129	cf
Infiltration BMP	Existing	9964 BELCHER	5/16/2007	6525622.979960	6525622.979960	1789815.793090	245113	2063	sf	129	cf
Infiltration BMP	Existing	12556 BELLDER	8/17/2007	6518567.857140	6518567.857140	1793310.793680	245115	2063	sf	129	cf
Infiltration BMP	Existing	11614 BELLFLOWER	11/7/2008	6523771.271210	6523771.271210	1797348.312220	245114	2063	sf	129	cf
Infiltration BMP	Existing	11802 BELLMAN	3/9/2007	6521898.080850	6521898.080850	1797268.375540	245114	2063	sf	129	cf
Infiltration BMP	Existing	7502 BENARES	1/30/2009	6515952.395710	6515952.395710	1801162.932420	246079	2063	sf	129	cf
Infiltration BMP	Existing	7824 BORSON	5/24/2007	6514090.231790	6514090.231790	1794571.039330	246077	2063	sf	129	cf
Infiltration BMP	Existing	7442 BROOKMILL	2/6/2006	6515991.568850	6515991.568850	1801492.813950	246079	2063	sf	129	cf
Infiltration BMP	Existing	9202 BUELL	7/21/2008	6526325.599230	6526325.599230	1799668.061170	245119	2063	sf	129	cf
Infiltration BMP	Existing	9340 BUELL	8/9/2006	6527287.659290	6527287.659290	1799162.594770	245126	2063	sf	129	cf
Infiltration BMP	Existing	8707 BYERS	3/15/2006	6521183.641890	6521183.641890	1796053.567730	245115	2063	sf	129	cf
Infiltration BMP	Existing	10446 CASANES	10/26/2006	6528470.793910	6528470.793910	1799828.787480	245126	2063	sf	129	cf
Infiltration BMP	Existing	10932 CASANES	11/17/2005	6527225.467210	6527225.467210	1797760.272650	245119	2063	sf	129	cf
Infiltration BMP	Existing	13341 CASTANA	10/28/2005	6517576.502130	6517576.502130	1788949.477410	245524	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7408 CECILIA	10/27/2005	6517829.130300	6517829.130300	1804625.827460	246102	2063	sf	129	cf
Infiltration BMP	Existing	7604 CECILIA	5/14/2007	6518455.494160	6518455.494160	1804215.794590	246102	2063	sf	129	cf
Infiltration BMP	Existing	9116 CHANEY	12/19/2005	6529189.877980	6529189.877980	1805493.817150	245125	2063	sf	129	cf
Infiltration BMP	Existing	8210 CHEYENNE	3/18/2008	6515440.785260	6515440.785260	1792057.306890	246077	2063	sf	129	cf
Infiltration BMP	Existing	9663 CLANCEY	8/17/2005	6527712.819630	6527712.819630	1804149.908320	245125	2063	sf	129	cf
Infiltration BMP	Existing	10708 CLANCEY	12/9/2005	6525546.299290	6525546.299290	1800088.746900	245119	2063	sf	129	cf
Infiltration BMP	Existing	8336 CLETA	5/8/2006	6520552.025180	6520552.025180	1798452.238760	245114	2063	sf	129	cf
Infiltration BMP	Existing	8557 CLETA	7/24/2006	6521804.225790	6521804.225790	1798033.515210	245114	2063	sf	129	cf
Infiltration BMP	Existing	8532 COLE	11/7/2005	6521000.000000	6521000.000000	1796400.000000	245115	2063	sf	129	cf
Infiltration BMP	Existing	9003 CORD	6/23/2010	6530731.156250	6530731.156250	1805583.409840	245127	2063	sf	129	cf
Infiltration BMP	Existing	9203 CORD	11/14/2008	6530209.591170	6530209.591170	1804419.169900	245125	2063	sf	129	cf
Infiltration BMP	Existing	13029 CORNUTA	5/17/2007	6525511.407030	6525511.407030	1790564.440990	245113	2063	sf	129	cf
Infiltration BMP	Existing	13102 CORNUTA	8/2/2007	6525701.503660	6525701.503660	1790504.914950	245113	2063	sf	129	cf
Infiltration BMP	Existing	13130 CORNUTA	6/25/2007	6525701.486250	6525701.486250	1790230.251310	245113	2063	sf	129	cf
Infiltration BMP	Existing	9245 DALEWOOD	9/23/2005	6532196.615620	6532196.615620	1804345.945760	245127	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13440 DEMPSTER	10/26/2006	6516234.168650	6516234.168650	1789111.153470	245524	2063	sf	129	cf
Infiltration BMP	Existing	13448 DEMPSTER	5/10/2007	6516184.596670	6516184.596670	1789023.378330	245524	2063	sf	129	cf
Infiltration BMP	Existing	8125 DINSDALE	12/20/2005	6523223.693140	6523223.693140	1805447.514320	246103	2063	sf	129	cf
Infiltration BMP	Existing	10343 DOLAN	3/7/2007	6523688.489440	6523688.489440	1803733.392340	246103	2063	sf	129	cf
Infiltration BMP	Existing	10616 DOLAN	12/8/2005	6523091.688370	6523091.688370	1802186.196180	246103	2063	sf	129	cf
Infiltration BMP	Existing	8451 DONOVAN	10/20/2006	6518824.326830	6518824.326830	1794831.678890	245115	2063	sf	129	cf
Infiltration BMP	Existing	11915 DOWNEY	9/26/2007	6519404.158310	6519404.158310	1797577.606330	245115	2063	sf	129	cf
Infiltration BMP	Existing	12269 DOWNEY	3/16/2006	6518129.427940	6518129.427940	1795616.200900	246077	2063	sf	129	cf
Infiltration BMP	Existing	12631 DUNROBIN	1/14/2009	6524865.692630	6524865.692630	1791809.740080	245114	2063	sf	129	cf
Infiltration BMP	Existing	12644 DUNROBIN	12/27/2006	6525045.107610	6525045.107610	1791670.201830	245114	2063	sf	129	cf
Infiltration BMP	Existing	13212 DUNROBIN	3/6/2008	6525046.199690	6525046.199690	1790094.955960	245114	2063	sf	129	cf
Infiltration BMP	Existing	9018 EGLISE	6/18/2010	6530595.364130	6530595.364130	1805560.296250	245127	2063	sf	129	cf
Infiltration BMP	Existing	9252C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9252D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9252E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9254A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9258D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9258E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	8902 ELSTON	6/22/2010	6526760.905110	6526760.905110	1808606.155990	246103	2063	sf	129	cf
Infiltration BMP	Existing	8420 EUCALYPTUS	11/1/2007	6518268.185230	6518268.185230	1794519.531140	245115	2063	sf	129	cf
Infiltration BMP	Existing	8543 FARM	7/14/2008	6524366.648200	6524366.648200	1802748.102990	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7963 FIFTH	4/13/2007	6520492.297340	6520492.297340	1803181.748460	246103	2063	sf	129	cf
Infiltration BMP	Existing	7606 FINEVALE	7/23/2007	6522317.087820	6522317.087820	1809781.757910	246111	2063	sf	129	cf
Infiltration BMP	Existing	8740 FIRESTONE	2/5/2008	6523707.154590	6523707.154590	1799037.579000	245119	2063	sf	129	cf
Infiltration BMP	Existing	8663 FONTANA	8/11/2005	6522041.808010	6522041.808010	1796935.622550	245114	2063	sf	129	cf
Infiltration BMP	Existing	7435 FOSTORIA	8/30/2005	6517713.795360	6517713.795360	1804555.032870	246102	2063	sf	129	cf
Infiltration BMP	Existing	7611 FOSTORIA	7/5/2007	6518456.715640	6518456.715640	1804071.041810	246102	2063	sf	129	cf
Infiltration BMP	Existing	8029 FOURTH	6/15/2006	6520786.200710	6520786.200710	1802533.409070	246103	2063	sf	129	cf
Infiltration BMP	Existing	8524 GAINFORD	6/27/2008	6525485.453790	6525485.453790	1804820.431910	245125	2063	sf	129	cf
Infiltration BMP	Existing	9332 GAINFORD	7/20/2006	6528750.550820	6528750.550820	1802746.272930	245125	2063	sf	129	cf
Infiltration BMP	Existing	9330 GALLATIN	8/2/2007	6529116.628720	6529116.628720	1804180.197000	245125	2063	sf	129	cf
Infiltration BMP	Existing	12271 GLYNN	10/18/2005	6518435.603700	6518435.603700	1795389.616520	245115	2063	sf	129	cf
Infiltration BMP	Existing	9123 HALEDON	1/23/2006	6528738.408770	6528738.408770	1805747.051990	245125	2063	sf	129	cf
Infiltration BMP	Existing	7915 HARPER	2/7/2006	6520609.146350	6520609.146350	1804298.454990	246102	2063	sf	129	cf
Infiltration BMP	Existing	9108 HASTY	8/23/2006	6531133.870830	6531133.870830	1805211.202040	245127	2063	sf	129	cf
Infiltration BMP	Existing	10840 HASTY	1/16/2008	6527245.272860	6527245.272860	1798387.513250	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7468 HONDO	12/31/2008	6513888.485770	6513888.485770	1797503.008930	246079	2063	sf	129	cf
Infiltration BMP	Existing	7838 HONDO	2/26/2008	6515366.533450	6515366.533450	1796561.911100	246079	2063	sf	129	cf
Infiltration BMP	Existing	7926 HONDO	7/25/2006	6515828.269550	6515828.269550	1796282.236280	246079	2063	sf	129	cf
Infiltration BMP	Existing	12023 HORTON	10/5/2005	6515547.066470	6515547.066470	1799512.855270	246079	1032	sf	64	cf
Infiltration BMP	Existing	10234 JULIUS	11/5/2009	6519723.348540	6519723.348540	1806551.787860	246102	2063	sf	129	cf
Infiltration BMP	Existing	11828 JULIUS	1/3/2008	6515976.382140	6515976.382140	1800524.752810	246079	2063	sf	129	cf
Infiltration BMP	Existing	9256 KLINEDALE	12/4/2007	6531745.367500	6531745.367500	1804500.031620	245127	2063	sf	129	cf
Infiltration BMP	Existing	9452 KLINEDALE	4/24/2008	6531257.497660	6531257.497660	1803653.019950	245127	2063	sf	129	cf
Infiltration BMP	Existing	9031 LEMORAN	1/30/2009	6529792.995960	6529792.995960	1806045.812140	245125	2063	sf	129	cf
Infiltration BMP	Existing	9910 LESTERFORD	8/3/2005	6531140.582200	6531140.582200	1801442.142180	245125	2063	sf	129	cf
Infiltration BMP	Existing	8533 LOWMAN	1/3/2008	6525796.079270	6525796.079270	1810845.309540	246106	2063	sf	129	cf
Infiltration BMP	Existing	8349 LUBEC	12/27/2006	6524776.248350	6524776.248350	1805794.753990	246103	2063	sf	129	cf
Infiltration BMP	Existing	7630 LUXOR	6/27/2005	6516552.896900	6516552.896900	1800452.817120	246079	2063	sf	129	cf
Infiltration BMP	Existing	12342 MARBEL	3/23/2006	6520586.635090	6520586.635090	1793799.804370	245115	2063	sf	129	cf
Infiltration BMP	Existing	9045 MARGARET ST	1/1/2006	6524143.176440	6524143.176440	1798109.987740	245114	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10410 MATTOCK	10/2/2007	6529164.649420	6529164.649420	1799820.803610	245126	2063	sf	129	cf
Infiltration BMP	Existing	10615 MATTOCK	2/22/2006	6528479.681880	6528479.681880	1798952.207590	245126	2063	sf	129	cf
Infiltration BMP	Existing	9136 MELDAR	3/1/2007	6526738.891530	6526738.891530	1807241.651780	246103	2063	sf	129	cf
Infiltration BMP	Existing	7437 MULLER	10/3/2005	6518230.115820	6518230.115820	1805283.479580	246102	1032	sf	64	cf
Infiltration BMP	Existing	7452 MULLER	10/3/2005	6518271.461030	6518271.461030	1805049.518080	246102	2063	sf	129	cf
Infiltration BMP	Existing	10715 NEW	8/9/2007	6521988.945450	6521988.945450	1802370.638520	246103	2063	sf	129	cf
Infiltration BMP	Existing	10715 NEW	7/14/2008	6521988.945450	6521988.945450	1802370.638520	246103	2063	sf	129	cf
Infiltration BMP	Existing	10261 NEWVILLE	10/30/2007	6529641.666020	6529641.666020	1800383.942770	245126	2063	sf	129	cf
Infiltration BMP	Existing	10311 NEWVILLE	1/29/2009	6529538.574620	6529538.574620	1800214.882210	245126	2063	sf	129	cf
Infiltration BMP	Existing	10420 NEWVILLE	4/11/2008	6529346.061190	6529346.061190	1799529.176420	245126	2063	sf	129	cf
Infiltration BMP	Existing	10524 NEWVILLE	6/11/2007	6529062.272820	6529062.272820	1798916.257500	245126	2063	sf	129	cf
Infiltration BMP	Existing	9842 NORLAIN	3/9/2007	6519878.070320	6519878.070320	1807987.575840	246111	2063	sf	129	cf
Infiltration BMP	Existing	10403 PANGBORN	9/16/2005	6528806.561730	6528806.561730	1800136.574080	245126	2063	sf	129	cf
Infiltration BMP	Existing	10421 PANGBORN	6/5/2006	6528710.057740	6528710.057740	1799977.600600	245126	2063	sf	129	cf
Infiltration BMP	Existing	10903 PANGBORN	5/12/2008	6527497.056040	6527497.056040	1797964.159830	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9508 PARAMOUNT	7/23/2007	6523724.334180	6523724.334180	1807653.518330	246106	2063	sf	129	cf
Infiltration BMP	Existing	9709 PARROT	6/20/2008	6523336.123150	6523336.123150	1806770.831150	246103	2063	sf	129	cf
Infiltration BMP	Existing	7107 PELLET	10/26/2005	6515228.221140	6515228.221140	1805197.090730	246104	2063	sf	129	cf
Infiltration BMP	Existing	10316 PICO VISTA	6/22/2010	6530326.941520	6530326.941520	1799752.739480	245126	2063	sf	129	cf
Infiltration BMP	Existing	10459 PICO VISTA	8/20/2008	6529643.308750	6529643.308750	1798930.291180	245126	2063	sf	129	cf
Infiltration BMP	Existing	11809 POMERING	1/25/2008	6515588.727520	6515588.727520	1800891.851040	246079	2063	sf	129	cf
Infiltration BMP	Existing	11821 POMERING	11/20/2008	6515535.205010	6515535.205010	1800794.072400	246079	2063	sf	129	cf
Infiltration BMP	Existing	9050 PRISCILLA	2/21/2007	6519218.937330	6519218.937330	1790014.532510	245115	2063	sf	129	cf
Infiltration BMP	Existing	8230 PURITAN	7/12/2007	6515756.650110	6515756.650110	1792196.388750	246077	2063	sf	129	cf
Infiltration BMP	Existing	8107 RAVILLER	6/22/2010	6524405.759790	6524405.759790	1808219.110840	246106	2063	sf	129	cf
Infiltration BMP	Existing	9940 RICHEON	12/26/2007	6520640.158150	6520640.158150	1807053.597690	246106	2063	sf	129	cf
Infiltration BMP	Existing	12015 RICHEON	6/21/2010	6515852.443580	6515852.443580	1799404.256870	246079	2063	sf	129	cf
Infiltration BMP	Existing	7336 RIO HONDO PL	12/26/2007	6516915.991390	6516915.991390	1804928.334260	246104	2063	sf	129	cf
Infiltration BMP	Existing	8418 RIVES	9/30/2005	6525367.917230	6525367.917230	1811575.863460	246106	1032	sf	64	cf
Infiltration BMP	Existing	11638 RIVES	11/2/2006	6517541.202300	6517541.202300	1800577.741160	246079	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11706 RIVES	10/16/2006	6517702.333530	6517702.333530	1800238.435400	246079	2063	sf	129	cf
Infiltration BMP	Existing	12436 ROSE	11/6/2006	6520776.455000	6520776.455000	1793075.765000	245115	2063	sf	129	cf
Infiltration BMP	Existing	12033 SAMOLINE	2/22/2008	6517025.771360	6517025.771360	1798249.691900	246079	2063	sf	129	cf
Infiltration BMP	Existing	12051 SAMOLINE	9/3/2008	6516919.542440	6516919.542440	1798077.846870	246079	2063	sf	129	cf
Infiltration BMP	Existing	12302 SAMOLINE	6/22/2010	6516399.204110	6516399.204110	1796321.463670	246077	2063	sf	129	cf
Infiltration BMP	Existing	7921 SECOND	2/15/2006	6519427.915180	6519427.915180	1802349.970040	246102	2063	sf	129	cf
Infiltration BMP	Existing	9700 SHELLEYFIELD	7/17/2008	6527622.312900	6527622.312900	1804250.399390	245125	2063	sf	129	cf
Infiltration BMP	Existing	10553 SHELLEYFIELD	6/11/2008	6525493.222190	6525493.222190	1800845.190450	245119	2063	sf	129	cf
Infiltration BMP	Existing	8732 SMALLWOOD	2/16/2006	6524307.398160	6524307.398160	1810444.440300	246106	2063	sf	129	cf
Infiltration BMP	Existing	8816 SMALLWOOD	10/11/2005	6524123.348010	6524123.348010	1810138.117570	246106	2063	sf	129	cf
Infiltration BMP	Existing	9127 SONGFEST	12/1/2005	6531508.595900	6531508.595900	1805094.820630	245127	2063	sf	129	cf
Infiltration BMP	Existing	9143 STEWART & GRAY	11/30/2005	6523803.019500	6523803.019500	1796254.085000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9211 STEWART & GRAY	11/27/2006	6524190.537790	6524190.537790	1796254.765000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9112 STOAKES	8/23/2006	6526782.391540	6526782.391540	1807626.036510	246103	2063	sf	129	cf
Infiltration BMP	Existing	9533 SUVA	6/27/2006	6530409.847860	6530409.847860	1802701.771860	245125	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9729 TRISTAN	10/18/2005	6526617.474570	6526617.474570	1804798.283870	245125	2063	sf	129	cf
Infiltration BMP	Existing	9216 TWEEDY	12/9/2005	6523630.155980	6523630.155980	1808715.397490	246106	2063	sf	129	cf
Infiltration BMP	Existing	13602 VERDURA	6/28/2007	6516296.473820	6516296.473820	1788728.235150	245524	2063	sf	129	cf
Infiltration BMP	Existing	10305 VULTEE	10/9/2006	6525949.622700	6525949.622700	1802510.250780	245119	2063	sf	129	cf
Infiltration BMP	Existing	10017 WILEY BURKE	6/22/2010	6520091.056520	6520091.056520	1807145.868160	246106	2063	sf	129	cf
Infiltration BMP	Existing	8538 ADOREE	9/26/2007	6517768.216360	6517768.216360	1792006.503470	245115	1032	sf	64	cf
Infiltration BMP	Existing	9407 ADOREE	1/1/2006	6522413.313750	6522413.313750	1791106.017430	245115	1032	sf	64	cf
Infiltration BMP	Existing	7134 ADWEN	1/1/2005	6514021.670500	6514021.670500	1803005.164870	246100	1032	sf	64	cf
Infiltration BMP	Existing	7343 ADWEN	9/4/2007	6515521.914470	6515521.914470	1802266.858280	246079	1032	sf	64	cf
Infiltration BMP	Existing	7743 ADWEN	12/5/2006	6517543.195590	6517543.195590	1801041.561520	246079	1032	sf	64	cf
Infiltration BMP	Existing	7802 ADWEN	10/18/2005	6517699.212930	6517699.212930	1800872.280990	246079	1032	sf	64	cf
Infiltration BMP	Existing	7828 ADWEN	8/4/2005	6517918.117250	6517918.117250	1800738.511970	246079	1032	sf	64	cf
Infiltration BMP	Existing	7852 ADWEN	1/9/2009	6518131.432520	6518131.432520	1800607.974520	246079	1032	sf	64	cf
Infiltration BMP	Existing	7855 ADWEN	11/23/2005	6518235.708380	6518235.708380	1800774.963010	246079	1032	sf	64	cf
Infiltration BMP	Existing	12823 AIRPOINT	6/29/2007	6518348.749200	6518348.749200	1791281.430170	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8441 ALAMEDA	10/31/2005	6519442.769190	6519442.769190	1795780.926380	245115	1032	sf	64	cf
Infiltration BMP	Existing	8549 ALAMEDA	6/23/2010	6520129.148230	6520129.148230	1795426.542360	245115	1032	sf	64	cf
Infiltration BMP	Existing	8448 ALBIA	1/1/2007	6519556.734390	6519556.734390	1795840.452920	245115	1032	sf	64	cf
Infiltration BMP	Existing	8528 ALBIA	2/27/2007	6520000.245000	6520000.245000	1795612.955000	245115	1032	sf	64	cf
Infiltration BMP	Existing	9718 ALIWIN	8/2/2005	6532030.038780	6532030.038780	1804115.104340	245127	1032	sf	64	cf
Infiltration BMP	Existing	7936 ALLENGROVE	1/22/2007	6524421.678930	6524421.678930	1809567.173140	246106	1032	sf	64	cf
Infiltration BMP	Existing	8116 ALLENGROVE	12/5/2005	6525137.825210	6525137.825210	1808747.451430	246106	1032	sf	64	cf
Infiltration BMP	Existing	9166 ANGELL	9/2/2008	6520625.089300	6520625.089300	1790394.866750	245115	1032	sf	64	cf
Infiltration BMP	Existing	9351 APPLEBY	1/3/2008	6529580.566170	6529580.566170	1804445.997380	245125	1032	sf	64	cf
Infiltration BMP	Existing	9520 ARDINE	10/6/2005	6527613.323800	6527613.323800	1797533.903060	245119	1032	sf	64	cf
Infiltration BMP	Existing	7814 ARNETT	6/22/2010	6517981.553910	6517981.553910	1801095.347060	246079	1032	sf	64	cf
Infiltration BMP	Existing	7815 ARNETT	6/22/2010	6518066.490340	6518066.490340	1801237.713920	246079	1032	sf	64	cf
Infiltration BMP	Existing	7832 ARNETT	1/11/2007	6518132.684800	6518132.684800	1801021.243050	246079	1032	sf	64	cf
Infiltration BMP	Existing	8241 ARNETT	11/29/2006	6520442.071210	6520442.071210	1799867.842140	245115	1032	sf	64	cf
Infiltration BMP	Existing	7743 BAIRNSDALE	5/16/2006	6523474.546480	6523474.546480	1810551.323320	246106	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12904 BARLIN	1/15/2009	6518150.890370	6518150.890370	1791163.941140	245115	1032	sf	64	cf
Infiltration BMP	Existing	13247 BARLIN	5/5/2005	6516868.829160	6516868.829160	1789428.146200	245524	1032	sf	64	cf
Infiltration BMP	Existing	7871 BAYSINGER	1/10/2007	6521422.493960	6521422.493960	1805635.813480	246102	1032	sf	64	cf
Infiltration BMP	Existing	8607 BAYSINGER	1/1/2005	6525304.240800	6525304.240800	1803291.716200	245119	1032	sf	64	cf
Infiltration BMP	Existing	9131 BAYSINGER	9/10/2008	6526918.982970	6526918.982970	1802474.767100	245119	1032	sf	64	cf
Infiltration BMP	Existing	9411 BAYSINGER	9/24/2007	6528736.042510	6528736.042510	1801262.782730	245126	1032	sf	64	cf
Infiltration BMP	Existing	9320 BELCHER	4/10/2007	6520600.361450	6520600.361450	1789754.109890	245115	1032	sf	64	cf
Infiltration BMP	Existing	9969 BELCHER	7/29/2009	6525669.288070	6525669.288070	1789992.480470	245113	1032	sf	64	cf
Infiltration BMP	Existing	10375 BELDER	6/22/2010	6522812.240000	6522812.240000	1803043.757460	246103	1032	sf	64	cf
Infiltration BMP	Existing	7441 BENARES	10/25/2005	6515921.019300	6515921.019300	1801396.174500	246079	1032	sf	64	cf
Infiltration BMP	Existing	7503 BENARES	1/16/2008	6516046.045620	6516046.045620	1801313.189720	246079	1032	sf	64	cf
Infiltration BMP	Existing	11014 BENFIELD	12/19/2005	6531918.630750	6531918.630750	1797937.959120	245122	1032	sf	64	cf
Infiltration BMP	Existing	8555 BIGBY	8/22/2005	6524606.668030	6524606.668030	1802914.545010	245119	1032	sf	64	cf
Infiltration BMP	Existing	9308 BIGBY	12/18/2008	6527591.908660	6527591.908660	1800839.109380	245126	1032	sf	64	cf
Infiltration BMP	Existing	9345 BIGBY	5/16/2006	6527999.312020	6527999.312020	1800803.102000	245126	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9389 BIGBY	9/20/2007	6528361.925530	6528361.925530	1800582.426270	245126	1032	sf	64	cf
Infiltration BMP	Existing	8246 BIRCHCREST	11/28/2005	6526713.325530	6526713.325530	1809350.628180	246106	1032	sf	64	cf
Infiltration BMP	Existing	10434 BIRCHDALE	12/2/2008	6524586.579650	6524586.579650	1802390.820140	245119	1032	sf	64	cf
Infiltration BMP	Existing	8812 BIRCHLEAF	5/3/2007	6527457.897210	6527457.897210	1808468.377860	246103	1032	sf	64	cf
Infiltration BMP	Existing	8912 BIRCHLEAF	10/9/2007	6527209.329660	6527209.329660	1808281.543500	246103	1032	sf	64	cf
Infiltration BMP	Existing	13330 BIXLER	3/21/2007	6516259.886220	6516259.886220	1789972.109000	245524	1032	sf	64	cf
Infiltration BMP	Existing	13411 BIXLER	9/30/2008	6515914.285010	6515914.285010	1789635.314360	245524	1032	sf	64	cf
Infiltration BMP	Existing	13425 BIXLER	8/17/2005	6515841.147610	6515841.147610	1789505.869380	245524	1032	sf	64	cf
Infiltration BMP	Existing	13454 BIXLER	5/10/2007	6515808.905200	6515808.905200	1789174.120800	245524	1032	sf	64	cf
Infiltration BMP	Existing	8220 BLANDWOOD	6/22/2010	6526086.691350	6526086.691350	1808873.058080	246103	1032	sf	64	cf
Infiltration BMP	Existing	12809 BLODGETT	1/1/2006	6518629.647540	6518629.647540	1791208.759970	245115	1032	sf	64	cf
Infiltration BMP	Existing	13026 BLODGETT	1/1/2005	6518225.401930	6518225.401930	1790248.943990	245115	1032	sf	64	cf
Infiltration BMP	Existing	13045 BLODGETT	10/6/2005	6517990.284020	6517990.284020	1790176.483690	245115	1032	sf	64	cf
Infiltration BMP	Existing	13114 BLODGETT	10/6/2005	6517888.613290	6517888.613290	1789931.616790	245115	1032	sf	64	cf
Infiltration BMP	Existing	7931 BORSON	9/6/2006	6514752.824370	6514752.824370	1794266.718830	246077	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8202 BORSON	6/5/2006	6516202.097710	6516202.097710	1793267.543860	246077	1032	sf	64	cf
Infiltration BMP	Existing	8428 BORSON	11/21/2008	6517449.915190	6517449.915190	1792528.167220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8515 BORSON	3/14/2005	6517771.929480	6517771.929480	1792500.505870	245115	1032	sf	64	cf
Infiltration BMP	Existing	8345 BOYNE	6/18/2010	6519344.143470	6519344.143470	1796446.421390	245115	1032	sf	64	cf
Infiltration BMP	Existing	8402 BOYNE	1/1/2005	6519302.113240	6519302.113240	1796279.573520	245115	1032	sf	64	cf
Infiltration BMP	Existing	8525 BOYNE	7/20/2006	6520189.715440	6520189.715440	1796009.699660	245115	1032	sf	64	cf
Infiltration BMP	Existing	8528 BOYNE	2/22/2007	6520138.661540	6520138.661540	1795848.718800	245115	1032	sf	64	cf
Infiltration BMP	Existing	8613 BOYSON	1/1/2006	6520167.899980	6520167.899980	1794794.451220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8647 BOYSON	7/29/2008	6520447.155570	6520447.155570	1794619.557270	245115	1032	sf	64	cf
Infiltration BMP	Existing	10216 BRANSCOMB	2/21/2007	6526794.108720	6526794.108720	1790310.156040	245113	1032	sf	64	cf
Infiltration BMP	Existing	10291 BRANSCOMB	7/25/2006	6527529.378260	6527529.378260	1790458.207730	245118	1032	sf	64	cf
Infiltration BMP	Existing	9624 BROCK	4/22/2005	6523849.153810	6523849.153810	1806723.688440	246103	1032	sf	64	cf
Infiltration BMP	Existing	12351 BROCK	9/3/2008	6516676.858850	6516676.858850	1795612.256100	246077	1032	sf	64	cf
Infiltration BMP	Existing	12608 BROCK	2/11/2005	6516008.590090	6516008.590090	1794308.259250	246077	1032	sf	64	cf
Infiltration BMP	Existing	8269 BROOKGREEN	1/1/2006	6526709.836510	6526709.836510	1808858.860970	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7847 BROOKMILL	6/21/2010	6518005.266020	6518005.266020	1800484.266850	246079	1032	sf	64	cf
Infiltration BMP	Existing	8025 BROOKPARK	1/1/2005	6525207.617130	6525207.617130	1809814.105880	246106	1032	sf	64	cf
Infiltration BMP	Existing	9707 BROOKSHIRE	3/14/2005	6525762.512240	6525762.512240	1805795.982660	246103	1032	sf	64	cf
Infiltration BMP	Existing	10429 BROOKSHIRE	1/19/2005	6523911.001360	6523911.001360	1803018.354450	245119	1032	sf	64	cf
Infiltration BMP	Existing	12404 BROOKSHIRE	6/25/2007	6518808.785660	6518808.785660	1794169.944640	245115	1032	sf	64	cf
Infiltration BMP	Existing	7622 BRUNACHE	10/31/2007	6515665.309920	6515665.309920	1799097.073030	246079	1032	sf	64	cf
Infiltration BMP	Existing	8216 BRUNACHE	11/6/2007	6518414.904440	6518414.904440	1797242.748270	245115	1032	sf	64	cf
Infiltration BMP	Existing	9033 BUCKLES	6/21/2010	6523179.898540	6523179.898540	1796909.863810	245114	1032	sf	64	cf
Infiltration BMP	Existing	7540 BUELL	1/1/2004	6518499.698980	6518499.698980	1804545.470300	246102	1032	sf	64	cf
Infiltration BMP	Existing	9330 BUELL	2/15/2006	6527195.126160	6527195.126160	1799219.087810	245126	1032	sf	64	cf
Infiltration BMP	Existing	9351 BUELL	6/21/2010	6527484.251630	6527484.251630	1799288.621620	245126	1032	sf	64	cf
Infiltration BMP	Existing	9634 BUELL	3/16/2006	6528774.281270	6528774.281270	1798139.573770	245126	1032	sf	64	cf
Infiltration BMP	Existing	9067 BUHMAN	11/20/2007	6530056.595350	6530056.595350	1805336.923900	245125	1032	sf	64	cf
Infiltration BMP	Existing	9208 BUHMAN	6/16/2008	6529799.831660	6529799.831660	1804544.819190	245125	1032	sf	64	cf
Infiltration BMP	Existing	10237 CASANES	3/23/2006	6528975.248660	6528975.248660	1801017.460740	245126	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10321 CASANES	1/1/2007	6528597.524650	6528597.524650	1800411.412530	245126	1032	sf	64	cf
Infiltration BMP	Existing	10403 CASANES	12/21/2005	6528532.829940	6528532.829940	1800305.536240	245126	1032	sf	64	cf
Infiltration BMP	Existing	10408 CASANES	1/1/2005	6528665.671960	6528665.671960	1800149.799930	245126	1032	sf	64	cf
Infiltration BMP	Existing	10812 CASANES	3/14/2005	6527610.698650	6527610.698650	1798391.295520	245119	1032	sf	64	cf
Infiltration BMP	Existing	10835 CASANES	4/1/2008	6527345.484730	6527345.484730	1798305.683780	245119	1032	sf	64	cf
Infiltration BMP	Existing	10944 CASANES	1/1/2006	6527151.352860	6527151.352860	1797710.972890	245119	1032	sf	64	cf
Infiltration BMP	Existing	8457 CAVEL	9/24/2007	6519984.576530	6519984.576530	1796420.555450	245115	1032	sf	64	cf
Infiltration BMP	Existing	9502 CECILIA	10/11/2007	6527927.079440	6527927.079440	1798327.652080	245126	1032	sf	64	cf
Infiltration BMP	Existing	9531 CECILIA	8/23/2006	6528208.236430	6528208.236430	1798317.933420	245126	1032	sf	64	cf
Infiltration BMP	Existing	9435 CEDARTREE	6/22/2010	6530636.457520	6530636.457520	1805866.234670	245127	1032	sf	64	cf
Infiltration BMP	Existing	9010 CHANEY	11/30/2005	6529789.693370	6529789.693370	1806340.793150	245125	1032	sf	64	cf
Infiltration BMP	Existing	9011 CHANEY	1/31/2006	6529640.900410	6529640.900410	1806424.653160	245125	1032	sf	64	cf
Infiltration BMP	Existing	9134 CHANEY	1/1/2005	6529119.825860	6529119.825860	1805332.958450	245125	1032	sf	64	cf
Infiltration BMP	Existing	10252 CHANEY	1/1/2006	6527373.631100	6527373.631100	1801932.130180	245119	1032	sf	64	cf
Infiltration BMP	Existing	10530 CHANEY	6/3/2008	6526461.472620	6526461.472620	1800532.795270	245119	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8355 CHARLOMA	9/16/2005	6524931.861530	6524931.861530	1806017.636180	246103	1032	sf	64	cf
Infiltration BMP	Existing	9037 CHARLOMA	9/25/2007	6527230.271760	6527230.271760	1804669.291940	245125	1032	sf	64	cf
Infiltration BMP	Existing	8565 CHEROKEE	2/14/2008	6524386.530150	6524386.530150	1802386.701010	245119	1032	sf	64	cf
Infiltration BMP	Existing	8030 CHEYENNE	1/1/2005	6514573.751210	6514573.751210	1792580.925090	246077	1032	sf	64	cf
Infiltration BMP	Existing	8117 CHEYENNE	4/10/2006	6515045.470000	6515045.470000	1792480.065000	246077	1032	sf	64	cf
Infiltration BMP	Existing	8418 CHEYENNE	1/1/2006	6516589.334020	6516589.334020	1791278.419980	245524	1032	sf	64	cf
Infiltration BMP	Existing	9303 CLANCEY	4/3/2006	6528228.489510	6528228.489510	1805319.961840	245125	1032	sf	64	cf
Infiltration BMP	Existing	10518 CLANCEY	3/9/2007	6526045.670270	6526045.670270	1800904.969960	245119	1032	sf	64	cf
Infiltration BMP	Existing	8316 CLETA	4/3/2007	6520383.826830	6520383.826830	1798544.940710	245114	1032	sf	64	cf
Infiltration BMP	Existing	8529 CLETA	1/1/2004	6521562.602410	6521562.602410	1798134.090240	245114	1032	sf	64	cf
Infiltration BMP	Existing	13113 COLDBROOK	6/13/2007	6524340.025750	6524340.025750	1790440.866070	245114	3095	sf	193	cf
Infiltration BMP	Existing	13227 COLDBROOK	2/22/2008	6524428.823880	6524428.823880	1789883.562480	245114	1032	sf	64	cf
Infiltration BMP	Existing	8554 COMOLETTE	6/21/2010	6517765.395020	6517765.395020	1791693.915800	245115	1032	sf	64	cf
Infiltration BMP	Existing	8417 CONKLIN	1/1/2006	6516931.143420	6516931.143420	1791819.671020	245524	1032	sf	64	cf
Infiltration BMP	Existing	7219 COOLGROVE	4/25/2006	6521787.460350	6521787.460350	1811479.001950	246111	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7605 COOLGROVE	6/22/2010	6522636.872680	6522636.872680	1810413.845850	246111	1032	sf	64	cf
Infiltration BMP	Existing	10210 CORD	2/12/2009	6528662.670970	6528662.670970	1801499.064930	245126	1032	sf	64	cf
Infiltration BMP	Existing	7706 COREY	6/22/2010	6515304.522120	6515304.522120	1798247.325380	246079	1032	sf	64	cf
Infiltration BMP	Existing	11708 CORRIGAN	5/30/2006	6523410.919990	6523410.919990	1796690.721900	245114	1032	sf	64	cf
Infiltration BMP	Existing	13227 CORRIGAN	4/11/2006	6523118.258510	6523118.258510	1789898.574120	245114	1032	sf	64	cf
Infiltration BMP	Existing	10809 CROSSDALE	1/30/2006	6532012.269030	6532012.269030	1798722.436870	245122	1032	sf	64	cf
Infiltration BMP	Existing	7803 DACOSTA	1/1/2006	6521705.534400	6521705.534400	1807011.928190	246106	1032	sf	64	cf
Infiltration BMP	Existing	7808 DACOSTA	3/29/2007	6521675.640660	6521675.640660	1806840.332210	246106	1032	sf	64	cf
Infiltration BMP	Existing	7826 DACOSTA	3/23/2007	6521825.889640	6521825.889640	1806744.301550	246106	1032	sf	64	cf
Infiltration BMP	Existing	8064 DACOSTA	1/6/2009	6523365.354910	6523365.354910	1805913.806160	246103	1032	sf	64	cf
Infiltration BMP	Existing	9242 DALEWOOD	5/17/2007	6532339.520890	6532339.520890	1804239.830010	245127	1032	sf	64	cf
Infiltration BMP	Existing	7044 DE PALMA	1/30/2006	6513058.006240	6513058.006240	1802286.102090	246100	1032	sf	64	cf
Infiltration BMP	Existing	7956 DE PALMA	7/28/2005	6517915.235930	6517915.235930	1799223.139650	246077	1032	sf	64	cf
Infiltration BMP	Existing	8232 DE PALMA	12/10/2008	6519342.730110	6519342.730110	1798392.424410	245115	1032	sf	64	cf
Infiltration BMP	Existing	13134 DEMING	2/6/2007	6518053.947000	6518053.947000	1789691.993030	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13240 DEMING	8/12/2005	6518068.820530	6518068.820530	1789032.682680	245115	1032	sf	64	cf
Infiltration BMP	Existing	13415 DEMPSTER	1/1/2007	6516194.546390	6516194.546390	1789419.790430	245524	1032	sf	64	cf
Infiltration BMP	Existing	13434 DEMPSTER	1/12/2006	6516258.965410	6516258.965410	1789155.039770	245524	1032	sf	64	cf
Infiltration BMP	Existing	13452 DEMPSTER	9/20/2005	6516159.819690	6516159.819690	1788979.483200	245524	1032	sf	64	cf
Infiltration BMP	Existing	7324 DINSDALE	6/21/2010	6518936.024560	6518936.024560	1807958.155410	246106	1032	sf	64	cf
Infiltration BMP	Existing	8352 DINSDALE	12/19/2005	6524191.795240	6524191.795240	1804722.231880	246103	1032	sf	64	cf
Infiltration BMP	Existing	9325 DINSDALE	7/3/2007	6528635.640220	6528635.640220	1802187.000380	245125	1032	sf	64	cf
Infiltration BMP	Existing	9812 DOLAN	1/10/2007	6524918.033470	6524918.033470	1805427.859430	246103	1032	sf	64	cf
Infiltration BMP	Existing	10410 DOLAN	9/19/2007	6523686.660150	6523686.660150	1803351.652190	245119	1032	sf	64	cf
Infiltration BMP	Existing	12522 DOLAN	12/9/2005	6518109.498100	6518109.498100	1794046.260040	245115	1032	sf	64	cf
Infiltration BMP	Existing	12634 DOLAN	4/11/2006	6517527.198260	6517527.198260	1793053.966010	245115	1032	sf	64	cf
Infiltration BMP	Existing	12712 DOLAN	4/27/2005	6517393.756980	6517393.756980	1792842.640770	245115	1032	sf	64	cf
Infiltration BMP	Existing	8740 DONOVAN	11/2/2006	6520467.711390	6520467.711390	1793463.175520	245115	1032	sf	64	cf
Infiltration BMP	Existing	6408 DOS RIOS	3/7/2007	6523246.583700	6523246.583700	1811462.058000	246111	1032	sf	64	cf
Infiltration BMP	Existing	6420 DOS RIOS	7/14/2008	6523082.430580	6523082.430580	1811381.024700	246111	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	6449 DOS RIOS	8/23/2005	6522675.424950	6522675.424950	1811505.638050	246111	1032	sf	64	cf
Infiltration BMP	Existing	6481 DOS RIOS	8/8/2007	6522296.417970	6522296.417970	1811546.494500	246111	1032	sf	64	cf
Infiltration BMP	Existing	9532 DOWNEY	9/21/2007	6524828.225510	6524828.225510	1806555.186060	246103	1032	sf	64	cf
Infiltration BMP	Existing	12115 DOWNEY	8/12/2005	6518801.058860	6518801.058860	1796628.276370	245115	1032	sf	64	cf
Infiltration BMP	Existing	12116 DOWNEY	7/24/2008	6518985.048760	6518985.048760	1796501.621880	245115	1032	sf	64	cf
Infiltration BMP	Existing	12545 DOWNEY	7/7/2005	6517126.997680	6517126.997680	1794204.833310	246077	1032	sf	64	cf
Infiltration BMP	Existing	13620 DOWNEY	10/24/2007	6515777.167020	6515777.167020	1788934.803130	245524	1032	sf	64	cf
Infiltration BMP	Existing	9756 DOWNEY SANFORD BRIDGE	11/6/2008	6530232.905320	6530232.905320	1802732.275270	245125	1032	sf	64	cf
Infiltration BMP	Existing	12109 DUNROBIN	5/27/2008	6524849.554990	6524849.554990	1794742.565720	245114	1032	sf	64	cf
Infiltration BMP	Existing	12602 DUNROBIN	4/21/2008	6525045.021790	6525045.021790	1792096.938130	245114	1032	sf	64	cf
Infiltration BMP	Existing	13118 DUNROBIN	8/1/2008	6525045.611060	6525045.611060	1790357.500340	245114	1032	sf	64	cf
Infiltration BMP	Existing	13447 EARNSHAW	3/4/2005	6516486.580000	6516486.580000	1788881.960000	245524	1032	sf	64	cf
Infiltration BMP	Existing	12246 EASTBROOK	7/3/2007	6525290.855020	6525290.855020	1793729.113600	245114	1032	sf	64	cf
Infiltration BMP	Existing	13102 EASTBROOK	5/30/2006	6525376.065000	6525376.065000	1790509.718450	245114	1032	sf	64	cf
Infiltration BMP	Existing	13207 EASTBROOK	1/1/2006	6525181.215010	6525181.215010	1790147.343800	245114	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9010 EGLISE	6/22/2010	6530616.481070	6530616.481070	1805612.930940	245127	1032	sf	64	cf
Infiltration BMP	Existing	9124 EGLISE	1/1/2006	6530099.347460	6530099.347460	1804464.036140	245125	1032	sf	64	cf
Infiltration BMP	Existing	10228 EGLISE	6/16/2008	6528317.527320	6528317.527320	1801552.496190	245126	1032	sf	64	cf
Infiltration BMP	Existing	8432 EUCALYPTUS	6/21/2010	6518375.883890	6518375.883890	1794450.252220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8451 EUCALYPTUS	11/5/2008	6518648.903650	6518648.903650	1794509.449160	245115	1032	sf	64	cf
Infiltration BMP	Existing	8449 EVEREST	9/20/2006	6518402.636450	6518402.636450	1794253.840980	245115	1032	sf	64	cf
Infiltration BMP	Existing	9036 FARM	1/1/2005	6525791.032450	6525791.032450	1801568.335890	245119	1032	sf	64	cf
Infiltration BMP	Existing	9068 FARM	1/1/2005	6526062.157630	6526062.157630	1801402.977290	245119	1032	sf	64	cf
Infiltration BMP	Existing	8334 FIFTH	6/24/2005	6522409.331110	6522409.331110	1801742.536430	245114	1032	sf	64	cf
Infiltration BMP	Existing	8540 FIFTH	1/1/2005	6523591.182480	6523591.182480	1801021.450470	245114	1032	sf	64	cf
Infiltration BMP	Existing	7238 FLORENCE	11/14/2005	6518231.298960	6518231.298960	1807648.949310	246104	1032	sf	64	cf
Infiltration BMP	Existing	8324 FONTANA	1/1/2006	6519936.868340	6519936.868340	1797701.691440	245115	1032	sf	64	cf
Infiltration BMP	Existing	7322 FOSTER BRIDGE	6/18/2010	6520302.817760	6520302.817760	1810322.849060	246111	1032	sf	64	cf
Infiltration BMP	Existing	7441 FOSTORIA	10/25/2005	6517764.674110	6517764.674110	1804520.953030	246102	1032	sf	64	cf
Infiltration BMP	Existing	7520 FOSTORIA	1/20/2006	6517974.460950	6517974.460950	1804167.759820	246102	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7639 FOSTORIA	7/27/2007	6518691.469740	6518691.469740	1803918.676960	246102	1032	sf	64	cf
Infiltration BMP	Existing	7915 FOURTH	5/29/2007	6519890.537430	6519890.537430	1803170.158590	246102	1032	sf	64	cf
Infiltration BMP	Existing	7922 FOURTH	1/1/2005	6519878.319950	6519878.319950	1802959.531390	246102	1032	sf	64	cf
Infiltration BMP	Existing	7411 FOURTH PL	9/10/2007	6517375.746060	6517375.746060	1804408.156270	246102	1032	sf	64	cf
Infiltration BMP	Existing	7519 FOURTH PL	6/23/2005	6517868.488420	6517868.488420	1804088.501010	246102	1032	sf	64	cf
Infiltration BMP	Existing	7329 GAINFORD	9/20/2007	6519599.973200	6519599.973200	1808409.397520	246111	1032	sf	64	cf
Infiltration BMP	Existing	7725 GAINFORD	6/21/2010	6521357.607460	6521357.607460	1807543.814610	246106	1032	sf	64	cf
Infiltration BMP	Existing	7735 GAINFORD	12/15/2006	6521461.236080	6521461.236080	1807480.220630	246106	1032	sf	64	cf
Infiltration BMP	Existing	7771 GAINFORD	12/3/2007	6521758.954890	6521758.954890	1807297.289390	246106	1032	sf	64	cf
Infiltration BMP	Existing	8353 GAINFORD	1/4/2007	6524689.963810	6524689.963810	1805534.024270	246103	1032	sf	64	cf
Infiltration BMP	Existing	8553 GAINFORD	4/7/2008	6525875.670020	6525875.670020	1804802.065800	245125	1032	sf	64	cf
Infiltration BMP	Existing	9114 GAINFORD	6/23/2010	6527375.967240	6527375.967240	1803418.253090	245125	1032	sf	64	cf
Infiltration BMP	Existing	8319 GALLATIN	6/23/2010	6525634.222480	6525634.222480	1807445.394810	246103	1032	sf	64	cf
Infiltration BMP	Existing	9069 GALLATIN	3/1/2005	6527846.830170	6527846.830170	1805432.059660	245125	1032	sf	64	cf
Infiltration BMP	Existing	9243 GALLATIN	6/19/2006	6528915.102070	6528915.102070	1804595.777040	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8408 GALT	6/18/2010	6520848.594160	6520848.594160	1798562.646220	245114	1032	sf	64	cf
Infiltration BMP	Existing	8435 GALT	12/27/2005	6521154.530230	6521154.530230	1798569.782020	245114	1032	sf	64	cf
Infiltration BMP	Existing	9119 GARNISH	6/22/2010	6529517.516530	6529517.516530	1805110.082900	245125	1032	sf	64	cf
Infiltration BMP	Existing	9136 GARNISH	2/5/2007	6529607.954040	6529607.954040	1804869.027300	245125	1032	sf	64	cf
Infiltration BMP	Existing	9024 GAYMONT	8/28/2007	6523451.624790	6523451.624790	1809501.434890	246111	1032	sf	64	cf
Infiltration BMP	Existing	12636 GLYNN	10/25/2005	6517337.921050	6517337.921050	1793251.757000	245524	1032	sf	64	cf
Infiltration BMP	Existing	12751 GLYNN	1/1/2005	6516780.406550	6516780.406550	1792749.927780	245524	1032	sf	64	cf
Infiltration BMP	Existing	12755 GLYNN	6/18/2010	6516753.778610	6516753.778610	1792707.557200	245524	1032	sf	64	cf
Infiltration BMP	Existing	12912 GLYNN	1/1/2005	6516567.905690	6516567.905690	1791996.175300	245524	1032	sf	64	cf
Infiltration BMP	Existing	8731 GUATEMALA	10/30/2008	6523507.693960	6523507.693960	1811098.218950	246106	1032	sf	64	cf
Infiltration BMP	Existing	9203 GUATEMALA	3/23/2006	6521893.308510	6521893.308510	1810154.570390	246111	1032	sf	64	cf
Infiltration BMP	Existing	9959 GUATEMALA	6/23/2010	6518699.649950	6518699.649950	1808234.818150	246111	1032	sf	64	cf
Infiltration BMP	Existing	13537 GUNDERSON	3/3/2008	6517350.406160	6517350.406160	1787757.556610	245524	1032	sf	64	cf
Infiltration BMP	Existing	13547 GUNDERSON	6/19/2006	6517298.502270	6517298.502270	1787667.099660	245524	1032	sf	64	cf
Infiltration BMP	Existing	11538 GURLEY	5/3/2005	6520211.328840	6520211.328840	1799382.602480	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11935 GURLEY	6/18/2010	6519051.777570	6519051.777570	1797582.114550	245115	1032	sf	64	cf
Infiltration BMP	Existing	12019 GURLEY	6/18/2010	6518869.145640	6518869.145640	1797295.091770	245115	1032	sf	64	cf
Infiltration BMP	Existing	12052 GURLEY	1/10/2006	6518841.793230	6518841.793230	1796925.916150	245115	1032	sf	64	cf
Infiltration BMP	Existing	12117 GURLEY	1/1/2007	6518497.250390	6518497.250390	1796711.283370	245115	1032	sf	64	cf
Infiltration BMP	Existing	9117 HALEDON	7/31/2006	6528761.573350	6528761.573350	1805801.190120	245125	1032	sf	64	cf
Infiltration BMP	Existing	10341 HALEDON	5/1/2006	6526657.457480	6526657.457480	1801653.926760	245119	1032	sf	64	cf
Infiltration BMP	Existing	10349 HALEDON	2/8/2005	6526618.690140	6526618.690140	1801591.635520	245119	1032	sf	64	cf
Infiltration BMP	Existing	10425 HALEDON	4/14/2005	6526424.760130	6526424.760130	1801280.406410	245119	1032	sf	64	cf
Infiltration BMP	Existing	10439 HALEDON	9/30/2005	6526346.747570	6526346.747570	1801155.573630	245119	1032	sf	64	cf
Infiltration BMP	Existing	10525 HALEDON	1/28/2005	6526113.410380	6526113.410380	1800804.505840	245119	1032	sf	64	cf
Infiltration BMP	Existing	10550 HALEDON	12/19/2005	6526112.578950	6526112.578950	1800485.376650	245119	1032	sf	64	cf
Infiltration BMP	Existing	9049 HALL ROAD	4/30/2008	6523684.587500	6523684.587500	1797586.831540	245114	1032	sf	64	cf
Infiltration BMP	Existing	7215 HANNON	12/19/2008	6521498.261440	6521498.261440	1811442.204100	246111	1032	sf	64	cf
Infiltration BMP	Existing	13005 HANWELL	2/11/2009	6519590.457150	6519590.457150	1789492.134120	245115	1032	sf	64	cf
Infiltration BMP	Existing	9022 HASTY	10/13/2005	6531232.650260	6531232.650260	1805433.916070	245127	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9205 HASTY	6/22/2010	6530848.690890	6530848.690890	1804978.371330	245127	1032	sf	64	cf
Infiltration BMP	Existing	9206 HASTY	1/1/2005	6531000.691980	6531000.691980	1804885.411940	245127	1032	sf	64	cf
Infiltration BMP	Existing	9241 HASTY	1/1/2006	6530719.487200	6530719.487200	1804649.180550	245127	1032	sf	64	cf
Infiltration BMP	Existing	7736 HONDO	2/8/2005	6514830.078530	6514830.078530	1796886.774430	246079	1032	sf	64	cf
Infiltration BMP	Existing	7753 HONDO	1/24/2007	6515005.269000	6515005.269000	1796951.957630	246079	1032	sf	64	cf
Infiltration BMP	Existing	7803 HONDO	10/11/2005	6515156.509020	6515156.509020	1796903.351830	246079	1032	sf	64	cf
Infiltration BMP	Existing	7808 HONDO	6/22/2010	6515109.805390	6515109.805390	1796717.393590	246079	1032	sf	64	cf
Infiltration BMP	Existing	7814 HONDO	7/25/2008	6515161.093050	6515161.093050	1796686.379320	246079	1032	sf	64	cf
Infiltration BMP	Existing	7920 HONDO	8/21/2006	6515777.018460	6515777.018460	1796313.217950	246079	1032	sf	64	cf
Infiltration BMP	Existing	7932 HONDO	1/1/2006	6515879.568480	6515879.568480	1796251.099580	246079	1032	sf	64	cf
Infiltration BMP	Existing	9008 HORLEY	7/19/2007	6523080.991430	6523080.991430	1809910.740800	246111	1032	sf	64	cf
Infiltration BMP	Existing	9838 HORLEY	7/3/2008	6521155.061500	6521155.061500	1807271.870840	246106	1032	sf	64	cf
Infiltration BMP	Existing	12307 HORLEY	1/1/2005	6514989.782150	6514989.782150	1797487.116040	246079	1032	sf	64	cf
Infiltration BMP	Existing	11427 HORTON	11/23/2005	6517266.456490	6517266.456490	1802136.009270	246079	1032	sf	64	cf
Infiltration BMP	Existing	11553 HORTON	4/21/2005	6516872.120940	6516872.120940	1801498.085040	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11708 HORTON	10/25/2005	6516455.941870	6516455.941870	1800783.417100	246079	1032	sf	64	cf
Infiltration BMP	Existing	12646 IBBETSON	5/6/2005	6526008.756240	6526008.756240	1791650.535870	245114	1032	sf	64	cf
Infiltration BMP	Existing	8217 IMPERIAL	1/5/2009	6516889.628840	6516889.628840	1794092.786860	246077	1032	sf	64	cf
Infiltration BMP	Existing	7320 IRWINGROVE	1/1/2006	6518255.802480	6518255.802480	1807084.876440	246102	1032	sf	64	cf
Infiltration BMP	Existing	7710 IRWINGROVE	12/11/2007	6520151.425540	6520151.425540	1805902.138310	246102	1032	sf	64	cf
Infiltration BMP	Existing	12208 IZETTA	1/1/2006	6524718.745010	6524718.745010	1794118.344290	245114	1032	sf	64	cf
Infiltration BMP	Existing	12252 IZETTA	7/10/2008	6524718.900100	6524718.900100	1793666.382200	245114	1032	sf	64	cf
Infiltration BMP	Existing	12631 IZETTA	8/28/2007	6524602.625920	6524602.625920	1791809.267080	245114	1032	sf	64	cf
Infiltration BMP	Existing	10228 JULIUS	5/20/2008	6519748.327880	6519748.327880	1806603.074440	246102	1032	sf	64	cf
Infiltration BMP	Existing	10234 JULIUS	6/22/2010	6519723.348540	6519723.348540	1806551.787860	246102	1032	sf	64	cf
Infiltration BMP	Existing	11848 JULIUS	6/23/2010	6515875.825190	6515875.825190	1800351.825190	246079	1032	sf	64	cf
Infiltration BMP	Existing	11859 JULIUS	8/23/2005	6515676.490910	6515676.490910	1800355.137490	246079	1032	sf	64	cf
Infiltration BMP	Existing	11865 JULIUS	11/13/2006	6515650.173870	6515650.173870	1800309.916770	246079	1032	sf	64	cf
Infiltration BMP	Existing	12129 JULIUS	9/29/2005	6514728.334670	6514728.334670	1798846.683770	246079	1032	sf	64	cf
Infiltration BMP	Existing	9263 KLINEDALE	6/21/2010	6531573.525950	6531573.525950	1804517.918460	245127	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9205 LA REINA	11/27/2006	6525690.537020	6525690.53 7020	1808255.6007 40	246103	1032	sf	64	cf
Infiltration BMP	Existing	9251 LA REINA	8/10/2007	6525325.121400	6525325.12 1400	1807968.3162 00	246103	1032	sf	64	cf
Infiltration BMP	Existing	9260 LA REINA	6/14/2007	6525343.506110	6525343.50 6110	1807785.3500 80	246103	1032	sf	64	cf
Infiltration BMP	Existing	9633 LA REINA	9/24/2007	6524180.010720	6524180.01 0720	1806496.8498 20	246103	1032	sf	64	cf
Infiltration BMP	Existing	10026 LA REINA	1/1/2005	6523542.730590	6523542.73 0590	1805175.2474 70	246103	1032	sf	64	cf
Infiltration BMP	Existing	10219 LA REINA	5/25/2006	6522978.941790	6522978.94 1790	1804778.4332 10	246103	1032	sf	64	cf
Infiltration BMP	Existing	8346 LA VILLA	8/29/2005	6522426.709000	6522426.70 9000	1801414.4653 90	245114	1032	sf	64	cf
Infiltration BMP	Existing	9524 LA VILLA	9/27/2005	6527942.492070	6527942.49 2070	1797972.6645 40	245119	1032	sf	64	cf
Infiltration BMP	Existing	14305 LAKEWOOD	1/1/2006	6518183.322800	6518183.32 2800	1787270.0599 50	245524	1032	sf	64	cf
Infiltration BMP	Existing	8218 LANKIN	3/28/2006	6516908.705740	6516908.70 5740	1794755.8937 60	246077	1032	sf	64	cf
Infiltration BMP	Existing	13407 LAURELDALE	10/25/2005	6516128.982330	6516128.98 2330	1789557.8910 60	245524	1032	sf	64	cf
Infiltration BMP	Existing	11034 LE FLOSS	3/21/2008	6531318.633350	6531318.63 3350	1797718.3343 60	245124	1032	sf	64	cf
Infiltration BMP	Existing	9013 LEMORAN	3/16/2006	6529860.990680	6529860.99 0680	1806212.6947 80	245125	1032	sf	64	cf
Infiltration BMP	Existing	10036 LESTERFORD	1/11/2006	6530911.516090	6530911.51 6090	1801094.3477 40	245125	1032	sf	64	cf
Infiltration BMP	Existing	8355 LEXINGTON	6/15/2005	6523932.891700	6523932.89 1700	1804236.9276 00	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7432 LUBEC	7/8/2005	6519806.105180	6519806.105180	1808430.037290	246111	1032	sf	64	cf
Infiltration BMP	Existing	9318 LUBEC	1/1/2006	6528946.832250	6528946.832250	1803071.454980	245125	1032	sf	64	cf
Infiltration BMP	Existing	7341 LUXOR	9/30/2005	6515165.173860	6515165.173860	1801559.243950	246079	1032	sf	64	cf
Infiltration BMP	Existing	7743 LUXOR	8/18/2006	6517197.964320	6517197.964320	1800308.569440	246079	1032	sf	64	cf
Infiltration BMP	Existing	7809 LUXOR	1/1/2006	6517239.593210	6517239.593210	1799986.863830	246079	1032	sf	64	cf
Infiltration BMP	Existing	7982 LUXOR	7/3/2007	6518306.219270	6518306.219270	1799333.376300	246077	1032	sf	64	cf
Infiltration BMP	Existing	8509 LUXOR	12/31/2008	6521183.510000	6521183.510000	1797885.775000	245114	1032	sf	64	cf
Infiltration BMP	Existing	11505 MAC GOVERN	5/1/2006	6519990.708800	6519990.708800	1799977.759420	245115	1032	sf	64	cf
Infiltration BMP	Existing	11527 MAC GOVERN	11/19/2007	6519889.562820	6519889.562820	1799806.361750	245115	1032	sf	64	cf
Infiltration BMP	Existing	8518 MANATEE	4/27/2005	6521541.591450	6521541.591450	1798287.495050	245114	1032	sf	64	cf
Infiltration BMP	Existing	12306 MARBEL	12/29/2005	6520780.434840	6520780.434840	1794110.003960	245115	1032	sf	64	cf
Infiltration BMP	Existing	12322 MARBEL	8/24/2005	6520697.258530	6520697.258530	1793976.926170	245115	1032	sf	64	cf
Infiltration BMP	Existing	10423 MATTOCK	11/21/2008	6528946.576280	6528946.576280	1799798.739650	245126	1032	sf	64	cf
Infiltration BMP	Existing	10527 MATTOCK	1/11/2007	6528618.163260	6528618.163260	1799183.483330	245126	1032	sf	64	cf
Infiltration BMP	Existing	8602 MEADOW	2/28/2008	6519007.155950	6519007.155950	1793158.643900	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8606 MEADOW	10/26/2006	6519050.372960	6519050.372960	1793129.529230	245115	1032	sf	64	cf
Infiltration BMP	Existing	8739 MEADOW	12/17/2007	6520051.313480	6520051.313480	1792689.390880	245115	1032	sf	64	cf
Infiltration BMP	Existing	9106 MELDAR	4/23/2007	6526980.004600	6526980.004600	1807421.893550	246103	1032	sf	64	cf
Infiltration BMP	Existing	7819 MELVA	1/1/2005	6515811.952890	6515811.952890	1797638.263460	246079	1032	sf	64	cf
Infiltration BMP	Existing	8609 MELVA	4/6/2007	6520260.479750	6520260.479750	1795043.474460	245115	1032	sf	64	cf
Infiltration BMP	Existing	9558 METRO	4/3/2008	6531485.802060	6531485.802060	1804114.777900	245127	1032	sf	64	cf
Infiltration BMP	Existing	11711 MITLA	7/13/2005	6513453.724060	6513453.724060	1802912.278240	246100	1032	sf	64	cf
Infiltration BMP	Existing	11819 MORNING	6/21/2010	6517496.555960	6517496.555960	1799723.226450	246077	1032	sf	64	cf
Infiltration BMP	Existing	12070 MORNING	9/13/2006	6516788.931410	6516788.931410	1797957.975300	246079	1032	sf	64	cf
Infiltration BMP	Existing	8637 MORY	1/1/2005	6520217.929830	6520217.929830	1794453.857040	245115	1032	sf	64	cf
Infiltration BMP	Existing	10903 MYRTLE	10/25/2005	6520809.999180	6520809.999180	1802308.735020	246103	1032	sf	64	cf
Infiltration BMP	Existing	8208 NADA	6/29/2005	6518679.653960	6518679.653960	1797804.552950	245115	1032	sf	64	cf
Infiltration BMP	Existing	8249 NADA	2/12/2008	6519111.183860	6519111.183860	1797730.010570	245115	1032	sf	64	cf
Infiltration BMP	Existing	9458 NANCE	6/20/2005	6526752.832360	6526752.832360	1796717.105850	245119	1032	sf	64	cf
Infiltration BMP	Existing	10609 NEDRA	6/3/2005	6522752.614640	6522752.614640	1802538.434710	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10850 NEWVILLE	7/3/2007	6528159.933410	6528159.933410	1797635.549950	245119	1032	sf	64	cf
Infiltration BMP	Existing	7510 NOREN	5/23/2006	6520838.348300	6520838.348300	1809064.222230	246111	1032	sf	64	cf
Infiltration BMP	Existing	11720 NORLAIN	9/22/2006	6515696.110230	6515696.110230	1801264.632180	246079	1032	sf	64	cf
Infiltration BMP	Existing	12336 NORLAIN	8/1/2007	6513658.838460	6513658.838460	1797875.767390	246079	1032	sf	64	cf
Infiltration BMP	Existing	11628 OLD RIVER SCHOOL	1/1/2006	6515797.838400	6515797.838400	1801876.521840	246079	1032	sf	64	cf
Infiltration BMP	Existing	8521 ORANGE	3/9/2007	6519427.831130	6519427.831130	1794911.101980	245115	1032	sf	64	cf
Infiltration BMP	Existing	9255 ORIZABA	2/15/2006	6525108.451310	6525108.451310	1808168.208600	246103	1032	sf	64	cf
Infiltration BMP	Existing	9719 ORIZABA	8/8/2007	6523780.810110	6523780.810110	1806377.528150	246103	1032	sf	64	cf
Infiltration BMP	Existing	12615 ORIZABA	1/27/2006	6516062.877730	6516062.877730	1794206.618320	246077	1032	sf	64	cf
Infiltration BMP	Existing	8511 OTTO	4/12/2005	6525130.700850	6525130.700850	1804530.864040	245125	1032	sf	64	cf
Infiltration BMP	Existing	9933 PANGBORN	6/29/2006	6530067.434760	6530067.434760	1801915.181390	245125	1032	sf	64	cf
Infiltration BMP	Existing	10202 PANGBORN	1/1/2006	6529571.236640	6529571.236640	1801045.668670	245125	1032	sf	64	cf
Infiltration BMP	Existing	11009 PANGBORN	1/31/2007	6527339.080190	6527339.080190	1797691.116980	245119	1032	sf	64	cf
Infiltration BMP	Existing	9530 PARAMOUNT	7/14/2005	6523601.663290	6523601.663290	1807461.311510	246103	1032	sf	64	cf
Infiltration BMP	Existing	9624 PARAMOUNT	5/9/2005	6523328.526550	6523328.526550	1807031.980170	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8603 PARROT	3/14/2006	6526080.240790	6526080.240790	1809719.746830	246106	1032	sf	64	cf
Infiltration BMP	Existing	9625 PARROT	1/1/2005	6523451.735380	6523451.735380	1806960.011690	246103	1032	sf	64	cf
Infiltration BMP	Existing	9708 PARROT	6/29/2006	6523491.321500	6523491.321500	1806678.668660	246103	1032	sf	64	cf
Infiltration BMP	Existing	12045 PARROT	6/22/2010	6517861.439330	6517861.439330	1797868.798060	246077	1032	sf	64	cf
Infiltration BMP	Existing	12751 PARROT	12/14/2006	6515222.728500	6515222.728500	1793830.999240	246077	1032	sf	64	cf
Infiltration BMP	Existing	7130 PELLET	1/27/2005	6515276.387650	6515276.387650	1804845.311440	246104	1032	sf	64	cf
Infiltration BMP	Existing	7323 PELLET	1/1/2005	6516571.171210	6516571.171210	1804327.110650	246104	1032	sf	64	cf
Infiltration BMP	Existing	7354 PELLET	1/1/2006	6516665.448760	6516665.448760	1803945.359790	246102	1032	sf	64	cf
Infiltration BMP	Existing	7861 PHLOX	9/17/2007	6518688.116640	6518688.116640	1801430.417420	246079	1032	sf	64	cf
Infiltration BMP	Existing	10620 PICO VISTA	3/7/2007	6529428.403390	6529428.403390	1798283.402620	245126	1032	sf	64	cf
Infiltration BMP	Existing	10635 PICO VISTA	8/28/2007	6529197.816790	6529197.816790	1798270.093070	245126	1032	sf	64	cf
Infiltration BMP	Existing	7530 PIVOT	11/23/2005	6516899.016370	6516899.016370	1802660.318910	246079	1032	sf	64	cf
Infiltration BMP	Existing	7709 PIVOT	10/11/2005	6517859.569570	6517859.569570	1802212.124870	246079	1032	sf	64	cf
Infiltration BMP	Existing	7753 PIVOT	6/14/2005	6518241.212950	6518241.212950	1801966.921690	246079	1032	sf	64	cf
Infiltration BMP	Existing	11974 POMERING	6/18/2010	6515116.938670	6515116.938670	1799645.797070	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8732 PRICHARD ST	1/12/2009	6516786.371080	6516786.371080	1788406.289900	245524	1032	sf	64	cf
Infiltration BMP	Existing	8734 PRICHARD ST	1/12/2009	6516831.574810	6516831.574810	1788380.860770	245524	1032	sf	64	cf
Infiltration BMP	Existing	8738 PRICHARD ST	1/12/2009	6516876.454020	6516876.454020	1788355.597890	245524	1032	sf	64	cf
Infiltration BMP	Existing	8740 PRICHARD ST	1/12/2009	6516921.333860	6516921.333860	1788330.343610	245524	1032	sf	64	cf
Infiltration BMP	Existing	8240 PRISCILLA	9/13/2007	6515555.844810	6515555.844810	1791697.292180	246077	1032	sf	64	cf
Infiltration BMP	Existing	9044 PRISCILLA	8/18/2005	6519169.042140	6519169.042140	1790017.667840	245115	1032	sf	64	cf
Infiltration BMP	Existing	9060 PRISCILLA	6/21/2010	6519318.719160	6519318.719160	1790008.270400	245115	1032	sf	64	cf
Infiltration BMP	Existing	11448 PRUESS	1/1/2006	6518742.114860	6518742.114860	1801046.878700	246077	1032	sf	64	cf
Infiltration BMP	Existing	11609 PRUESS	11/16/2006	6518299.675980	6518299.675980	1800455.121300	246077	1032	sf	64	cf
Infiltration BMP	Existing	11619 PRUESS	6/10/2005	6518270.484730	6518270.484730	1800355.677990	246077	1032	sf	64	cf
Infiltration BMP	Existing	11708 PRUESS	1/18/2005	6518033.994760	6518033.994760	1799832.073440	246077	1032	sf	64	cf
Infiltration BMP	Existing	8121 PURITAN	6/5/2006	6515245.448070	6515245.448070	1792698.037730	246077	1032	sf	64	cf
Infiltration BMP	Existing	7707 QUILL	6/1/2007	6514508.683200	6514508.683200	1796937.770200	246079	1032	sf	64	cf
Infiltration BMP	Existing	8108 QUOIT	6/5/2008	6516594.034560	6516594.034560	1795288.918170	246077	1032	sf	64	cf
Infiltration BMP	Existing	9109 RAVILLER	2/6/2007	6527953.464140	6527953.464140	1804924.402110	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9367 RAVILLER	1/1/2006	6529435.914270	6529435.914270	1803746.913820	245125	1032	sf	64	cf
Infiltration BMP	Existing	9728 RICHEON	6/18/2010	6521201.804800	6521201.804800	1807962.626360	246106	1032	sf	64	cf
Infiltration BMP	Existing	12217 RICHEON	1/1/2005	6514937.033870	6514937.033870	1797986.477150	246079	1032	sf	64	cf
Infiltration BMP	Existing	12336 RICHEON	1/10/2007	6514721.816510	6514721.816510	1797298.695230	246079	1032	sf	64	cf
Infiltration BMP	Existing	12342 RICHEON	1/1/2005	6514694.932100	6514694.932100	1797256.523880	246079	1032	sf	64	cf
Infiltration BMP	Existing	12352 RICHEON	10/30/2008	6514641.834370	6514641.834370	1797172.034360	246079	1032	sf	64	cf
Infiltration BMP	Existing	11010 RIO HONDO	2/6/2006	6514511.989690	6514511.989690	1805412.886430	246104	1032	sf	64	cf
Infiltration BMP	Existing	8515 RIVES	2/6/2006	6524958.575190	6524958.575190	1811619.081610	246111	1032	sf	64	cf
Infiltration BMP	Existing	8546 RIVES	6/14/2010	6524726.063490	6524726.063490	1811337.492550	246106	1032	sf	64	cf
Infiltration BMP	Existing	11828 RIVES	1/1/2006	6517020.372820	6517020.372820	1799741.223590	246079	1032	sf	64	cf
Infiltration BMP	Existing	12056 RIVES	10/7/2005	6516252.097820	6516252.097820	1798479.870770	246079	1032	sf	64	cf
Infiltration BMP	Existing	12213 RIVES	6/7/2007	6515544.034920	6515544.034920	1797794.303030	246079	1032	sf	64	cf
Infiltration BMP	Existing	12301 RIVES	1/27/2006	6515274.134590	6515274.134590	1797373.251430	246079	1032	sf	64	cf
Infiltration BMP	Existing	12542 ROSE	6/18/2010	6520775.320830	6520775.320830	1792425.734550	245115	1032	sf	64	cf
Infiltration BMP	Existing	7444 RUNDELL	9/28/2006	6514195.392880	6514195.392880	1798477.819400	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7458 RUNDELL	1/1/2006	6514328.036950	6514328.036950	1798395.544300	246079	1032	sf	64	cf
Infiltration BMP	Existing	8734 RUPP	5/24/2007	6518769.625610	6518769.625610	1791861.464390	245115	1032	sf	64	cf
Infiltration BMP	Existing	9206 SAMOLINE	9/20/2006	6524105.922670	6524105.922670	1808777.784250	246106	1032	sf	64	cf
Infiltration BMP	Existing	9363 SAMOLINE	2/12/2009	6523342.697990	6523342.697990	1808041.206940	246106	1032	sf	64	cf
Infiltration BMP	Existing	9630 SAMOLINE	1/1/2006	6523000.405210	6523000.405210	1807164.143360	246103	1032	sf	64	cf
Infiltration BMP	Existing	12041 SAMOLINE	6/23/2010	6516971.702030	6516971.702030	1798170.274910	246079	1032	sf	64	cf
Infiltration BMP	Existing	10629 SHELLEYFIELD	6/21/2010	6525284.582980	6525284.582980	1800508.363190	245119	1032	sf	64	cf
Infiltration BMP	Existing	9118 SHERIDELL	6/22/2010	6528683.896100	6528683.896100	1805941.227670	245125	1032	sf	64	cf
Infiltration BMP	Existing	10042 SIDEVIEW	6/21/2010	6529464.806690	6529464.806690	1801729.923910	245125	1032	sf	64	cf
Infiltration BMP	Existing	8349 SIXTH	6/21/2010	6522706.066860	6522706.066860	1802231.249170	245114	1032	sf	64	cf
Infiltration BMP	Existing	8363 SIXTH	6/18/2010	6522832.335670	6522832.335670	1802150.209500	245114	1032	sf	64	cf
Infiltration BMP	Existing	8532 SIXTH	6/23/2010	6523697.106090	6523697.106090	1801388.440460	245119	1032	sf	64	cf
Infiltration BMP	Existing	8514 SMALLWOOD	8/24/2006	6525167.581560	6525167.581560	1811228.866910	246106	1032	sf	64	cf
Infiltration BMP	Existing	12007 SMALLWOOD	1/1/2005	6516682.861570	6516682.861570	1798786.226940	246079	1032	sf	64	cf
Infiltration BMP	Existing	12936 SMALLWOOD	7/31/2006	6513688.714060	6513688.714060	1793540.982580	246077	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9235 SONGFEST	6/14/2006	6531351.855720	6531351.855720	1804709.858310	245127	1032	sf	64	cf
Infiltration BMP	Existing	7939 SPRINGER	10/6/2006	6516193.792450	6516193.792450	1796630.732180	246079	1032	sf	64	cf
Infiltration BMP	Existing	9306 STAMPS	6/21/2010	6525546.826990	6525546.826990	1807197.501010	246103	1032	sf	64	cf
Infiltration BMP	Existing	10446 STAMPS	1/1/2005	6523214.650320	6523214.650320	1803242.228000	246103	1032	sf	64	cf
Infiltration BMP	Existing	10536 STAMPS	6/1/2006	6522871.528480	6522871.528480	1802783.838380	246103	1032	sf	64	cf
Infiltration BMP	Existing	13219 STANBRIDGE	9/17/2007	6522806.618420	6522806.618420	1790045.381220	245114	1032	sf	64	cf
Infiltration BMP	Existing	8723 STEWART & GRAY	2/11/2009	6522100.372490	6522100.372490	1796545.507760	245114	1032	sf	64	cf
Infiltration BMP	Existing	9028 STOAKES	8/17/2007	6527221.634250	6527221.634250	1807951.198320	246103	1032	sf	64	cf
Infiltration BMP	Existing	7809 SUVA	1/13/2009	6522703.875430	6522703.875430	1808490.998990	246106	1032	sf	64	cf
Infiltration BMP	Existing	7827 SUVA	1/1/2006	6522849.829890	6522849.829890	1808368.560310	246106	1032	sf	64	cf
Infiltration BMP	Existing	8564 SUVA	1/1/2006	6526403.328390	6526403.328390	1805373.281490	245125	1032	sf	64	cf
Infiltration BMP	Existing	9943 TECUM	4/11/2008	6519363.349470	6519363.349470	1808047.658450	246111	1032	sf	64	cf
Infiltration BMP	Existing	9636 TELEGRAPH	5/8/2006	6531995.042290	6531995.042290	1804929.677680	245128	1032	sf	64	cf
Infiltration BMP	Existing	7968 THIRD	6/21/2005	6519929.169700	6519929.169700	1802199.016820	246102	1032	sf	64	cf
Infiltration BMP	Existing	9819 TRISTAN	10/7/2005	6526302.584780	6526302.584780	1804524.383680	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9253 TRUE	1/1/2005	6531891.994890	6531891.994890	1804462.821310	245127	1032	sf	64	cf
Infiltration BMP	Existing	8843 TWEEDY	9/12/2006	6524140.679400	6524140.679400	1809940.135780	246106	1032	sf	64	cf
Infiltration BMP	Existing	9012 TWEEDY	1/1/2005	6523977.735950	6523977.735950	1809300.273240	246106	1032	sf	64	cf
Infiltration BMP	Existing	9029 TWEEDY	1/1/2006	6523763.012330	6523763.012330	1809288.681880	246106	1032	sf	64	cf
Infiltration BMP	Existing	9612 TWEEDY	6/22/2010	6522847.016620	6522847.016620	1807449.028980	246106	1032	sf	64	cf
Infiltration BMP	Existing	9636 TWEEDY	10/11/2005	6522732.626430	6522732.626430	1807259.266340	246103	1032	sf	64	cf
Infiltration BMP	Existing	9714 TWEEDY	7/24/2006	6522647.237500	6522647.237500	1807116.822930	246103	1032	sf	64	cf
Infiltration BMP	Existing	9718 TWEEDY	9/22/2008	6522619.325230	6522619.325230	1807068.990310	246103	1032	sf	64	cf
Infiltration BMP	Existing	9730 TWEEDY	6/18/2010	6522565.360970	6522565.360970	1806976.155270	246103	1032	sf	64	cf
Infiltration BMP	Existing	13409 VERDURA	1/1/2006	6516484.588360	6516484.588360	1789346.159960	245524	1032	sf	64	cf
Infiltration BMP	Existing	8607 VIA AMORITA	1/19/2006	6524994.226680	6524994.226680	1803003.226520	245119	1032	sf	64	cf
Infiltration BMP	Existing	9356 VIA AMORITA	4/27/2005	6528170.664540	6528170.664540	1800850.979140	245126	1032	sf	64	cf
Infiltration BMP	Existing	7402 VIA RIO NIDO	2/10/2005	6518371.376580	6518371.376580	1806186.704160	246102	1032	sf	64	cf
Infiltration BMP	Existing	8303 VISTA DEL RIO	5/1/2007	6526003.249760	6526003.249760	1808077.011440	246103	1032	sf	64	cf
Infiltration BMP	Existing	8303 VISTA DEL ROSA	4/26/2007	6526763.242710	6526763.242710	1809159.607970	246106	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8351 VISTA DEL ROSA	12/19/2005	6527091.635630	6527091.635630	1808824.632820	246106	2063	sf	129	cf
Infiltration BMP	Existing	10265 VULTEE	4/24/2006	6525980.530560	6525980.530560	1802568.772980	245119	1032	sf	64	cf
Infiltration BMP	Existing	10339 VULTEE	6/18/2010	6525804.209560	6525804.209560	1802209.879860	245119	1032	sf	64	cf
Infiltration BMP	Existing	12709 VULTEE	3/9/2007	6519587.948000	6519587.948000	1791264.714830	245115	1032	sf	64	cf
Infiltration BMP	Existing	12725 WHITEWOOD	7/26/2005	6520341.668580	6520341.668580	1791179.460770	245115	1032	sf	64	cf
Infiltration BMP	Existing	9702 WILEY BURKE	6/21/2010	6521126.099980	6521126.099980	1808337.656530	246106	1032	sf	64	cf
Infiltration BMP	Existing	9750 WILEY BURKE	12/11/2006	6520822.729060	6520822.729060	1807995.132410	246106	1032	sf	64	cf
Infiltration BMP	Existing	9925 WILEY BURKE	1/10/2007	6520271.299840	6520271.299840	1807447.007570	246106	1032	sf	64	cf
Infiltration BMP	Existing	10540 WILEY BURKE	6/21/2007	6519089.326110	6519089.326110	1805048.306870	246102	1032	sf	64	cf
Infiltration BMP	Existing	10643 WOODRUFF	1/1/2006	6526887.322420	6526887.322420	1799535.375650	245119	1032	sf	64	cf
Infiltration BMP	Existing	7515 YANKEY	10/24/2006	6515115.108440	6515115.108440	1798924.389740	246079	1032	sf	64	cf
Infiltration BMP	Existing	10047 CASANES	1/1/2006	6529512.635540	6529512.635540	1801587.658100	245125	1032	sf	64	cf
Infiltration BMP	Existing	9220 CORD	1/1/2004	6530296.778820	6530296.778820	1804178.901350	245125	1032	sf	64	cf
Infiltration BMP	Existing	10040 MATTOCK	1/1/2006	6530247.042350	6530247.042350	1801200.601240	245125	1032	sf	64	cf
Infiltration BMP	Existing	10018 PANGBORN	1/1/2006	6530084.251260	6530084.251260	1801567.525640	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12053 PATTON	10/19/2004	6520642.037410	6520642.037410	1796050.004800	245115	1032	sf	64	cf
Infiltration BMP	Existing	12048 SAMOLINE	3/20/2007	6517021.712450	6517021.712450	1798014.455830	246079	2063	sf	129	cf
Infiltration BMP	Existing	7879 FLORENCE	2/14/2014	6521700.000000	6521700.000000	1806100.000000	246103	16504	sf	1032	cf
Infiltration BMP	Existing	9020 FIRESTONE	9/12/2008	6524113.023390	6524113.023390	1798572.164290	245119	70288	sf	4393	cf
Infiltration BMP	Existing	7910 FIRESTONE	6/28/2005	6519165.968790	6519165.968790	1801736.513180	246102	55686	sf	3480	cf
Infiltration BMP	Existing	7252 FIRESTONE	5/19/2004	6515489.000650	6515489.000650	1803082.633110	246079	36224	sf	2264	cf
Infiltration BMP	Existing	12256 PARAMOUNT	3/13/2006	6516813.225030	6516813.225030	1796497.685630	246077	34112	sf	2132	cf
Infiltration BMP	Existing	9462 FIRESTONE BL	2/14/2014	6526885.862260	6526885.862260	1797100.585140	245119	35437	sf	2215	cf
Infiltration BMP	Existing	8250 FIRESTONE BLVD	2/14/2014	6521000.000000	6521000.000000	1800300.000000	245115	59085	sf	3693	cf
Infiltration BMP	Existing	8018 TELEGRAPH	8/20/2004	6526800.000000	6526800.000000	1809400.000000	246106	35437	sf	2215	cf
Infiltration BMP	Existing	7447 FIRESTONE BLVD	7/9/2009	6516971.590923	6516971.590923	1803474.089243	246102	43124	sf	2192	cf
Infiltration BMP	Existing	9126 FLORENCE	4/25/2008	6526980.883730	6526980.883730	1802613.015890	245119	29248	sf	1828	cf
Infiltration BMP	Existing	11111 OLD RIVER SCHOOL	6/15/2004	6515500.000000	6515500.000000	1803800.000000	246102	27843	sf	1740	cf
Infiltration BMP	Existing	9634 WASHBURN	5/25/2004	6526574.558590	6526574.558590	1794738.334020	245118	35712	sf	2232	cf
Infiltration BMP	Existing	9475 FIRESTONE	9/20/2004	6527102.470060	6527102.470060	1797292.175990	245119	25078	sf	1567	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9125 IMPERIAL	9/17/2007	6520700.000000	6520700.000000	1792100.000000	245115	53104	sf	3319	cf
Infiltration BMP	Existing	11231 RIVES	4/25/2006	6518392.506170	6518392.506170	1802335.247680	246102	20250	sf	1266	cf
Infiltration BMP	Existing	7936 QUILL	8/23/2006	6515830.400000	6515830.400000	1795880.196930	246079	18984	sf	1187	cf
Infiltration BMP	Existing	8337 FONTANA	8/11/2005	6520206.194620	6520206.194620	1797870.434810	245114	36672	sf	2292	cf
Infiltration BMP	Existing	10225 LESTERFORD	6/22/2010	6530244.844140	6530244.844140	1800567.187010	245126	17718	sf	1107	cf
Infiltration BMP	Existing	7915 FLORENCE	8/11/2009	6522019.025220	6522019.025220	1805973.779210	246103	20192	sf	1262	cf
Infiltration BMP	Existing	11229 PARAMOUNT	3/16/2004	6519482.925030	6519482.925030	1801457.806750	246102	16453	sf	1028	cf
Infiltration BMP	Existing	8103 COLE	5/1/2007	6518213.448370	6518213.448370	1798049.118910	246077	0	sf	0	cf
Infiltration BMP	Existing	8722 BOYNE	7/1/2008	6521213.643060	6521213.643060	1795216.473800	245115	11390	sf	712	cf
Infiltration BMP	Existing	10612 LESTERFORD	6/14/2006	6529218.389270	6529218.389270	1798513.115960	245126	11390	sf	712	cf
Infiltration BMP	Existing	8444 LEXINGTON	4/24/2006	6524361.433930	6524361.433930	1803767.599820	246103	11390	sf	712	cf
Infiltration BMP	Existing	13221 BARLIN	10/10/2006	6516992.431610	6516992.431610	1789646.610200	245524	10125	sf	633	cf
Infiltration BMP	Existing	9611 GARNISH	6/7/2007	6529217.309540	6529217.309540	1803965.758960	245125	10125	sf	633	cf
Infiltration BMP	Existing	7118 PELLET	12/3/2008	6515184.074160	6515184.074160	1804905.113850	246104	10125	sf	633	cf
Infiltration BMP	Existing	9325 RIVES AM	2/14/2014	6522517.375370	6522517.375370	1808878.723180	246111	10125	sf	633	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9371 SUVA	3/13/2007	6529247.009310	6529247.00 9310	1803484.6852 40	245125	10125	sf	633	cf
Infiltration BMP	Existing	8556 FLORENCE	1/1/2006	6525137.675720	6525137.67 5720	1803770.1478 50	245125	8859	sf	554	cf
Infiltration BMP	Existing	9755 IMPERIAL	3/29/2006	6525700.000000	6525700.00 0000	1792200.0000 00	245114	8859	sf	554	cf
Infiltration BMP	Existing	10000 IMPERIAL	3/29/2006	6527246.839530	6527246.83 9530	1791706.6043 50	245118	8859	sf	554	cf
Infiltration BMP	Existing	10030 LESTERFORD	6/21/2010	6530953.991420	6530953.99 1420	1801165.0044 70	245125	8859	sf	554	cf
Infiltration BMP	Existing	7235 LUXOR	12/12/2005	6514593.326010	6514593.32 6010	1801941.8873 50	246079	8859	sf	554	cf
Infiltration BMP	Existing	8115 STEWART & GRAY	3/25/2009	6518648.406750	6518648.40 6750	1798495.1500 40	246077	11760	sf	735	cf
Infiltration BMP	Existing	9804 BROOKSHIRE	5/2/2007	6525737.765210	6525737.76 5210	1805415.7506 50	246103	7594	sf	475	cf
Infiltration BMP	Existing	7830 DANVERS	12/18/2008	6523967.248740	6523967.24 8740	1810379.3480 50	246106	7594	sf	475	cf
Infiltration BMP	Existing	8357 FLORENCE	11/29/2005	6524137.162990	6524137.16 2990	1804589.2850 90	246103	7594	sf	475	cf
Infiltration BMP	Existing	8562 FLORENCE	1/1/2006	6525210.620820	6525210.62 0820	1803736.0042 00	245125	7594	sf	475	cf
Infiltration BMP	Existing	10735 LAKEWOOD	1/19/2007	6524698.379320	6524698.37 9320	1800460.8931 40	245119	8640	sf	540	cf
Infiltration BMP	Existing	9732 ORIZABA	6/5/2008	6523842.356050	6523842.35 6050	1806158.2972 00	246103	7594	sf	475	cf
Infiltration BMP	Existing	12066 SAMOLINE	6/18/2010	6517119.562750	6517119.56 2750	1797806.0707 50	246079	7594	sf	475	cf
Infiltration BMP	Existing	7711 SECOND	6/21/2010	6518493.103400	6518493.10 3400	1802942.7407 50	246102	7594	sf	475	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9517 STOAKES	6/21/2010	6525287.319840	6525287.319840	1806612.266920	246103	7594	sf	475	cf
Infiltration BMP	Existing	12133 ANDERBERG	6/26/2009	6518010.879310	6518010.879310	1796818.463370	245115	6328	sf	396	cf
Infiltration BMP	Existing	9115 BROCK	6/21/2010	6524898.717190	6524898.717190	1808433.166330	246106	6328	sf	396	cf
Infiltration BMP	Existing	9541 CECILIA	6/23/2010	6528302.087900	6528302.087900	1798262.111790	245126	6328	sf	396	cf
Infiltration BMP	Existing	10243 CORD	11/4/2008	6528334.164460	6528334.164460	1801344.678940	245126	6328	sf	396	cf
Infiltration BMP	Existing	13108 CORNUTA	6/21/2010	6525701.475550	6525701.475550	1790449.882450	245113	6328	sf	396	cf
Infiltration BMP	Existing	8129 DACOSTA	8/5/2008	6523736.839560	6523736.839560	1805716.362640	246103	6328	sf	396	cf
Infiltration BMP	Existing	7247 DINWIDDIE	6/22/2010	6515896.418780	6515896.418780	1804170.223670	246104	6328	sf	396	cf
Infiltration BMP	Existing	12002A DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	6328	sf	396	cf
Infiltration BMP	Existing	12002C DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	6328	sf	396	cf
Infiltration BMP	Existing	8529 EUCALYPTUS	6/18/2010	6519136.171020	6519136.171020	1794210.333930	245115	6328	sf	396	cf
Infiltration BMP	Existing	9204 LA REINA	6/22/2010	6525799.255250	6525799.255250	1808110.827020	246103	6328	sf	396	cf
Infiltration BMP	Existing	9241 LUBEC	6/21/2010	6528410.398740	6528410.398740	1803633.947240	245125	6328	sf	396	cf
Infiltration BMP	Existing	10051 MATTOCK	9/25/2008	6530040.953970	6530040.953970	1801237.222590	245125	6328	sf	396	cf
Infiltration BMP	Existing	12273 PLANETT	6/21/2010	6518942.439290	6518942.439290	1795136.426680	245115	6328	sf	396	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9075 RAVILLER	4/9/2007	6527819.498980	6527819.498980	1805031.907810	245125	6328	sf	396	cf
Infiltration BMP	Existing	7149 ADWEN	5/31/2006	6514275.907390	6514275.907390	1803122.312290	246079	5062	sf	316	cf
Infiltration BMP	Existing	8703 ALAMEDA	9/14/2005	6520830.700880	6520830.700880	1795016.469260	245115	4594	sf	287	cf
Infiltration BMP	Existing	9242 APPLEBY	11/21/2008	6528866.478730	6528866.478730	1804798.824690	245125	5062	sf	316	cf
Infiltration BMP	Existing	9926 BELLDER	3/19/2007	6525715.329050	6525715.329050	1804487.716960	245125	5062	sf	316	cf
Infiltration BMP	Existing	11715 BELLFLOWER	6/15/2009	6523530.688010	6523530.688010	1796655.823230	245114	5062	sf	316	cf
Infiltration BMP	Existing	8019 BERGMAN	10/22/2008	6517711.829130	6517711.829130	1797726.503570	246077	5062	sf	316	cf
Infiltration BMP	Existing	8417 BIGBY	7/23/2007	6523908.146010	6523908.146010	1803525.055670	245119	5062	sf	316	cf
Infiltration BMP	Existing	10004 BIRCHDALE	1/23/2006	6525798.638290	6525798.638290	1803985.957400	245125	5062	sf	316	cf
Infiltration BMP	Existing	9951 BROOKSHIRE	6/18/2010	6525004.036100	6525004.036100	1804835.952720	246103	5062	sf	316	cf
Infiltration BMP	Existing	10927 BROOKSHIRE AV	2/14/2014	6522640.981090	6522640.981090	1800949.695110	245114	5062	sf	316	cf
Infiltration BMP	Existing	10304 CLANCEY	9/19/2008	6526762.243870	6526762.243870	1802017.295250	245119	5062	sf	316	cf
Infiltration BMP	Existing	7213 DINWIDDIE	6/21/2010	6515644.523280	6515644.523280	1804333.457340	246104	5062	sf	316	cf
Infiltration BMP	Existing	9245 DOWNEY	9/19/2007	6525582.317560	6525582.317560	1807792.114420	246103	5062	sf	316	cf
Infiltration BMP	Existing	12002B DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12002D DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	5062	sf	316	cf
Infiltration BMP	Existing	10250 EGLISE AV	2/14/2014	6528202.138900	6528202.138900	1801366.096440	245126	5062	sf	316	cf
Infiltration BMP	Existing	8719 ELMONT	6/18/2010	6526144.563940	6526144.563940	1809393.110180	246106	5062	sf	316	cf
Infiltration BMP	Existing	9355 FLORENCE	7/30/2007	6528769.559400	6528769.559400	1801814.385750	245125	5062	sf	316	cf
Infiltration BMP	Existing	9252 GALLATIN	3/29/2006	6528859.757520	6528859.757520	1804394.594600	245125	5062	sf	316	cf
Infiltration BMP	Existing	9553 GALLATIN	7/28/2004	6530910.776140	6530910.776140	1803037.898220	245125	5062	sf	316	cf
Infiltration BMP	Existing	9724 GARNISH	1/14/2008	6529062.109120	6529062.109120	1803453.035240	245125	5062	sf	316	cf
Infiltration BMP	Existing	8610 GUATEMALA	10/24/2006	6524386.905480	6524386.905480	1811339.167280	246106	5062	sf	316	cf
Infiltration BMP	Existing	10214 HORLEY	8/14/2007	6520372.544870	6520372.544870	1806355.591210	246102	5062	sf	316	cf
Infiltration BMP	Existing	10513 JULIUS	1/22/2009	6518877.932890	6518877.932890	1805532.376750	246102	5062	sf	316	cf
Infiltration BMP	Existing	9204 LA REINA	4/18/2007	6525799.255250	6525799.255250	1808110.827020	246103	5062	sf	316	cf
Infiltration BMP	Existing	9528 LEMORAN	8/29/2008	6529000.799820	6529000.799820	1804066.473220	245125	5062	sf	316	cf
Infiltration BMP	Existing	7334 LUXOR	4/25/2007	6514999.892740	6514999.892740	1801407.207050	246079	5062	sf	316	cf
Infiltration BMP	Existing	9226 MANZANAR	7/8/2005	6526470.419470	6526470.419470	1806685.422630	246103	5062	sf	316	cf
Infiltration BMP	Existing	10524 MATTOCK	2/5/2009	6528788.349750	6528788.349750	1799096.345380	245126	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12123 ORIZABA	12/28/2005	6517943.193960	6517943.193960	1797041.752750	245115	5062	sf	316	cf
Infiltration BMP	Existing	7130 PELLET	6/4/2008	6515276.387650	6515276.387650	1804845.311440	246104	5062	sf	316	cf
Infiltration BMP	Existing	8322 PURITAN	6/14/2007	6516164.281440	6516164.281440	1791774.558840	245524	5062	sf	316	cf
Infiltration BMP	Existing	7312 RIO FLORA	6/18/2010	6516577.089870	6516577.089870	1804589.040390	246104	5062	sf	316	cf
Infiltration BMP	Existing	9331 SAMOLINE	2/17/2006	6523511.819100	6523511.819100	1808307.819060	246106	5062	sf	316	cf
Infiltration BMP	Existing	8015 SEVENTH	8/16/2005	6521322.893520	6521322.893520	1803640.949260	246103	5062	sf	316	cf
Infiltration BMP	Existing	7821 SIXTH	12/6/2005	6519846.881130	6519846.881130	1804004.436800	246102	5062	sf	316	cf
Infiltration BMP	Existing	8409 SIXTH	12/10/2008	6523050.669740	6523050.669740	1802016.668700	245114	5062	sf	316	cf
Infiltration BMP	Existing	9317 STAMPS	1/30/2007	6525356.702810	6525356.702810	1807182.805460	246103	5062	sf	316	cf
Infiltration BMP	Existing	9322 STAMPS	3/16/2006	6525453.602600	6525453.602600	1807062.934260	246103	5062	sf	316	cf
Infiltration BMP	Existing	10443 STAMPS	5/21/2008	6523061.022110	6523061.022110	1803394.248860	246103	5062	sf	316	cf
Infiltration BMP	Existing	10517 STAMPS	6/18/2010	6522812.240000	6522812.240000	1803043.757460	246103	5062	sf	316	cf
Infiltration BMP	Existing	9444 STOAKES	5/22/2007	6525587.983230	6525587.983230	1806625.551490	246103	5062	sf	316	cf
Infiltration BMP	Existing	8329 VISTA DEL RIO	6/18/2010	6526300.133280	6526300.133280	1808123.116520	246103	5062	sf	316	cf
Infiltration BMP	Existing	8368 VISTA DEL RIO	6/1/2007	6526427.553640	6526427.553640	1807729.596630	246103	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8543 ALBIA	1/1/2006	6520215.566510	6520215.566510	1795689.212970	245115	3797	sf	237	cf
Infiltration BMP	Existing	7162 BENARES	1/1/2008	6514067.610360	6514067.610360	1802493.217160	246079	3797	sf	237	cf
Infiltration BMP	Existing	12812 BLODGETT	6/8/2009	6518629.647540	6518629.647540	1791208.759970	245115	3797	sf	237	cf
Infiltration BMP	Existing	9503 BROCK AV	2/14/2014	6524115.247920	6524115.247920	1807488.010330	246106	3797	sf	237	cf
Infiltration BMP	Existing	9045 BUCKLES	12/11/2008	6523278.581350	6523278.581350	1796905.300470	245114	3797	sf	237	cf
Infiltration BMP	Existing	10045 CHANEY	7/5/2007	6527656.534860	6527656.534860	1802672.871800	245125	3797	sf	237	cf
Infiltration BMP	Existing	8714 CHEROKEE	5/1/2007	6525056.428300	6525056.428300	1801833.489170	245119	3797	sf	237	cf
Infiltration BMP	Existing	10729 CLANCEY	7/5/2007	6525292.127080	6525292.127080	1799996.460370	245119	3797	sf	237	cf
Infiltration BMP	Existing	8215 COMOLETTE	5/18/2006	6516024.585540	6516024.585540	1792904.896040	246077	3563	sf	223	cf
Infiltration BMP	Existing	7809 DACOSTA	10/5/2007	6521756.096640	6521756.096640	1806979.884160	246106	3797	sf	237	cf
Infiltration BMP	Existing	10424 DOLAN AV	2/14/2014	6523609.999510	6523609.999510	1803226.099470	245119	3797	sf	237	cf
Infiltration BMP	Existing	12337 DUNROBIN	6/21/2010	6524854.924990	6524854.924990	1793158.910710	245114	3797	sf	237	cf
Infiltration BMP	Existing	13234 DUNROBIN	9/30/2005	6525046.618370	6525046.618370	1789885.630870	245114	3797	sf	237	cf
Infiltration BMP	Existing	12612 EASTBROOK	5/30/2006	6525374.680490	6525374.680490	1791988.629320	245114	3797	sf	237	cf
Infiltration BMP	Existing	9400 FLORENCE	7/8/2005	6528900.299250	6528900.299250	1801380.002980	245126	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7823 FOURTH PL	9/16/2005	6519381.530610	6519381.530610	1803107.418050	246102	3797	sf	237	cf
Infiltration BMP	Existing	7826 GAINFORD	10/13/2005	6521963.408230	6521963.408230	1806968.662960	246106	3797	sf	237	cf
Infiltration BMP	Existing	7909 GALLATIN	4/27/2006	6523955.572760	6523955.572760	1809190.106160	246106	3797	sf	237	cf
Infiltration BMP	Existing	9118 GARNISH	6/21/2010	6529677.777690	6529677.777690	1805040.238300	245125	3797	sf	237	cf
Infiltration BMP	Existing	12752 GLYNN	6/18/2010	6516929.257070	6516929.257070	1792615.717350	245524	3797	sf	237	cf
Infiltration BMP	Existing	9116 HALEDON	3/2/2006	6528925.738880	6528925.738880	1805732.953010	245125	3797	sf	237	cf
Infiltration BMP	Existing	12819 IBBETSON	11/23/2005	6525827.025010	6525827.025010	1791350.711010	245114	3797	sf	237	cf
Infiltration BMP	Existing	9528 LEMORAN	8/26/2008	6528914.390000	6528914.390000	1804053.870620	245125	3797	sf	237	cf
Infiltration BMP	Existing	10514 LESTERFORD	2/14/2006	6529382.491640	6529382.491640	1798787.162960	245126	3797	sf	237	cf
Infiltration BMP	Existing	9030 LUBEC	2/9/2006	6526996.357320	6526996.357320	1804242.372880	245125	3797	sf	237	cf
Infiltration BMP	Existing	9264 LUBEC	4/19/2006	6528519.099740	6528519.099740	1803331.221940	245125	3797	sf	237	cf
Infiltration BMP	Existing	8545 LUBEC ST	2/14/2014	6525866.355120	6525866.355120	1805123.134500	246103	3797	sf	237	cf
Infiltration BMP	Existing	9247 MANZANAR	10/30/2006	6526227.935330	6526227.935330	1806695.994430	246103	3797	sf	237	cf
Infiltration BMP	Existing	7866 MELVA	6/20/2006	6516126.027390	6516126.027390	1797191.628010	246079	3797	sf	237	cf
Infiltration BMP	Existing	12109 MORNING	5/16/2006	6516408.716280	6516408.716280	1797765.727430	246079	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7332 NADA	6/18/2007	6514319.703850	6514319.703850	1800394.247560	246079	3797	sf	237	cf
Infiltration BMP	Existing	7334 NADA	6/18/2007	6514319.703850	6514319.703850	1800394.247560	246079	3797	sf	237	cf
Infiltration BMP	Existing	9821 NEWVILLE	7/30/2007	6530987.438110	6530987.438110	1802116.080780	245125	3797	sf	237	cf
Infiltration BMP	Existing	10268 NEWVILLE	4/24/2007	6529747.604150	6529747.604150	1800228.046080	245126	3797	sf	237	cf
Infiltration BMP	Existing	12280 ORIZABA	6/18/2010	6517505.248620	6517505.248620	1795784.740290	246077	3797	sf	237	cf
Infiltration BMP	Existing	10404 PANGBORN	6/18/2010	6528952.556500	6528952.556500	1800031.154520	245126	3797	sf	237	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	3797	sf	237	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	3797	sf	237	cf
Infiltration BMP	Existing	11994 POMERING	2/23/2005	6514993.390330	6514993.390330	1799517.781680	246079	3797	sf	237	cf
Infiltration BMP	Existing	9525 QUINN	2/8/2007	6528803.711540	6528803.711540	1799421.544220	245126	3797	sf	237	cf
Infiltration BMP	Existing	8048 QUOIT	1/21/2009	6516443.407630	6516443.407630	1795348.218010	246077	3797	sf	237	cf
Infiltration BMP	Existing	12326 SAMOLINE	8/29/2008	6516269.535370	6516269.535370	1796118.615320	246077	3797	sf	237	cf
Infiltration BMP	Existing	12504 SMALLWOOD	9/30/2008	6515227.996100	6515227.996100	1795705.820110	246079	3797	sf	237	cf
Infiltration BMP	Existing	9520 STEWART & GRAY	4/10/2008	6526628.650930	6526628.650930	1796061.800920	245118	3797	sf	237	cf
Infiltration BMP	Existing	7411 THIRD	6/2/2006	6517216.302090	6517216.302090	1804140.837740	246102	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12706 WHITEWOOD	9/20/2007	6520505.791550	6520505.791550	1791390.733010	245115	3797	sf	237	cf
Infiltration BMP	Existing	9049 HALL ROAD	2/9/2007	6523684.587500	6523684.587500	1797586.831540	245114	2531	sf	158	cf
Infiltration BMP	Existing	7118 ADWEN	1/27/2006	6513895.884030	6513895.884030	1803086.756410	246100	2531	sf	158	cf
Infiltration BMP	Existing	13202 BARLIN	2/14/2007	6517303.317510	6517303.317510	1789688.349400	245524	2531	sf	158	cf
Infiltration BMP	Existing	10216 BELLMAN	1/5/2009	6525703.110200	6525703.110200	1803293.056930	245119	2531	sf	158	cf
Infiltration BMP	Existing	11809 BELLMAN	2/8/2006	6521732.804620	6521732.804620	1797303.369450	245114	2531	sf	158	cf
Infiltration BMP	Existing	7117 BENARES	8/10/2006	6513814.981610	6513814.981610	1802936.506930	246079	2531	sf	158	cf
Infiltration BMP	Existing	9108 BIGBY	11/23/2005	6526215.785230	6526215.785230	1801649.270450	245119	2531	sf	158	cf
Infiltration BMP	Existing	10213 BIRCHDALE	4/19/2006	6525304.414970	6525304.414970	1803562.084330	245119	2531	sf	158	cf
Infiltration BMP	Existing	9004 BIRCHLEAF	3/7/2007	6527047.235450	6527047.235450	1808159.837050	246103	2531	sf	158	cf
Infiltration BMP	Existing	13126 BLODGETT	8/18/2005	6517829.686700	6517829.686700	1789824.186060	245115	2531	sf	158	cf
Infiltration BMP	Existing	9508 BROCK	2/27/2006	6524228.012180	6524228.012180	1807355.118100	246103	2531	sf	158	cf
Infiltration BMP	Existing	7418 BROOKMILL	7/25/2008	6515791.043440	6515791.043440	1801624.672750	246079	2531	sf	158	cf
Infiltration BMP	Existing	12201 BROOKSHIRE	6/22/2010	6519506.452440	6519506.452440	1795585.950880	245115	2531	sf	158	cf
Infiltration BMP	Existing	7942 BRUNACHE	11/28/2005	6517219.149000	6517219.149000	1798061.073260	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9349 CECILIA	9/25/2008	6527282.306940	6527282.306940	1798988.874460	245126	2531	sf	158	cf
Infiltration BMP	Existing	9365 CECILIA	6/18/2010	6527411.791310	6527411.791310	1798910.665650	245126	2531	sf	158	cf
Infiltration BMP	Existing	9608 CECILIA	1/1/2007	6528406.351870	6528406.351870	1798010.127160	245126	2531	sf	158	cf
Infiltration BMP	Existing	9624 CEDARTREE	8/8/2005	6531911.946630	6531911.946630	1804673.812930	245127	2531	sf	158	cf
Infiltration BMP	Existing	8519 CLETA	9/10/2007	6521470.081710	6521470.081710	1798172.541560	245114	2531	sf	158	cf
Infiltration BMP	Existing	7803 CONKLIN	9/2/2005	6513317.560580	6513317.560580	1793980.901190	246077	2297	sf	144	cf
Infiltration BMP	Existing	12816 CORNUTA	10/9/2006	6525701.592160	6525701.592160	1791350.505200	245114	2531	sf	158	cf
Infiltration BMP	Existing	8018 DANVERS	1/26/2009	6524882.345060	6524882.345060	1809453.159850	246106	2531	sf	158	cf
Infiltration BMP	Existing	8517 DEVENIR	10/11/2005	6517399.640210	6517399.640210	1791811.493450	245115	2531	sf	158	cf
Infiltration BMP	Existing	8049 DINSDALE	6/15/2006	6522974.989820	6522974.989820	1805624.556380	246103	2531	sf	158	cf
Infiltration BMP	Existing	9317 DINSDALE	11/5/2008	6528560.545810	6528560.545810	1802232.852640	245125	2531	sf	158	cf
Infiltration BMP	Existing	8510 DONOVAN	7/5/2005	6519046.837890	6519046.837890	1794446.597550	245115	2531	sf	158	cf
Infiltration BMP	Existing	8415 DONOVAN ST	2/14/2014	6518508.946270	6518508.946270	1795018.898890	245115	2531	sf	158	cf
Infiltration BMP	Existing	9635 DOWNEY	7/15/2004	6524420.085960	6524420.085960	1806308.452290	246103	2531	sf	158	cf
Infiltration BMP	Existing	9830 DOWNEY	1/1/2006	6524176.121770	6524176.121770	1805651.929490	246103	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12718 DOWNEY	8/30/2007	6516814.229160	6516814.229160	1793075.140590	245524	2531	sf	158	cf
Infiltration BMP	Existing	12650 DUNROBIN	7/27/2007	6525045.587920	6525045.587920	1791614.482510	245114	2531	sf	158	cf
Infiltration BMP	Existing	9067 EGLISE	9/30/2005	6530265.716940	6530265.716940	1805184.414240	245127	2531	sf	158	cf
Infiltration BMP	Existing	9131 EGLISE	1/16/2009	6529904.336320	6529904.336320	1804464.041860	245125	2531	sf	158	cf
Infiltration BMP	Existing	8573 ELEVENTH	4/24/2006	6525253.900610	6525253.900610	1803595.328980	245119	2531	sf	158	cf
Infiltration BMP	Existing	9061 FARM ST	2/14/2014	6526099.027600	6526099.027600	1801582.141470	245119	2531	sf	158	cf
Infiltration BMP	Existing	7936 FOURTH	1/26/2006	6520005.666040	6520005.666040	1802880.634680	246103	2531	sf	158	cf
Infiltration BMP	Existing	7829 FOURTH PL	2/14/2014	6519381.530610	6519381.530610	1803107.418050	246102	2531	sf	158	cf
Infiltration BMP	Existing	7528 GAINFORD	6/18/2010	6520331.076350	6520331.076350	1807734.704270	246106	1266	sf	79	cf
Infiltration BMP	Existing	8150 GALLATIN	1/14/2008	6524851.065410	6524851.065410	1807922.731550	246103	2531	sf	158	cf
Infiltration BMP	Existing	9068 GALLATIN	7/18/2005	6527754.167230	6527754.167230	1805244.499940	245125	2531	sf	158	cf
Infiltration BMP	Existing	12703 GLENSHIRE	8/18/2006	6520090.968440	6520090.968440	1791341.816710	245115	2531	sf	158	cf
Infiltration BMP	Existing	8703 GUATEMALA	6/18/2010	6523747.929510	6523747.929510	1811239.685330	246111	2531	sf	158	cf
Infiltration BMP	Existing	9903 GUATEMALA	6/21/2010	6519189.043810	6519189.043810	1808530.913060	246111	2531	sf	158	cf
Infiltration BMP	Existing	9208 HALEDON	3/29/2007	6528788.981770	6528788.981770	1805412.621690	245125	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9083 HALL	12/8/2005	6524025.781090	6524025.781090	1797583.104370	245114	2531	sf	158	cf
Infiltration BMP	Existing	10348 HASTY	9/14/2006	6528480.545700	6528480.545700	1800482.839460	245126	2531	sf	158	cf
Infiltration BMP	Existing	7844 HONDO	7/8/2005	6515417.898670	6515417.898670	1796530.778030	246079	2531	sf	158	cf
Infiltration BMP	Existing	9244 HORLEY	6/22/2006	6522498.248530	6522498.248530	1809199.750130	246111	2531	sf	158	cf
Infiltration BMP	Existing	12612 IBBETSON	2/9/2007	6526008.655610	6526008.655610	1792000.536540	245114	2531	sf	158	cf
Infiltration BMP	Existing	7214 IRWINGROVE	8/17/2007	6517736.835580	6517736.835580	1807424.228480	246104	2531	sf	158	cf
Infiltration BMP	Existing	10209 JULIUS	6/21/2010	6519702.452650	6519702.452650	1806880.883230	246102	2531	sf	158	cf
Infiltration BMP	Existing	10341 JULIUS	6/4/2008	6519700.000000	6519700.000000	1806100.000000	246102	2531	sf	158	cf
Infiltration BMP	Existing	12313 JULIUS	6/21/2010	6514155.209020	6514155.209020	1797936.932020	246079	2531	sf	158	cf
Infiltration BMP	Existing	7944 KINGBEE	5/31/2007	6516311.045420	6516311.045420	1796702.710410	246079	2531	sf	158	cf
Infiltration BMP	Existing	9605 LA REINA	6/18/2010	6524325.141120	6524325.141120	1806744.664340	246103	2531	sf	158	cf
Infiltration BMP	Existing	10074 LESTERFORD	4/12/2006	6530716.286370	6530716.286370	1800772.683680	245125	2531	sf	158	cf
Infiltration BMP	Existing	9626 LUBEC	6/21/2005	6530889.535260	6530889.535260	1801910.718740	245125	2531	sf	158	cf
Infiltration BMP	Existing	7156 LUXOR	10/28/2005	6513800.826420	6513800.826420	1802169.595300	246100	2531	sf	158	cf
Infiltration BMP	Existing	9202 MANZANAR	4/13/2004	6526663.177850	6526663.177850	1806830.315690	246103	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9020 MARGARET	10/2/2006	6523822.925930	6523822.925930	1798066.530690	245114	2531	sf	158	cf
Infiltration BMP	Existing	9127 MELDAR	4/29/2004	6526710.714590	6526710.714590	1807437.827920	246103	2531	sf	158	cf
Infiltration BMP	Existing	11814 MORNING	9/2/2005	6517648.916460	6517648.916460	1799680.107480	246077	2531	sf	158	cf
Infiltration BMP	Existing	7440 MULLER	11/7/2006	6518162.654940	6518162.654940	1805120.460880	246102	2531	sf	158	cf
Infiltration BMP	Existing	12334 ORIZABA	5/5/2005	6517231.678930	6517231.678930	1795384.927500	246077	2531	sf	158	cf
Infiltration BMP	Existing	9311 OTTO	2/2/2008	6528809.245500	6528809.245500	1802513.951810	245125	2531	sf	158	cf
Infiltration BMP	Existing	10436 PANGBORN	7/6/2006	6528781.443840	6528781.443840	1799746.387720	245126	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	9008 PARROT	6/22/2010	6524997.125330	6524997.125330	1808680.720210	246106	2531	sf	158	cf
Infiltration BMP	Existing	9530 PARROT	10/11/2006	6523866.950960	6523866.950960	1807305.627380	246103	2531	sf	158	cf
Infiltration BMP	Existing	7125 PELLET	11/21/2005	6515366.521160	6515366.521160	1805107.133170	246104	2531	sf	158	cf
Infiltration BMP	Existing	7335 PELLET	2/15/2007	6516661.302200	6516661.302200	1804268.401510	246104	2531	sf	158	cf
Infiltration BMP	Existing	7348 PELLET	6/22/2010	6516619.400060	6516619.400060	1803975.379460	246102	2531	sf	158	cf
Infiltration BMP	Existing	10433 PICO VISTA	6/21/2010	6529704.381130	6529704.381130	1799155.408730	245126	2531	sf	158	cf
Infiltration BMP	Existing	7629 PIVOT	6/4/2008	6517523.064870	6517523.064870	1802428.507060	246079	2531	sf	158	cf
Infiltration BMP	Existing	11962 POMERING	2/24/2006	6515175.131420	6515175.131420	1799743.806870	246079	2531	sf	158	cf
Infiltration BMP	Existing	8133 PRISCILLA	6/22/2010	6515078.400000	6515078.400000	1792153.440000	246077	2531	sf	158	cf
Infiltration BMP	Existing	7603 QUILL	2/28/2007	6514155.935840	6514155.935840	1797151.984960	246079	2531	sf	158	cf
Infiltration BMP	Existing	11539 RICHEON	7/8/2005	6517174.382020	6517174.382020	1801464.078770	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	6545 RIVERGROVE	10/11/2005	6520696.757140	6520696.757140	1811248.378990	246111	2531	sf	158	cf
Infiltration BMP	Existing	9320 SAMOLINE	11/3/2006	6523716.410960	6523716.410960	1808296.703240	246106	2531	sf	158	cf
Infiltration BMP	Existing	9602 SAMOLINE	11/23/2005	6523146.135200	6523146.135200	1807399.732010	246103	2531	sf	158	cf
Infiltration BMP	Existing	12015 SAMOLINE	9/29/2008	6517129.601540	6517129.601540	1798409.043860	246079	2531	sf	158	cf
Infiltration BMP	Existing	12048 SAMOLINE	6/22/2010	6517021.712450	6517021.712450	1798014.455830	246079	2531	sf	158	cf
Infiltration BMP	Existing	7962 SECOND	10/3/2007	6519694.108620	6519694.108620	1801968.426700	246102	2531	sf	158	cf
Infiltration BMP	Existing	7712 SEVERY ST	1/1/2008	6524575.222650	6524575.222650	1807124.160130	246103	2531	sf	158	cf
Infiltration BMP	Existing	7331 SHADYOAK	1/16/2009	6521597.847660	6521597.847660	1810725.646550	246111	2531	sf	158	cf
Infiltration BMP	Existing	9103 SHERIDELL	10/29/2007	6528594.889520	6528594.889520	1806159.584670	245125	2531	sf	158	cf
Infiltration BMP	Existing	8345 SIXTH	4/23/2008	6522663.428460	6522663.428460	1802257.170290	245114	2531	sf	158	cf
Infiltration BMP	Existing	9124 STOAKES	4/29/2004	6526659.033140	6526659.033140	1807538.875170	246103	2531	sf	158	cf
Infiltration BMP	Existing	9906 TECUM	8/26/2008	6519710.324270	6519710.324270	1808196.223590	246111	2531	sf	158	cf
Infiltration BMP	Existing	9520 TELEGRAPH	12/4/2008	6531301.476840	6531301.476840	1805512.099740	245127	2531	sf	158	cf
Infiltration BMP	Existing	8302 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1840	sf	115	cf
Infiltration BMP	Existing	8304 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8306 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8308 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8310 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8312 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8314 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8316 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8318 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8320 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8322 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8324 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8326 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8328 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8330 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8332 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8334 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8336 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8338 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8340 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8342 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8344 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8346 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8348 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8350 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8352 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	7438 THIRD	11/10/2005	6517353.808450	6517353.808450	1803828.489190	246102	2531	sf	158	cf
Infiltration BMP	Existing	7955 THIRD	1/30/2006	6519871.299810	6519871.299810	1802440.525110	246103	2531	sf	158	cf
Infiltration BMP	Existing	9819 TRISTAN	11/19/2007	6526302.584780	6526302.584780	1804524.383680	245125	2531	sf	158	cf
Infiltration BMP	Existing	8555 VIA AMORITA	10/27/2008	6524751.467620	6524751.467620	1803150.610950	245119	2531	sf	158	cf
Infiltration BMP	Existing	9631 WILEY BURKE	3/27/2006	6521095.475640	6521095.475640	1808618.175130	246106	2531	sf	158	cf
Infiltration BMP	Existing	10419 WILEY BURKE	3/7/2008	6519382.492080	6519382.492080	1805731.311650	246102	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7319 ADWEN	2/22/2006	6515346.754980	6515346.754980	1802425.342900	246079	1266	sf	79	cf
Infiltration BMP	Existing	13033 AIRPOINT	6/14/2010	6517837.198260	6517837.198260	1790420.981040	245115	1266	sf	79	cf
Infiltration BMP	Existing	8446 ALAMEDA	6/24/2005	6519341.878190	6519341.878190	1795502.737620	245115	1266	sf	79	cf
Infiltration BMP	Existing	9336 APPLEBY	3/9/2006	6529377.514420	6529377.514420	1804389.744220	245125	1266	sf	79	cf
Infiltration BMP	Existing	9540 ARDINE	1/1/2006	6527800.346060	6527800.346060	1797420.079620	245119	1266	sf	79	cf
Infiltration BMP	Existing	7849 ARNETT	7/8/2005	6518395.700160	6518395.700160	1801138.921810	246079	1266	sf	79	cf
Infiltration BMP	Existing	8645 BAYSINGER	11/10/2005	6525612.031290	6525612.031290	1803108.706240	245119	1266	sf	79	cf
Infiltration BMP	Existing	9210 BELCHER	10/12/2006	6519891.840050	6519891.840050	1789806.904790	245115	1266	sf	79	cf
Infiltration BMP	Existing	9245 BELCHER	9/4/2007	6520247.532430	6520247.532430	1789967.036150	245115	1266	sf	79	cf
Infiltration BMP	Existing	10234 BELCHER	6/18/2010	6527119.239350	6527119.239350	1789810.183210	245113	1266	sf	79	cf
Infiltration BMP	Existing	10285 BELCHER	6/21/2010	6527612.081010	6527612.081010	1789959.646450	245118	1266	sf	79	cf
Infiltration BMP	Existing	10028 BELLDER	1/1/2006	6525360.965940	6525360.965940	1803913.208580	245125	1266	sf	79	cf
Infiltration BMP	Existing	10304 BELLMAN	6/1/2005	6525418.498520	6525418.498520	1803041.069680	245119	1266	sf	79	cf
Infiltration BMP	Existing	11014 BENFIELD	6/24/2008	6531918.630750	6531918.630750	1797937.959120	245122	1266	sf	79	cf
Infiltration BMP	Existing	9324 BIRCHBARK	10/7/2005	6524879.129350	6524879.129350	1807661.831210	246103	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7847 BLANDWOOD	6/29/2006	6525016.522210	6525016.522210	1811074.341940	246106	1266	sf	79	cf
Infiltration BMP	Existing	8415 BORSON	10/9/2006	6517421.536650	6517421.536650	1792735.849280	245115	1266	sf	79	cf
Infiltration BMP	Existing	8710 BOYNE	6/29/2006	6521119.595500	6521119.595500	1795272.757840	245115	1266	sf	79	cf
Infiltration BMP	Existing	8910 BROCK	2/3/2009	6525582.226600	6525582.226600	1808734.892600	246106	1266	sf	79	cf
Infiltration BMP	Existing	9702 BROCK	9/25/2006	6523765.203820	6523765.203820	1806580.253440	246103	1266	sf	79	cf
Infiltration BMP	Existing	9730 BROCK	10/16/2009	6523625.354460	6523625.354460	1806340.478590	246103	1266	sf	79	cf
Infiltration BMP	Existing	7550 BROOKMILL	9/25/2006	6516432.435790	6516432.435790	1801137.496710	246079	1266	sf	79	cf
Infiltration BMP	Existing	10360 BROOKSHIRE	8/2/2005	6524254.056510	6524254.056510	1803200.425100	245119	1266	sf	79	cf
Infiltration BMP	Existing	9336 BUELL	5/4/2007	6527241.052050	6527241.052050	1799190.479610	245126	1266	sf	79	cf
Infiltration BMP	Existing	9408 BUELL	1/1/2007	6527563.840160	6527563.840160	1798993.546660	245126	1266	sf	79	cf
Infiltration BMP	Existing	10210 CASANES	7/20/2005	6529273.829610	6529273.829610	1801143.143100	245125	1266	sf	79	cf
Infiltration BMP	Existing	10308 CASANES	6/9/2005	6528827.020030	6528827.020030	1800415.364480	245126	1266	sf	79	cf
Infiltration BMP	Existing	10845 CASANES	12/4/2007	6527288.943480	6527288.943480	1798213.890680	245119	1266	sf	79	cf
Infiltration BMP	Existing	10922 CASANES	8/3/2005	6527279.490710	6527279.490710	1797849.792160	245119	1266	sf	79	cf
Infiltration BMP	Existing	8715 CAVEL	6/22/2010	6521261.550160	6521261.550160	1795688.489420	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9707 CEDARTREE	5/25/2006	6532283.863380	6532283.863380	1804587.051690	245127	1266	sf	79	cf
Infiltration BMP	Existing	10260 CHANEY	6/21/2010	6527337.911630	6527337.911630	1801874.691650	245119	1266	sf	79	cf
Infiltration BMP	Existing	10362 CHANEY	9/4/2007	6526983.558290	6526983.558290	1801306.071650	245119	1266	sf	79	cf
Infiltration BMP	Existing	9246 CLANCEY	5/1/2007	6528479.118010	6528479.118010	1805448.947460	245125	1266	sf	79	cf
Infiltration BMP	Existing	10546 CLANCEY	5/26/2005	6525904.831900	6525904.831900	1800674.595520	245119	1266	sf	79	cf
Infiltration BMP	Existing	12658 COLDBROOK	6/25/2009	6524501.637760	6524501.637760	1791525.543010	245114	1266	sf	79	cf
Infiltration BMP	Existing	8111 COMOLETTE	12/18/2006	6515465.796840	6515465.796840	1793242.397990	246077	1266	sf	79	cf
Infiltration BMP	Existing	8140 COMOLETTE	12/2/2008	6515640.775000	6515640.775000	1792943.865000	246077	1266	sf	79	cf
Infiltration BMP	Existing	8316 COMOLETTE	5/23/2005	6516475.681440	6516475.681440	1792370.081790	245524	1266	sf	79	cf
Infiltration BMP	Existing	9325 CORD	3/21/2008	6529940.912480	6529940.912480	1803762.584020	245125	1266	sf	79	cf
Infiltration BMP	Existing	7732 COREY	1/8/2009	6515481.796500	6515481.796500	1798137.416600	246079	1266	sf	79	cf
Infiltration BMP	Existing	11810 CORRIGAN	3/4/2009	6523411.287590	6523411.287590	1796210.739300	245114	1266	sf	79	cf
Infiltration BMP	Existing	10925 CROSSDALE	6/9/2005	6532012.125130	6532012.125130	1798163.740010	245122	1266	sf	79	cf
Infiltration BMP	Existing	7757 DACOSTA	6/7/2005	6521506.383470	6521506.383470	1807138.583520	246106	1266	sf	79	cf
Infiltration BMP	Existing	8324 DAVIS	6/15/2005	6520852.481770	6520852.481770	1799213.987880	245114	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8517 DEVENIR	2/19/2008	6517399.640210	6517399.640210	1791811.493450	245115	1266	sf	79	cf
Infiltration BMP	Existing	7345 DINSDALE	9/29/2005	6519203.299320	6519203.299320	1808002.090250	246111	1266	sf	79	cf
Infiltration BMP	Existing	8330 DINSDALE	6/21/2010	6524002.238290	6524002.238290	1804838.107610	246103	1266	sf	79	cf
Infiltration BMP	Existing	10340 DOLAN	8/15/2007	6523856.967630	6523856.967630	1803630.622810	245119	1266	sf	79	cf
Infiltration BMP	Existing	12260 DOLAN	4/5/2006	6518910.565000	6518910.565000	1795264.305000	245115	1266	sf	79	cf
Infiltration BMP	Existing	12521 DOLAN	7/19/2007	6517914.404040	6517914.404040	1794175.419610	245115	1266	sf	79	cf
Infiltration BMP	Existing	12621 DOLAN	8/17/2007	6517501.190610	6517501.190610	1793293.644730	245115	1266	sf	79	cf
Infiltration BMP	Existing	12308 DOWNEY	4/19/2007	6518251.608680	6518251.608680	1795363.261670	245115	1266	sf	79	cf
Infiltration BMP	Existing	12532 DOWNEY	10/11/2005	6517442.718730	6517442.718730	1794104.887260	245115	1266	sf	79	cf
Infiltration BMP	Existing	12820 DOWNEY	5/17/2007	6516486.923440	6516486.923440	1792584.707230	245524	1266	sf	79	cf
Infiltration BMP	Existing	12603 DUNROBIN	6/22/2010	6524864.880980	6524864.880980	1792095.613000	245114	1266	sf	79	cf
Infiltration BMP	Existing	12643 DUNROBIN	11/21/2006	6524865.889210	6524865.889210	1791696.268120	245114	1266	sf	79	cf
Infiltration BMP	Existing	12818 DUNROBIN	12/15/2006	6525044.191110	6525044.191110	1791331.787300	245114	1266	sf	79	cf
Infiltration BMP	Existing	12823 DUNROBIN	2/12/2008	6524866.593650	6524866.593650	1791299.463030	245114	1266	sf	79	cf
Infiltration BMP	Existing	13024 DUNROBIN	5/24/2005	6525048.058670	6525048.058670	1790633.750860	245114	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13240 DUNROBIN	10/1/2008	6525046.731200	6525046.731200	1789833.348360	245114	1266	sf	79	cf
Infiltration BMP	Existing	13638 EARNSHAW	9/16/2005	6516330.576340	6516330.576340	1788317.037630	245524	1266	sf	79	cf
Infiltration BMP	Existing	12155 EASTBROOK	9/16/2005	6525128.882510	6525128.882510	1794289.182720	245114	2297	sf	144	cf
Infiltration BMP	Existing	9125 EGLISE	1/24/2007	6529928.564580	6529928.564580	1804520.963270	245125	1266	sf	79	cf
Infiltration BMP	Existing	10213 EGLISE	10/14/2008	6528271.447820	6528271.447820	1801803.093100	245126	1266	sf	79	cf
Infiltration BMP	Existing	8331 EVEREST	2/21/2007	6517984.856770	6517984.856770	1794526.994330	245115	1266	sf	79	cf
Infiltration BMP	Existing	9037 FARM	6/18/2010	6525882.141210	6525882.141210	1801714.480720	245119	1266	sf	79	cf
Infiltration BMP	Existing	9542 FARM	11/15/2005	6529019.221950	6529019.221950	1799423.700160	245126	1266	sf	79	cf
Infiltration BMP	Existing	8445 FIFTH	6/24/2005	6523180.907390	6523180.907390	1801530.163340	245114	1266	sf	79	cf
Infiltration BMP	Existing	8529 FIFTH	9/23/2005	6523578.003250	6523578.003250	1801288.543780	245114	1266	sf	79	cf
Infiltration BMP	Existing	9221 FOSTER	2/16/2008	6519835.324440	6519835.324440	1789377.664880	245115	1266	sf	79	cf
Infiltration BMP	Existing	9303 FOSTER	8/9/2006	6520280.515660	6520280.515660	1789513.941670	245115	1266	sf	79	cf
Infiltration BMP	Existing	9536 FOSTORIA	10/13/2005	6527900.524680	6527900.524680	1797686.001250	245119	1266	sf	79	cf
Infiltration BMP	Existing	7339 GAINFORD	11/5/2007	6519739.997490	6519739.997490	1808338.936030	246111	1266	sf	79	cf
Infiltration BMP	Existing	8426 GAINFORD	1/7/2008	6524961.213810	6524961.213810	1805124.602410	246103	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9315 GAINFORD	7/5/2005	6528715.710300	6528715.710300	1803034.881460	245125	1266	sf	79	cf
Infiltration BMP	Existing	9641 GAINFORD	10/16/2006	6530976.949360	6530976.949360	1801752.372100	245125	1266	sf	79	cf
Infiltration BMP	Existing	9357 GALLATIN	4/17/2006	6529509.957360	6529509.957360	1804133.004270	245125	1266	sf	79	cf
Infiltration BMP	Existing	8411 GALT	7/18/2007	6520931.662600	6520931.662600	1798681.676310	245114	1266	sf	79	cf
Infiltration BMP	Existing	8125 GARDENDALE	10/3/2007	6514840.842010	6514840.842010	1791988.219650	246077	1266	sf	79	cf
Infiltration BMP	Existing	7553 GLENCLIFF	11/5/2008	6521939.189570	6521939.189570	1809565.009220	246111	1266	sf	79	cf
Infiltration BMP	Existing	12615 GURLEY	9/8/2008	6516705.632650	6516705.632650	1793818.816440	246077	1266	sf	79	cf
Infiltration BMP	Existing	10557 HALEDON	3/22/2006	6525946.687500	6525946.687500	1800529.637640	245119	1266	sf	79	cf
Infiltration BMP	Existing	10714 HALEDON	7/11/2008	6525734.412480	6525734.412480	1799854.605530	245119	1266	sf	79	cf
Infiltration BMP	Existing	9101 HALL	7/19/2007	6524088.768660	6524088.768660	1797585.986810	245114	1266	sf	79	cf
Infiltration BMP	Existing	7416 HONDO	11/21/2007	6513414.170490	6513414.170490	1797767.919490	246079	1266	sf	79	cf
Infiltration BMP	Existing	7927 HONDO	1/8/2007	6515926.722240	6515926.722240	1796435.751150	246079	1266	sf	79	cf
Infiltration BMP	Existing	9228 HORLEY	7/20/2005	6522584.029360	6522584.029360	1809343.702000	246111	1266	sf	79	cf
Infiltration BMP	Existing	9929 HORLEY	6/23/2005	6520827.895940	6520827.895940	1807104.698370	246106	1266	sf	79	cf
Infiltration BMP	Existing	12316 HORLEY	1/1/2007	6515085.680000	6515085.680000	1797312.060000	246079	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11544 HORTON	5/1/2006	6517050.314050	6517050.314050	1801482.158860	246079	1266	sf	79	cf
Infiltration BMP	Existing	12619 IBBETSON	12/26/2007	6525826.717640	6525826.717640	1791950.694670	245114	1266	sf	79	cf
Infiltration BMP	Existing	12816 IBBETSON	11/23/2005	6526008.922590	6526008.922590	1791350.504040	245114	1266	sf	79	cf
Infiltration BMP	Existing	9030 IOWA	8/29/2007	6523719.000250	6523719.000250	1797706.215730	245114	1266	sf	79	cf
Infiltration BMP	Existing	9036 IOWA	1/23/2006	6523761.535660	6523761.535660	1797679.990250	245114	1266	sf	79	cf
Infiltration BMP	Existing	7214 IRWINGROVE	2/7/2008	6517736.835580	6517736.835580	1807424.228480	246104	1266	sf	79	cf
Infiltration BMP	Existing	7425 IRWINGROVE	11/22/2005	6519037.305040	6519037.305040	1806826.286520	246102	1266	sf	79	cf
Infiltration BMP	Existing	7431 IVO	5/23/2005	6520452.019960	6520452.019960	1808862.657860	246106	1266	sf	79	cf
Infiltration BMP	Existing	12258 IZETTA	11/19/2008	6524718.529730	6524718.529730	1793607.751080	245114	1266	sf	79	cf
Infiltration BMP	Existing	11427 JULIUS	10/6/2005	6517068.729490	6517068.729490	1802337.821610	246079	1266	sf	79	cf
Infiltration BMP	Existing	7863 KINGBEE	6/2/2005	6515998.395150	6515998.395150	1797104.463380	246079	1266	sf	79	cf
Infiltration BMP	Existing	10633 LA REINA	6/7/2005	6521844.406030	6521844.406030	1802801.159980	246103	1266	sf	79	cf
Infiltration BMP	Existing	10726 LA REINA	9/20/2005	6521763.725850	6521763.725850	1802369.001800	246103	1266	sf	79	cf
Infiltration BMP	Existing	10717 LAKEWOOD	1/1/2005	6524762.764130	6524762.764130	1800632.321080	245119	1266	sf	79	cf
Infiltration BMP	Existing	13229 LAKEWOOD	8/30/2005	6518145.854860	6518145.854860	1789091.323220	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8248 LANKIN	5/16/2007	6517152.534650	6517152.534650	1794608.293130	246077	1266	sf	79	cf
Infiltration BMP	Existing	13413 LAURELDALE	9/4/2007	6516097.983610	6516097.983610	1789503.029570	245524	1266	sf	79	cf
Infiltration BMP	Existing	9040 LEMORAN	9/16/2005	6529896.207920	6529896.207920	1805874.052840	245125	1266	sf	79	cf
Infiltration BMP	Existing	10225 LESTERFORD	12/22/2005	6530244.844140	6530244.844140	1800567.187010	245126	1266	sf	79	cf
Infiltration BMP	Existing	10415 LESTERFORD	6/22/2010	6529502.521580	6529502.521580	1799500.525910	245126	1266	sf	79	cf
Infiltration BMP	Existing	10730 LESTERFORD	6/8/2005	6528927.837490	6528927.837490	1798058.051080	245126	1266	sf	79	cf
Infiltration BMP	Existing	8020 LUBEC	3/8/2007	6523117.786070	6523117.786070	1806398.918760	246103	1266	sf	79	cf
Infiltration BMP	Existing	9230 LUBEC	9/30/2005	6528205.943320	6528205.943320	1803519.420650	245125	1266	sf	79	cf
Infiltration BMP	Existing	7259 LUXOR	1/1/2007	6514801.884280	6514801.884280	1801808.218080	246079	1266	sf	79	cf
Infiltration BMP	Existing	7315 LUXOR	3/16/2006	6514953.117040	6514953.117040	1801695.155730	246079	1266	sf	79	cf
Infiltration BMP	Existing	8444 LUXOR	11/10/2005	6520775.356850	6520775.356850	1797851.842110	245114	1266	sf	79	cf
Infiltration BMP	Existing	9102 MANZANAR	7/20/2005	6527192.246670	6527192.246670	1807219.965690	246103	1266	sf	79	cf
Infiltration BMP	Existing	10434 MANZANAR	6/7/2005	6523771.930100	6523771.930100	1803007.033470	245119	1266	sf	79	cf
Infiltration BMP	Existing	11109 MARBEL	7/20/2006	6523692.717760	6523692.717760	1799490.635090	245119	1266	sf	79	cf
Infiltration BMP	Existing	12108 MARBEL	1/31/2006	6521445.538760	6521445.538760	1795214.942010	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7830 MELVA	1/1/2006	6515802.415360	6515802.415360	1797387.108860	246079	1266	sf	79	cf
Infiltration BMP	Existing	7844 MELVA	1/5/2006	6515910.196660	6515910.196660	1797321.983490	246079	1266	sf	79	cf
Infiltration BMP	Existing	12120 MORNING	8/14/2008	6516533.621320	6516533.621320	1797558.681060	246079	1266	sf	79	cf
Infiltration BMP	Existing	7339 NADA	7/8/2005	6514489.286480	6514489.286480	1800567.411080	246079	1266	sf	79	cf
Infiltration BMP	Existing	7351 NADA	6/23/2008	6514590.536380	6514590.536380	1800503.774190	246079	1266	sf	79	cf
Infiltration BMP	Existing	8202 NADA	1/9/2006	6518631.371590	6518631.371590	1797835.542430	245115	1266	sf	79	cf
Infiltration BMP	Existing	7415 NOREN	7/26/2005	6520794.671000	6520794.671000	1809286.272790	246111	1266	sf	79	cf
Infiltration BMP	Existing	9921 NORLAIN	11/3/2008	6519614.140210	6519614.140210	1807835.435830	246111	1266	sf	79	cf
Infiltration BMP	Existing	8127 ORANGE	6/23/2010	6517401.744430	6517401.744430	1796403.841780	246077	1266	sf	79	cf
Infiltration BMP	Existing	9554 ORIZABA	8/19/2005	6524235.753500	6524235.753500	1806817.618650	246103	1266	sf	79	cf
Infiltration BMP	Existing	12333 ORIZABA	1/23/2006	6517077.475660	6517077.475660	1795538.435260	246077	1266	sf	79	cf
Infiltration BMP	Existing	10834 PANGBORN	9/17/2007	6527760.431910	6527760.431910	1798051.772160	245119	1266	sf	79	cf
Infiltration BMP	Existing	7156 PELLET	6/22/2010	6515507.126970	6515507.126970	1804695.751890	246104	1266	sf	79	cf
Infiltration BMP	Existing	9466 PELLET	5/26/2005	6527082.799410	6527082.799410	1797550.782940	245119	1266	sf	79	cf
Infiltration BMP	Existing	10238 PICO VISTA	7/22/2008	6530559.495000	6530559.495000	1800212.246520	245126	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7706 PIVOT	6/18/2010	6517776.543940	6517776.543940	1802077.153370	246079	1266	sf	79	cf
Infiltration BMP	Existing	11951 POMERING	6/18/2010	6515072.562230	6515072.562230	1799936.867790	246079	1266	sf	79	cf
Infiltration BMP	Existing	12010 POMERING	9/20/2005	6514897.027930	6514897.027930	1799318.472210	246079	1266	sf	79	cf
Infiltration BMP	Existing	7803 PURITAN	6/22/2010	6513186.710850	6513186.710850	1793767.422040	246077	1266	sf	79	cf
Infiltration BMP	Existing	8249 QUOIT	5/17/2007	6517406.484080	6517406.484080	1795006.472870	246077	1266	sf	79	cf
Infiltration BMP	Existing	8506 RAVILLER	6/22/2010	6526200.032280	6526200.032280	1805944.598850	246103	1266	sf	79	cf
Infiltration BMP	Existing	9441 RAVILLER	10/7/2005	6529831.524430	6529831.524430	1803323.207760	245125	1266	sf	79	cf
Infiltration BMP	Existing	7110 RIO FLORA	6/1/2010	6515643.202310	6515643.202310	1805187.382260	246104	1266	sf	79	cf
Infiltration BMP	Existing	7371 RIO HONDO PL	7/11/2005	6517283.740950	6517283.740950	1804924.767440	246104	1266	sf	79	cf
Infiltration BMP	Existing	10802 RIVES	3/23/2007	6519422.470020	6519422.470020	1803623.413330	246102	1266	sf	79	cf
Infiltration BMP	Existing	11916 RIVES	2/6/2007	6516737.168290	6516737.168290	1799258.165990	246079	1266	sf	79	cf
Infiltration BMP	Existing	10912 RYERSON	7/14/2005	6515882.754330	6515882.754330	1804962.955590	246104	1266	sf	79	cf
Infiltration BMP	Existing	9505 SAMOLINE	6/21/2010	6523279.038200	6523279.038200	1807936.970620	246106	1266	sf	79	cf
Infiltration BMP	Existing	9631 SAMOLINE	9/4/2007	6522855.010000	6522855.010000	1807250.890000	246103	1266	sf	79	cf
Infiltration BMP	Existing	12030 SAMOLINE	9/23/2005	6517133.868790	6517133.868790	1798177.361600	246079	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12238 SAMOLINE	9/8/2006	6516738.176240	6516738.176240	1796883.684630	246079	1266	sf	79	cf
Infiltration BMP	Existing	7915 SECOND	3/23/2006	6519374.854020	6519374.854020	1802382.905560	246102	1266	sf	79	cf
Infiltration BMP	Existing	7816 SEVENTH	3/27/2007	6519884.790380	6519884.790380	1804163.292550	246102	1266	sf	79	cf
Infiltration BMP	Existing	8646 SEVENTH	1/3/2006	6524439.566780	6524439.566780	1801605.289810	245119	1266	sf	79	cf
Infiltration BMP	Existing	9225 SIDEVIEW	4/24/2006	6531114.889310	6531114.889310	1804872.365930	245127	1266	sf	79	cf
Infiltration BMP	Existing	8810 SMALLWOOD	6/20/2005	6524153.815510	6524153.815510	1810188.858090	246106	1266	sf	79	cf
Infiltration BMP	Existing	9264 SONGFEST	6/10/2008	6531394.983570	6531394.983570	1804360.661210	245127	1266	sf	79	cf
Infiltration BMP	Existing	7838 SPRINGER	11/21/2006	6515530.871940	6515530.871940	1796818.950680	246079	1266	sf	79	cf
Infiltration BMP	Existing	7844 SPRINGER	3/18/2008	6515582.250000	6515582.250000	1796787.835000	246079	1266	sf	79	cf
Infiltration BMP	Existing	10517 STAMPS	8/18/2005	6522812.240000	6522812.240000	1803043.757460	246103	1266	sf	79	cf
Infiltration BMP	Existing	9520 STEWART & GRAY	2/27/2009	6526628.650930	6526628.650930	1796061.800920	245118	1266	sf	79	cf
Infiltration BMP	Existing	8840 STOAKES	7/15/2005	6527643.045070	6527643.045070	1808263.273840	245125	1266	sf	79	cf
Infiltration BMP	Existing	11831 SUSAN	5/25/2006	6514568.915250	6514568.915250	1801466.560490	246079	1266	sf	79	cf
Infiltration BMP	Existing	8354 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8356 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8358 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8360 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8362 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8364 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8366 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8368 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	7420 THIRD	9/20/2007	6517202.761340	6517202.761340	1803926.714420	246102	1266	sf	79	cf
Infiltration BMP	Existing	7964 THIRD	2/21/2006	6519886.681280	6519886.681280	1802225.378910	246102	1266	sf	79	cf
Infiltration BMP	Existing	9532 TWEEDY	4/20/2007	6523025.939870	6523025.939870	1807743.953100	246106	1266	sf	79	cf
Infiltration BMP	Existing	7347 VIA RIO NIDO	8/1/2007	6518199.953350	6518199.953350	1806523.073370	246104	1266	sf	79	cf
Infiltration BMP	Existing	10419 WILEY BURKE	1/2/2008	6519382.492080	6519382.492080	1805731.311650	246102	1266	sf	79	cf
Infiltration BMP	Existing	10442 WILEY BURKE	1/1/2007	6519428.439440	6519428.439440	1805422.866650	246102	1266	sf	79	cf
Infiltration BMP	Existing	12639 WOODRUFF	12/22/2006	6526127.737740	6526127.737740	1791800.878460	245113	1266	sf	79	cf
Infiltration BMP	Existing	12356 DOWNEY	4/29/2004	6518006.757310	6518006.757310	1794978.083160	245115	5062	sf	316	cf
Infiltration BMP	Existing	10613 NEWVILLE	4/21/2004	6528761.027810	6528761.027810	1798786.621380	245126	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10627 OLD RIVER SCHOOL	7/24/2003	6515233.048270	6515233.048270	1805631.128330	246104	174752	sf	10922	cf
Infiltration BMP	Existing	9215 HALL	12/9/2002	6524758.793890	6524758.793890	1797647.866960	245113	74592	sf	4662	cf
Infiltration BMP	Existing	10933 LAKEWOOD BLVD	10/5/2005	6524600.000000	6524600.000000	1800100.000000	245119	6400	sf	400	cf
Infiltration BMP	Existing	12322 SAMOLINE	7/8/2005	6516301.814120	6516301.814120	1796169.128220	246077	4256	sf	266	cf
Infiltration BMP	Existing	12731 LAKEWOOD	9/17/2003	6519215.285000	6519215.285000	1791371.090000	245115	2128	sf	133	cf
Infiltration BMP	Existing	12739 LAKEWOOD	9/17/2003	6519200.000000	6519200.000000	1791100.000000	245115	2128	sf	133	cf
Infiltration BMP	Existing	8927 BIRCHLEAF	7/11/2006	6527008.160170	6527008.160170	1808327.449830	246103	1056	sf	66	cf
Infiltration BMP	Existing	11929 POMERING	5/1/2006	6515108.241040	6515108.241040	1800149.473170	246079	1056	sf	66	cf
Infiltration BMP	Existing	12240 WOODRUFF	3/19/2010	6526758.991120	6526758.991120	1793878.747920	245118	300224	sf	18764	cf
Infiltration BMP	Existing	12222 WOODRUFF	9/14/2009	6526625.121210	6526625.121210	1794009.479990	245118	70200	sf	4388	cf
Infiltration BMP	Existing	7624 FIRESTONE	1/1/2008	6517500.000000	6517500.000000	1802600.000000	246079	41632	sf	2602	cf
Infiltration BMP	Existing	7714 STEWART & GRAY	4/9/2007	6516397.756580	6516397.756580	1799563.749470	246079	30016	sf	1876	cf
Infiltration BMP	Existing	9637 LAKEWOOD	10/2/2008	6526780.802630	6526780.802630	1805111.536210	245125	15136	sf	946	cf
Infiltration BMP	Existing	12428 BENEDICT	6/14/2007	6525687.022380	6525687.022380	1792528.538110	245114	8080	sf	505	cf
Infiltration BMP	Existing	7774 DINSDALE	2/14/2014	6521332.495780	6521332.495780	1806385.183840	246103	4680	sf	293	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8030 IMPERIAL HWY	2/14/2014	6515729.368090	6515729.368090	1794471.493939	246077	41789	sf	2000	cf
Infiltration BMP	Existing	9623 IMPERIAL HWY	2/14/2014	6524482.209740	6524482.209740	1792569.983950	245114	35408	sf	2213	cf
Infiltration BMP	Existing	10531 LAKEWOOD BL	2/14/2014	6525178.634060	6525178.634060	1801497.338680	245119	5840	sf	365	cf
Infiltration BMP	Existing	8121 FOURTH ST	2/14/2014	6521147.926450	6521147.926450	1802216.858440	246103	4680	sf	293	cf
Infiltration BMP	Existing	8123 FOURTH ST	2/14/2014	6521147.926450	6521147.926450	1802216.858440	246103	4680	sf	293	cf
Infiltration BMP	Existing	8555 TENTH ST	2/14/2014	6524962.328390	6524962.328390	1803501.510410	245119	4680	sf	293	cf
Infiltration BMP	Existing	9356 BUELL ST	2/14/2014	6527425.774610	6527425.774610	1799078.145910	245126	3120	sf	195	cf
Infiltration BMP	Existing	8449 COLE ST	2/14/2014	6520362.597670	6520362.597670	1796910.373080	245115	1560	sf	98	cf

D1.3. City of Lakewood

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Filterra Tree Wells (2)		Paramount & Arbor	33.843398	-118.159673	445521				
Infiltration BMP	Existing	Retention Basin at Cherry Cove Park			33.850296	-118.165478	446014				

D1.4. City of Paramount

Type of BMP	Existing or Planned ?	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioswales	Existing	Landscape Swale	2012	Texaco/Alondra	33.889066	-118.171849	606071	37,500	sf	2109	cf
Bioswales	Existing	Landscape Swale	2012	Orange/Windmill	33.891602	-118.177436	606072	0.6	ac	1470	cf

D1.5. City of Pico Rivera

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Site-Scale Detention Basin	Existing	French drains at Smith Park	2013	6016 Rosemead Blvd				16	ac		
Site-Scale Detention Basin	Existing	French drains at Rio Vista	2013	Coffman Pico Road				7	ac		
Bioswales	Existing	Beverly Boulevard medians	2012	Beverly Blvd				5280	sf		
Permeable Pavement	Existing	Pico Park permeable pavement	2012	9528 Beverly Blvd				12	ac		
Bioswales	Existing	Telegraph Road medians	2013	Telegraph Rd from Rosemead Blvd to Eastside limit				5280	sf		
Bioswales	Planned	Paramount Blvd medians	2016	Paramount Blvd from Whittier Blvd to Mines Ave				5280	sf		
Infiltration BMPs	Planned	Two (2) Filterra Systems	2016	various				1	ac		
Infiltration BMPs	Existing	City of Pico Rivera City Hall	2011	8615 Passons Blvd				2.75	ac		
Infiltration BMPs	Existing	Rivera Park	2012	9530 Shade Lane				16	ac		

D1.6. City of Signal Hill

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration		Palm Drive Business Center	2/19/2008	2445 N Palm Drive	33.801973	-118.157962	775510	1	ac		
Bioretention / Biofiltration		Aragon Townhomes & Duplexes (City View)	3/9/2007	1902 (1890) Oribaza Ave	33.790924	-118.156725	776003	93,780	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2755 California Avenue	33.807881	-118.181769	776011	9,583	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2756 California Avenue	33.807881	-118.181769	776011	17,424	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2757 California Avenue	33.807881	-118.181769	776011	33,106	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2758 California Avenue	33.807881	-118.181769	776011	10,454	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2759 California Avenue	33.807881	-118.181769	776011	78,486	sf		
Bioretention / Biofiltration		2-Story Building and Parking Lot	12/28/2010	2653 Walnut Avenue	33.805754	-118.171978	776012	0.51	ac		
Bioretention / Biofiltration		EDCO Administrative Terminal	8/1/2011	950 27th Street	33.806179	-118.1812	776012	9583	sf	0.06	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/2/2011	951 27th Street	33.806179	-118.1812	776012	17424	sf	0.08	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/3/2011	952 27th Street	33.806179	-118.1812	776012	33106	sf	0.14	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/4/2011	953 27th Street	33.806179	-118.1812	776012	10454	sf	0.08	cfs
Bioretention / Biofiltration		Fantasy Castle	6/30/2009	2801 Walnut Ave	33.808289	118.171777		1,584	sf		
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/16/2010	3300 Atlantic Avenue	33.817504	-118.184643	485510	18,000	sf	931	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/17/2010	3301 Atlantic Avenue	33.817504	-118.184643	485510	120	sf	7	cf
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/18/2010	3302 Atlantic Avenue	33.817504	-118.184643	485510	10,904	sf	542	cf
Bioswales	Existing	Signal Hill Police Station and Emergency Operation	5/26/2011	2745 Walnut Avenue	33.807067	-118.171984	775510	115,870	sf		
Bioswales	Existing	Jack in the Box	10/21/2008	802 Spring Street	33.812049	-118.182595	775510	12,000	sf		
Bioswales		Boiler Tech Warehouse	10/2/2009	2503 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Bioswales		Aragon Townhomes & Duplexes (City View)	3/11/2007	1904 (1890) Oribaza Ave	33.790924	-118.156725	776003	31,100	sf		
Bioswales		Fantasy Castle	6/29/2009	2800 Walnut Ave	33.808289	118.171777		32,883	sf		
Flow-Through Treatment BMP	Existing	Petco, Party City	3/3/2009	3100 Atlantic Ave	33.813946	-118.184789	485510				
Flow-Through Treatment BMP	Existing	Petco, Party City	3/4/2009	3101 Atlantic Ave	33.813946	-118.184789	485510				
Flow-Through Treatment BMP	Existing	The Home Depot		3100 Atlantic Avenue	33.813946	-118.184789	485510	3.65	ac		
Flow-Through Treatment BMP	Existing	The Home Depot		3101 Atlantic Avenue	33.813946	-118.184789	485510	7.99	ac		
Flow-Through Treatment BMP	Existing	The Home Depot		3102 Atlantic Avenue	33.813946	-118.184789	485510	3.28	ac		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	The Home Depot		3103 Atlantic Avenue	33.813946	-118.184789	485510	4.79	ac		
Flow-Through Treatment BMP		Palm Drive Business Center	2/20/2008	2446 N Palm Drive	33.801973	-118.157962	775510	7,000	sf		
Flow-Through Treatment BMP	Existing	Fresh & Easy	11/17/2009	2475 Cherry Avenue	33.802363	-118.168152	775510	0.68	ac		
Flow-Through Treatment BMP	Existing	Fresh & Easy	11/18/2009	2476 Cherry Avenue	33.802363	-118.168152	775510	0.58	ac		
Flow-Through Treatment BMP	Existing	US Bank	9/17/2008	2615 Cherry Ave	33.804856	-118.167999	775510	18732	sf		
Flow-Through Treatment BMP	Existing	Signal Hill Industrial Center		2665-2745 Temple Ave	33.80648	-118.159782	775510	143,312	sf		
Flow-Through Treatment BMP	Existing	Tanker Interior Washing Facility		1710 E 29th Street	33.80935	-118.170824	775510	10,000	sf		
Flow-Through Treatment BMP	Existing	Delius Restaurant	7/14/2006	2951 Cherry Ave	33.81111	-118.168077	775510	32,000	sf		
Flow-Through Treatment BMP	Existing	Jack in the Box	10/20/2008	801 Spring Street	33.812049	-118.182595	775510	12,000	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Target (T-2319)	2/13/2007	950 E 33rd Street	33.816767	-118.181488	775510	178,600	sf		
Flow-Through Treatment BMP	Existing	Hawk Industries	5/8/2007	1245 E. 23rd Street	33.799126	-118.17577	776002	27,322	sf		
Flow-Through Treatment BMP	Existing	Hawk Industries	5/9/2007	1246 E. 23rd Street	33.799126	-118.17577	776002	1575	sf		
Flow-Through Treatment BMP		Boiler Tech Warehouse	9/30/2009	2501 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Flow-Through Treatment BMP	Existing	Las Brisas II Community Housing	1/11/2006	2400-2418 California Ave	33.803504	-118.180639	776002	16,247	sf		
Flow-Through Treatment BMP	Existing	Las Brisas II Community Housing	1/12/2006	2400-2418 California Ave	33.803504	-118.180639	776002	25,047	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/5/2005	2550 Gundry Ave	33.803577	-118.173289	776002	61,000	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/6/2005	2551 Gundry Ave	33.803577	-118.173289	776002	30,492	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/7/2005	2552 Gundry Ave	33.803577	-118.173289	776002	4,356	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP		Aragon Townhomes & Duplexes (City View)	3/6/2007	1899 (1890) Oribaza Ave	33.790924	-118.156725	776003	31,350	sf		
Flow-Through Treatment BMP		Aragon Townhomes & Duplexes (City View)	3/7/2007	1900 (1890) Oribaza Ave	33.790924	-118.156725	776003	63,400	sf		
Flow-Through Treatment BMP		In-N-Out Burger	5/27/2011	799 E. Spring Street	33.812066	-118.183197	776011	65,220	sf		
Flow-Through Treatment BMP		Shoreline Fabricators	8/1/2007	2652 Gundry Ave	33.805493	-118.173804	776012	16,300	sf		
Flow-Through Treatment BMP		Shoreline Fabricators	8/2/2007	2653 Gundry Ave	33.805493	-118.173804	776012	1,395	sf		
Flow-Through Treatment BMP		2-Story Building and Parking Lot	12/29/2010	2654 Walnut Avenue	33.805754	-118.171978	776012				
Flow-Through Treatment BMP		Islamic Center	5/29/2009	996 27th St	33.806216	-118.180729	776012	5000	sf		
Flow-Through Treatment BMP		Crescent Square Development	8/10/2007	1600-1799 Green House Place				136,955	sf		
Infiltration BMPs	Existing	Fresh & Easy	11/19/2009	2477 Cherry Avenue	33.802363	-118.168152	775510	76,143	sf		
Infiltration BMPs	Existing	US Bank	9/19/2008	2617 Cherry Ave	33.804856	-118.167999	775510	18732	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs	Planned	Applebee's	3/12/2013	899 E. Spring Street	33.812089	-118.181855	775510	23,580	sf		
Infiltration BMPs	Existing	Hawk Industries	5/10/2007	1247 E. 23rd Street	33.799126	-118.17577	776002	27,322	sf		
Infiltration BMPs		Boiler Tech Warehouse	10/1/2009	2502 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Infiltration BMPs		Pacific Walk	1/4/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	100,200	sf		
Infiltration BMPs		Pacific Walk	1/5/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	149,015	sf		
Infiltration BMPs		Pacific Walk	1/6/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	1,300	sf		
Infiltration BMPs		Aragon Townhomes & Duplexes (City View)	3/8/2007	1901 (1890) Oribaza Ave	33.790924	-118.156725	776003	94,750	sf		
Infiltration BMPs		Aragon Townhomes & Duplexes (City View)	3/10/2007	1903 (1890) Oribaza Ave	33.790924	-118.156725	776003	93,780	sf		
Infiltration BMPs	Planned	Willow Street Medical Office Building	12/9/2013	845 E. Willow Street	33.804664	-118.182279	776009	22,651	sf	1095	cf
Infiltration BMPs	Planned	Willow Street Medical Office Building	12/10/2013	846 E. Willow Street	33.804664	-118.182279	776009	37,304	sf	1890	cf
Infiltration BMPs		In-N-Out Burger	5/28/2011	800 E. Spring Street	33.812066	-118.183197	776011	65,220	sf	3425	cf
Infiltration BMPs		Shoreline Fabricators	8/3/2007	2654 Gundry Ave	33.805493	-118.173804	776012	16,300	sf		
Infiltration BMPs		Islamic Center	5/28/2009	995 27th St	33.806216	-118.180729	776012	5000	sf		
Infiltration BMPs	Existing	A & A Ready Mix Concrete	8/1/2007	900 E. Patterson	33.806664	-118.182206	776012	2	ac		
Permeable Pavement	Existing	US Bank	9/18/2008	2616 Cherry Ave	33.804856	-118.167999	775510	60	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Permeable Pavement	Existing	Hawk Industries	5/11/2007	1248 E. 23rd Street	33.799126	-118.17577	776002	5,628	sf		

D1.7. City of South Gate

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration		Self Storage	9/15/2008	2405 Southern Ave	33.953436	-118.229363	796034	0.25	ac		
Bioretention / Biofiltration		Hollydale Plaza	3/30/2010	12222 Garfield Avenue	33.915655	-118.168383	796076	15,278	sf		
Bioretention / Biofiltration		Atlantic Avenue Improvements	4/21/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	7.44	ac		
Bioretention / Biofiltration	Planned	azalea	11/25/2012	4641 Firestone Blvd.	33.952413	-118.187909	796084	7,328	sf	0.22	cfs
Bioswales		South Gate McDonald's	9/30/2013	3313 Tweedy Boulevard	33.945113	-118.211464	796034	5,119	sf		
Bioswales		South Gate McDonald's	10/1/2013	3314 Tweedy Boulevard	33.945113	-118.211464	796034	5,545	sf		
Bioswales		Commercial Center	10/4/2010	9200 Califlornia Avenue	33.950805	-118.206221	796034	12,367	sf		
Bioswales		Commercial Center	10/5/2010	9201 Califlornia Avenue	33.950805	-118.206221	796034	4,263	sf		
Bioswales		Hot Mix Asphalt Plant	5/11/2001	5626 Southern Avenue	33.944913	-118.168148	796083	2.7	ac		
Bioswales		Goals Soccer Centers - South Gate	2/9/2010	9599 Pinehurst Avenue	33.945107	-118.182378	796084	53,142	sf		
Flow-Through Treatment BMP	Existing	South Gate McDonald's	9/26/2013	3309 Tweedy Boulevard	33.945113	-118.211464	796034	2,394	sf		
Flow-Through Treatment BMP		South Gate McDonald's	9/28/2013	3311 Tweedy Boulevard	33.945113	-118.211464	796034	2,436	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Walgreens	7/24/2006	9830 Long Beach	33.946082	-118.215937	796034	48,725	sf		
Flow-Through Treatment BMP	Existing	King's Car Wash	11/29/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034	10,461	sf		
Flow-Through Treatment BMP		King's Car Wash	12/1/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034				
Flow-Through Treatment BMP	Existing	Sarina Townhomes	2/12/2007	9321 State Street	33.950368	-118.21325	796034	14,375	sf		
Flow-Through Treatment BMP		Commercial Center	10/6/2010	9202 Califlornia Avenue	33.950805	-118.206221	796034	16,630	sf		
Flow-Through Treatment BMP		Office Bldg	12/20/2007	3830 Firestone Blvd	33.953324	-118.201934	796034	1,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/21/2007	3831 Firestone Blvd	33.953324	-118.201934	796034	112,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/20/2007	3800 Firestone Blvd	33.95348	-118.202386	796034	1,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/21/2007	3801 Firestone Blvd	33.95348	-118.202386	796034	112,000	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Planned	Calden Court Appartments	9/27/2013	8901 Calden Avenue	33.95515	-118.228736	796034	219,543	sf		
Flow-Through Treatment BMP		Hollydale Plaza	3/31/2010	12223 Garfield Avenue	33.915655	-118.168383	796076	27,381	sf		
Flow-Through Treatment BMP	Existing	Sherwin Inc	4/10/2007	5530 Borwick Ave	33.925749	-118.172611	796082	7,892	sf		
Flow-Through Treatment BMP		Hot Mix Asphalt Plant	5/10/2001	5625 Southern Avenue	33.944913	-118.168148	796083	9.5	ac		
Flow-Through Treatment BMP		Atlantic Avenue Improvements	4/22/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	13.32	ac		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/11/2010	9601 Pinehurst Avenue	33.945107	-118.182378	796084	70,036	sf		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/12/2010	9602 Pinehurst Avenue	33.945107	-118.182378	796084	37,897	sf		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/13/2010	9603 Pinehurst Avenue	33.945107	-118.182378	796084	63,400	sf		
Flow-Through Treatment BMP	Planned	azalea	11/24/2012	4640 Firestone Blvd.	33.952413	-118.187909	796084	1,583,819	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Interior Removal Specialist Demolition	5/21/2007	9309 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/22/2007	9310 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/23/2007	9311 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/24/2007	9312 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Petrochem Manufacturing	12/18/2006	8401 Quartz	33.957949	-118.191835	796090	162,305	sf		
Flow-Through Treatment BMP		Petrochem Manufacturing	12/19/2006	8402 Quartz	33.957949	-118.191835	796090	51,401	sf		
Infiltration BMPs		South Gate McDonald's	9/27/2013	3310 Tweedy Boulevard	33.945113	-118.211464	796034	2,394	sf		
Infiltration BMPs		South Gate McDonald's	9/29/2013	3312 Tweedy Boulevard	33.945113	-118.211464	796034	2,436	sf		
Infiltration BMPs		South Gate McDonald's	10/4/2013	3317 Tweedy Boulevard	33.945113	-118.211464	796034	3,743	sf		
Infiltration BMPs		King's Car Wash	11/30/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034	3,047	sf		
Infiltration BMPs		Sarina Townhomes	2/13/2007	9322 State Street	33.950368	-118.21325	796034	17,519	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs		Office Bldg	12/22/2007	3832 Firestone Blvd	33.953324	-118.201934	796034	112,000	sf		
Infiltration BMPs		Office Bldg	12/22/2007	3802 Firestone Blvd	33.95348	-118.202386	796034	112,000	sf		
Infiltration BMPs	Existing	Family Dollar	10/8/2012	3610 Firestone	33.95374	-118.204546	796034		sf		
Infiltration BMPs	Planned	Calden Court Appartments	9/28/2013	8902 Calden Avenue	33.95515	-118.228736	796034	219,543	sf		
Infiltration BMPs		South Gate Ward Building New Parking Lot	10/15/2010	2771 Liberty Boulevard	33.961969	-118.220918	796034	14,811	sf		
Infiltration BMPs		Sherwin Inc	4/11/2007	5531 Borwick Ave	33.925749	-118.172611	796082	7,892	sf		
Infiltration BMPs		Atlantic Avenue Improvements	4/23/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	22,400	sf		
Infiltration BMPs		Batting Cages	11/4/2010	9599 Pinehurst Avenue	33.945107	-118.182378	796084	7,953	sf		
Infiltration BMPs		Goals Soccer Centers - South Gate	2/10/2010	9600 Pinehurst Avenue	33.945107	-118.182378	796084	113	sf		
Infiltration BMPs		Goals Soccer Centers - South Gate	2/14/2010	9604 Pinehurst Avenue	33.945107	-118.182378	796084	171,333	sf		
Infiltration BMPs	Planned	azalea	11/19/2012	4635 Firestone Blvd.	33.952413	-118.187909	796084	444,636	sf	31,365	cf
Infiltration BMPs	Planned	azalea	11/20/2012	4636 Firestone Blvd.	33.952413	-118.187909	796084	110,869	sf	12,946	cf
Infiltration BMPs	Planned	azalea	11/21/2012	4637 Firestone Blvd.	33.952413	-118.187909	796084	582,860	sf	72,234	cf
Infiltration BMPs	Planned	azalea	11/22/2012	4638 Firestone Blvd.	33.952413	-118.187909	796084	222,727	sf	25,348	cf
Infiltration BMPs	Planned	azalea	11/23/2012	4639 Firestone Blvd.	33.952413	-118.187909	796084	222,727	sf	64,314	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs	Existing	New South Central Properties, LLC	5/28/2009	8600 Rheem Ave	33.955566	-118.192042	796084	20,960	sf		
Infiltration BMPs		LA Water	8/4/2010	9415 Burtis	33.947369	-118.176109	796350	154,538	sf		
Permeable Pavement		South Gate McDonald's	10/2/2013	3315 Tweedy Boulevard	33.945113	-118.211464	796034	8,697	sf		
Permeable Pavement		South Gate McDonald's	10/3/2013	3316 Tweedy Boulevard	33.945113	-118.211464	796034	3,550	sf		

D1.8. City of Whittier

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration	Planned	GWT Biolswale	2014	Greenway Trail from to	33.972121	-118.044253	895098				
Bioretention / Biofiltration	Planned	Whittier Blvd Widening and Bioswale	2017	Whittier Blvd from to							
Green Streets (Describe)	Planned	Lower Uptown reverse drains	2014	Milton, Newlin, Comstock from La Cuarta to Walnut	33.970199	-118.039721	895098		TBD		TBD
Site-Scale Detention Basin	Existing	Police Building and City Hall Storm Drainage	2010	13230 Penn St	33.974748	-118.03371	895098				

Attachment E: SUPPORTING CALIBRATION DATA

Submitted to:

LLAR WMP Group　　LCC WMP Group　　LSGR WMP Group

Submitted by:

Tetra Tech
9444 Balboa Ave., Suite 215
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January 15, 2015

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1. Lower San Gabriel River

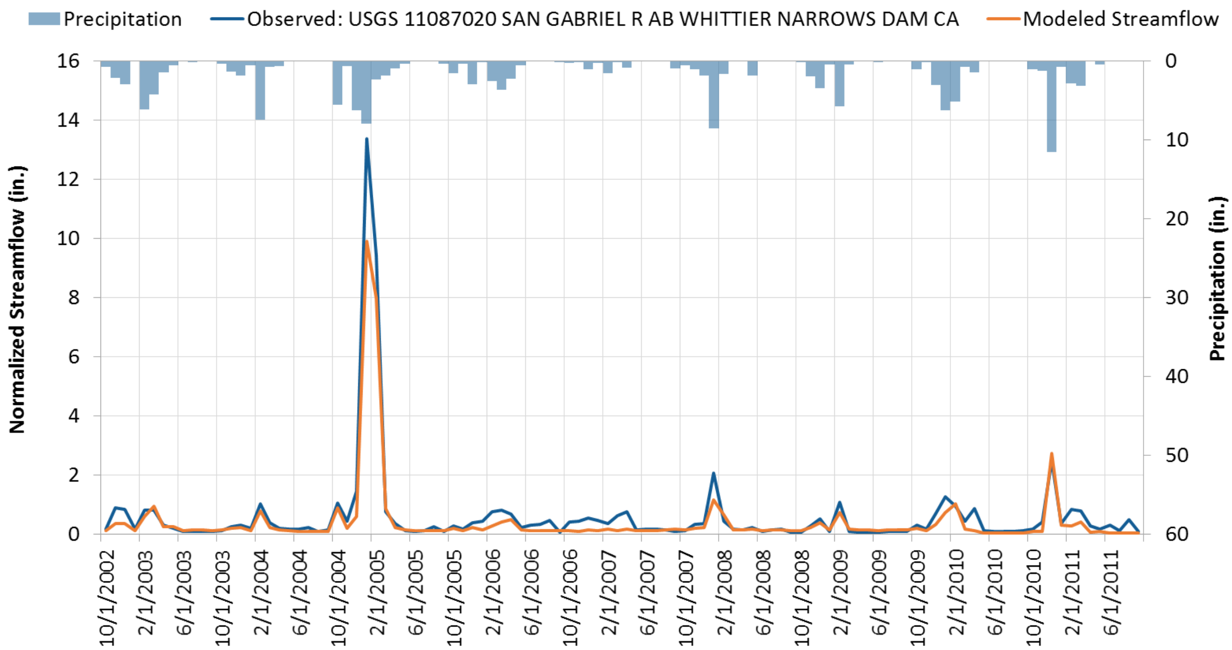

Figure 1. Monthly hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

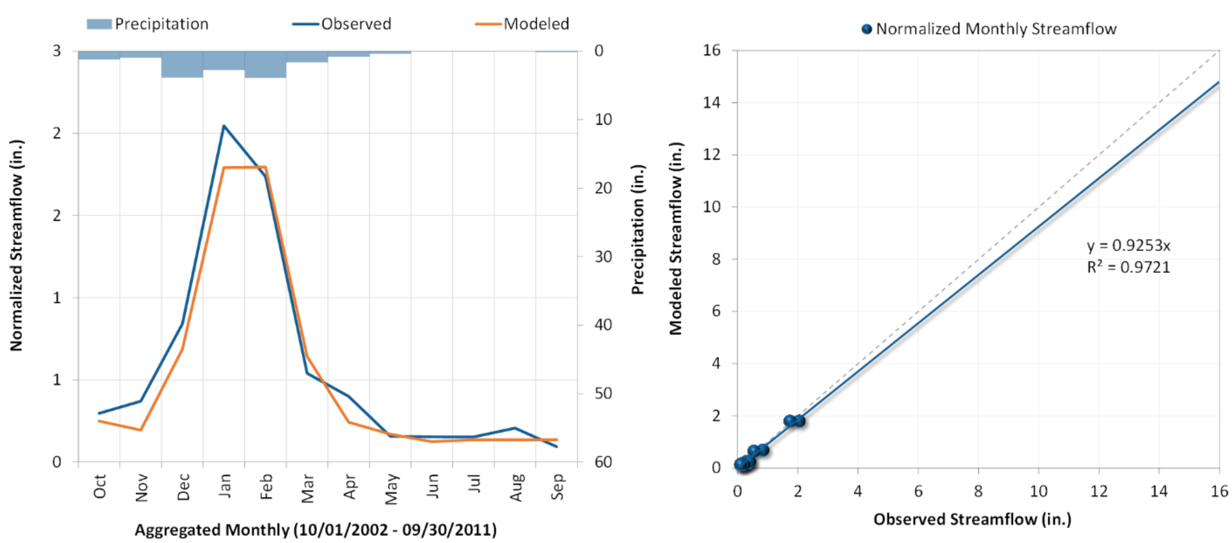

Figure 2. Aggregated monthly hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

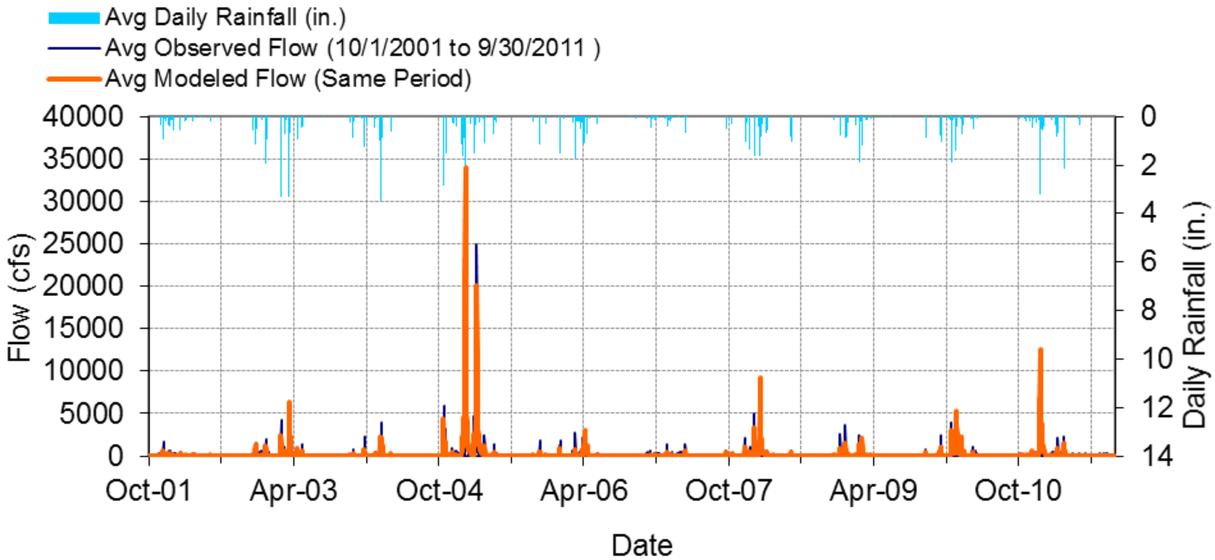

Figure 3. Mean daily flow for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

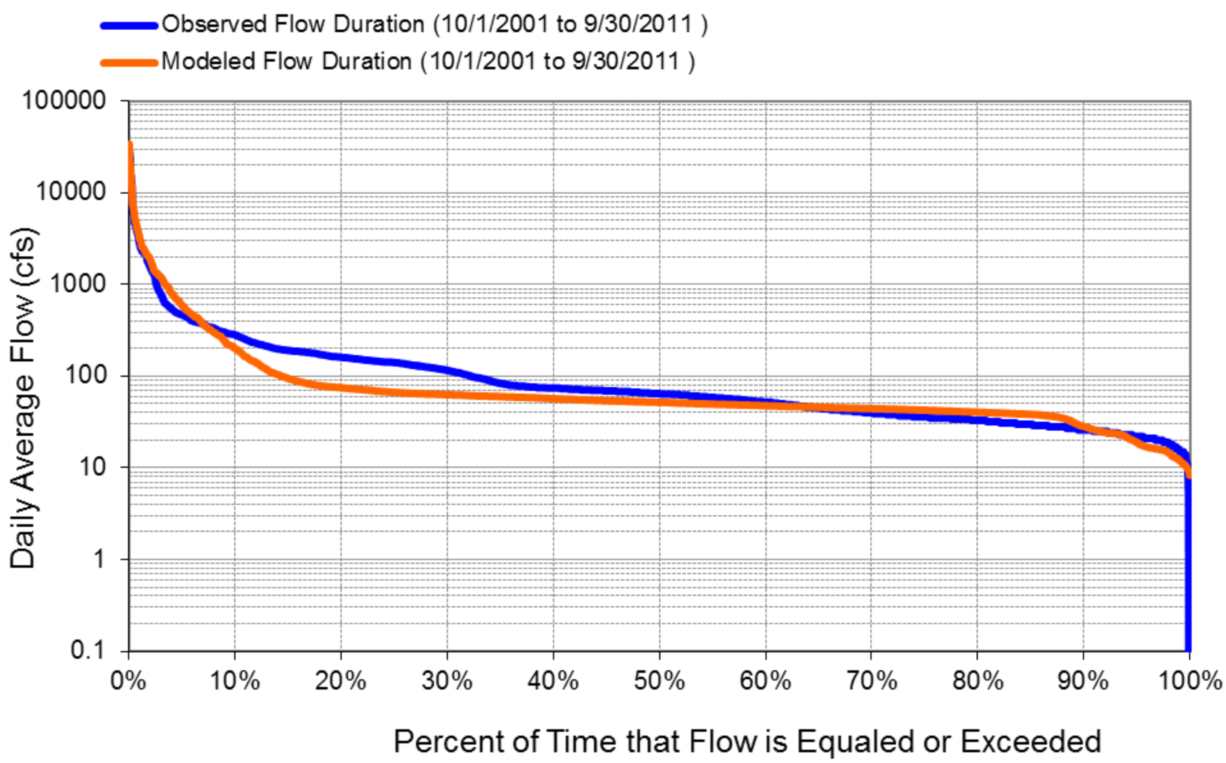

Figure 4. Daily flow exceedance for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

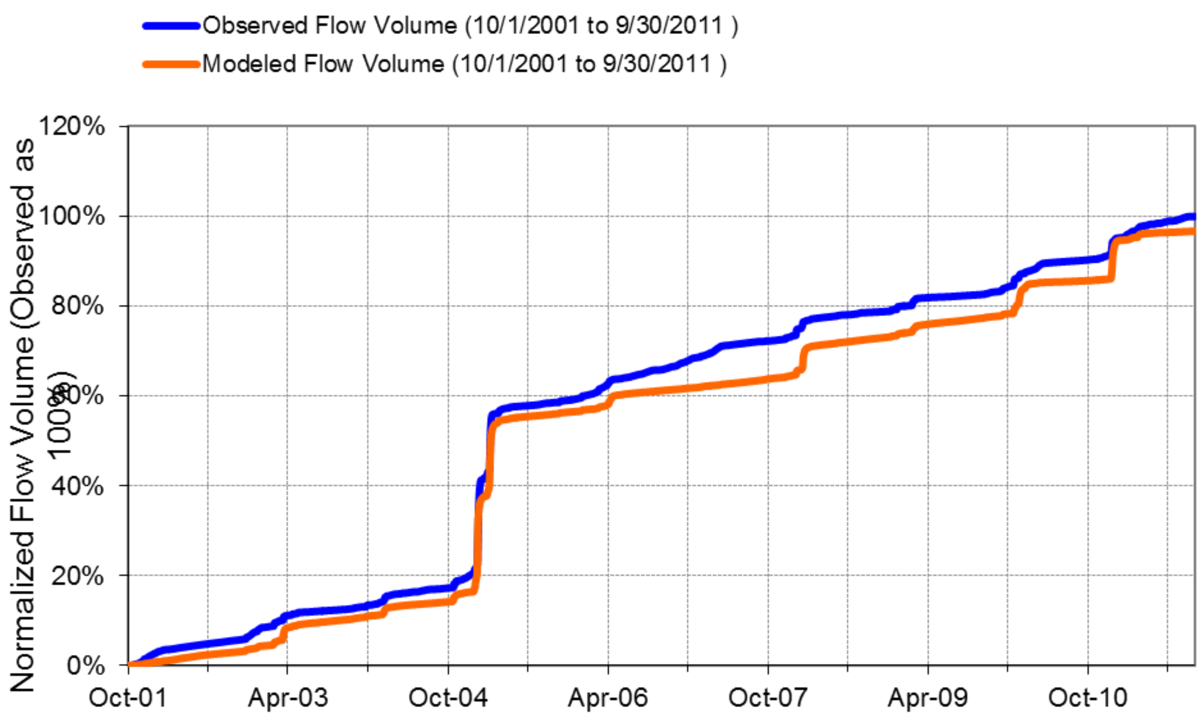

Figure 5. Flow accumulation for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

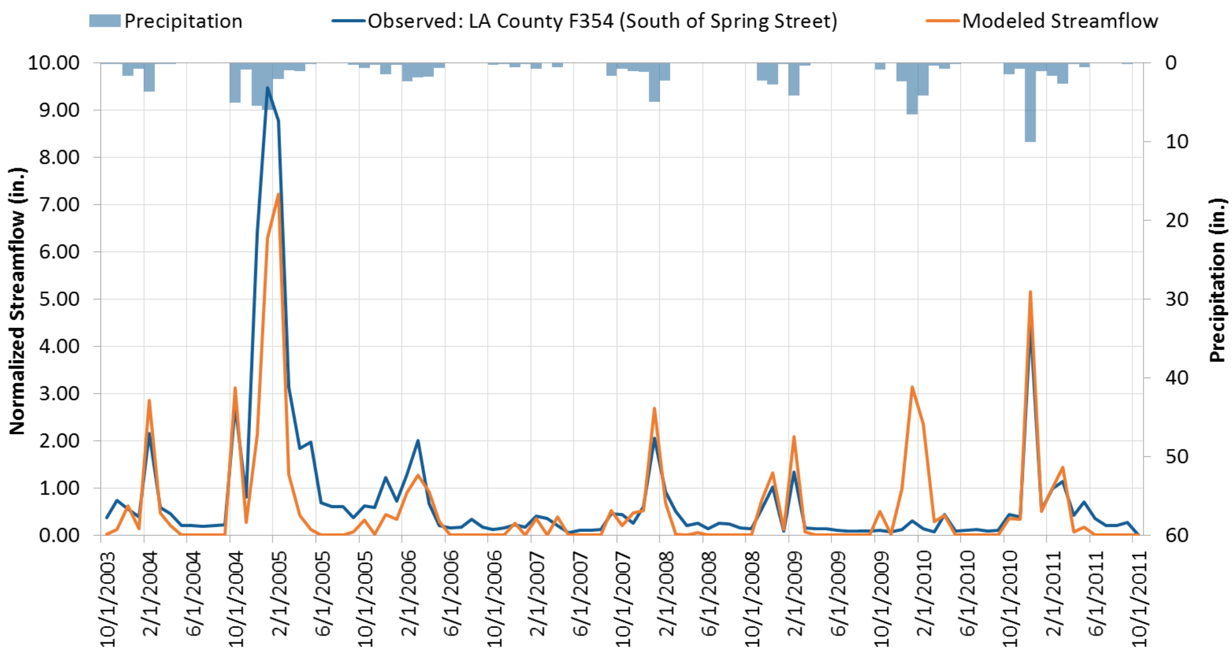

Figure 6. Monthly hydrograph for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

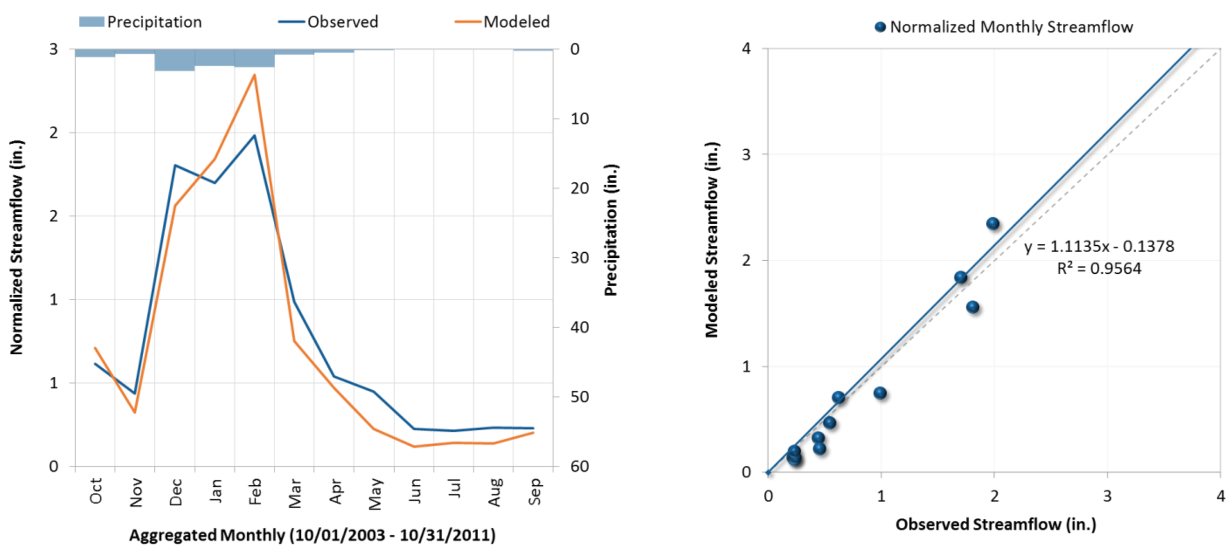

Figure 7. Aggregated monthly hydrograph for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

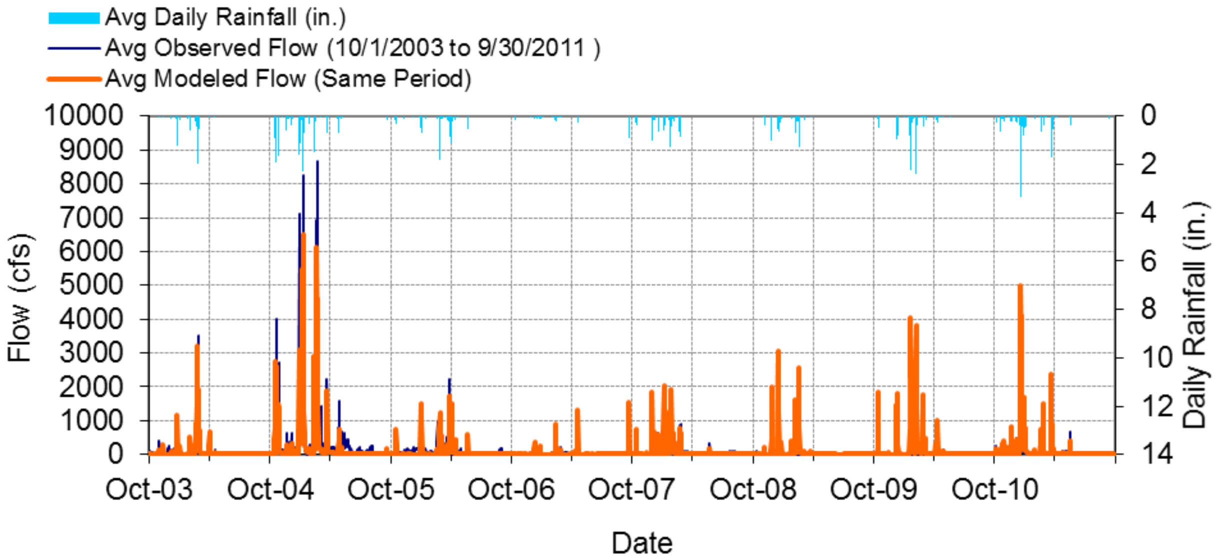

Figure 8. Mean daily flow for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

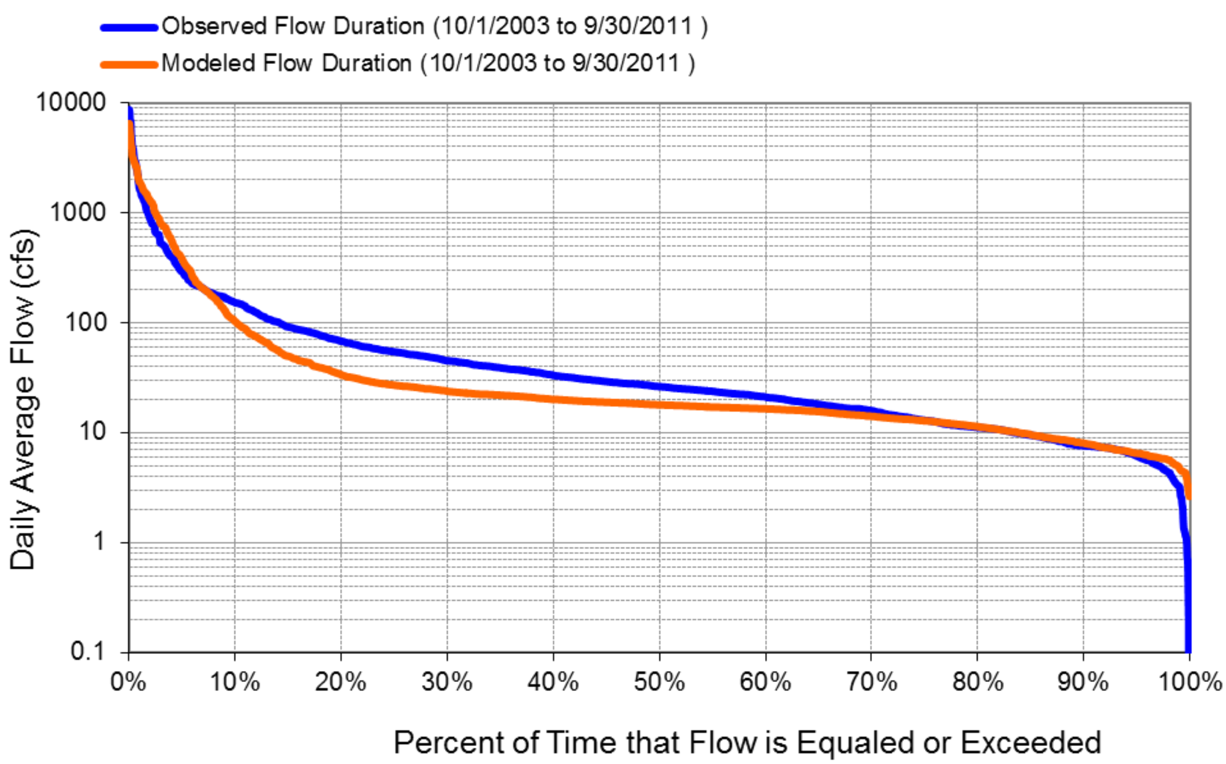

Figure 9. Daily flow exceedance for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

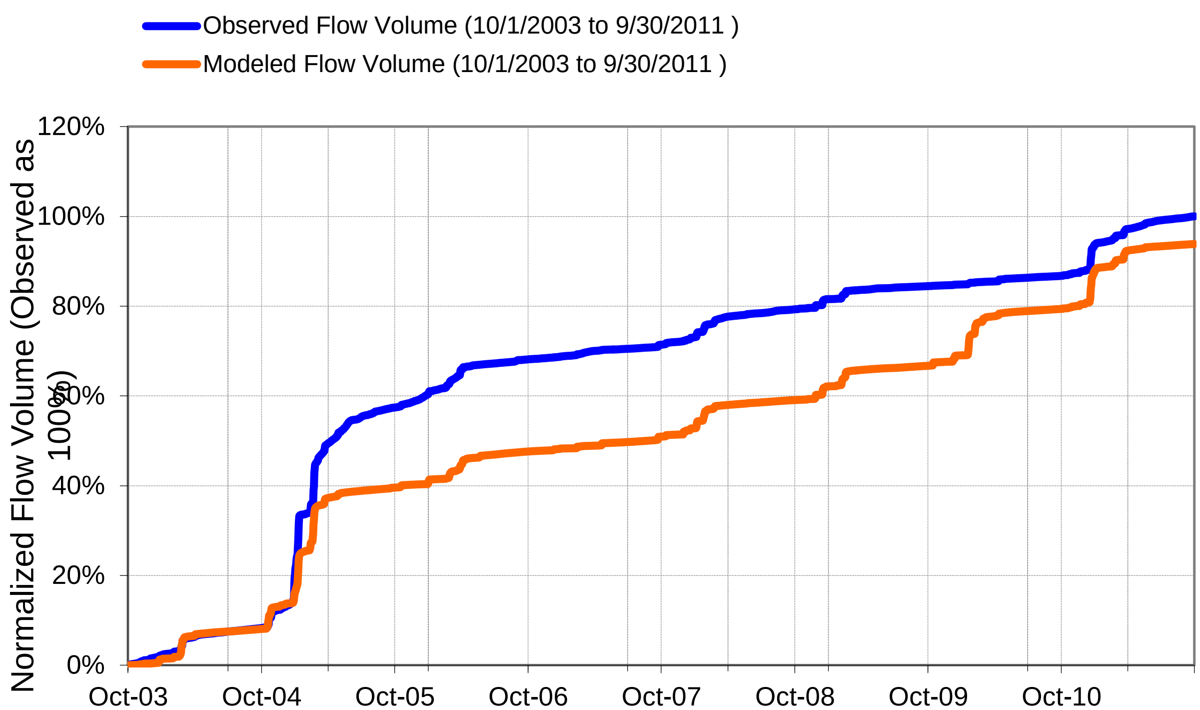

Figure 10. Flow accumulation for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

Table 1. Summary of water quality data evaluated for the Lower San Gabriel River

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
S14	Total Copper (ug/l)	5.0	10.5	13.1	23.9	81.4
S13	Total Copper (ug/l)	0.5	11.8	28.1	48.3	351.0
S14	Total Lead (ug/l)	0.7	1.4	2.9	8.2	56.0
S13	Total Lead (ug/l)	0.2	1.1	10.2	19.2	147.0
S14	TSS (mg/L)	5.0	16.8	38.0	169.8	1258.0
S13	TSS (mg/L)	1.0	48.0	97.0	230.5	1556.0
S14	Total Zinc (ug/l)	19.8	36.6	61.0	86.9	440.0
S13	Total Zinc (ug/l)	1.0	62.0	135.0	241.5	2010.0
S14	Fecal Coliform (MPN/100mL)	20	300	1,300	50,000	16,000,000
S13	FC (MPN/100mL)	20	1,300	16,000	90,000	2,200,000
S14	Total Nitrogen (mg/l)	-	-	-	-	-
S13	Total Nitrogen (mg/l)	-	-	-	-	-
S14	Total Phosphorous (mg/l)	0.05	0.11	0.18	0.41	0.86
S13	Total Phosphorous (mg/l)	-	-	-	-	-

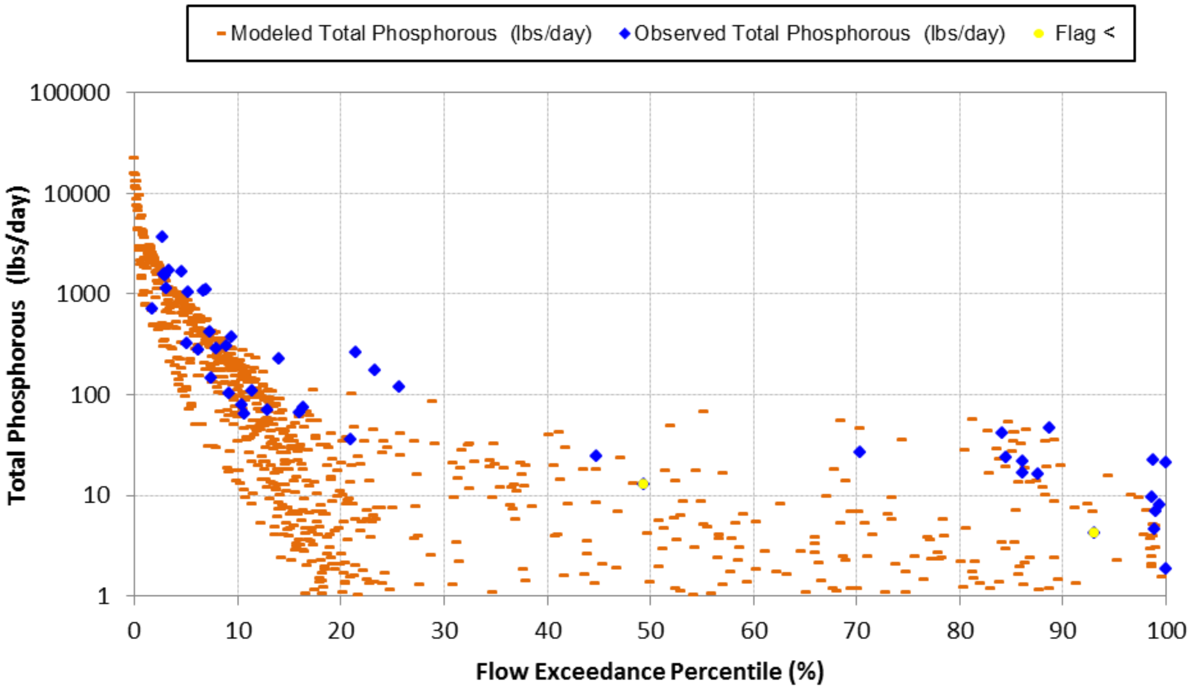

Figure 11. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

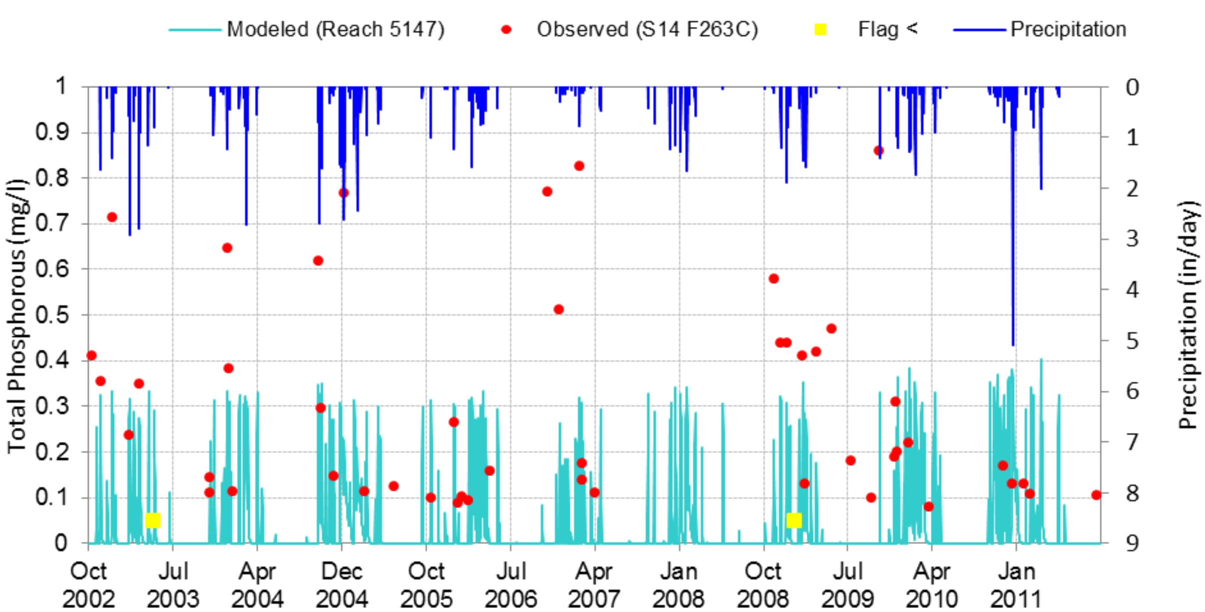

Figure 12. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

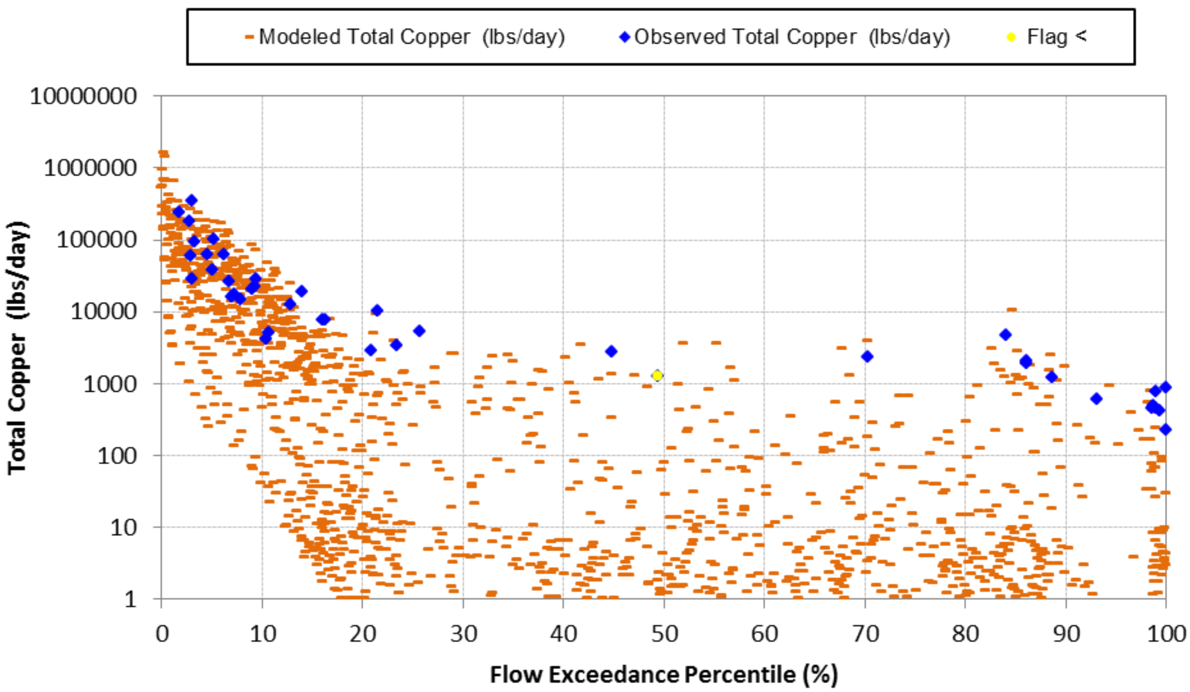

Figure 13. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

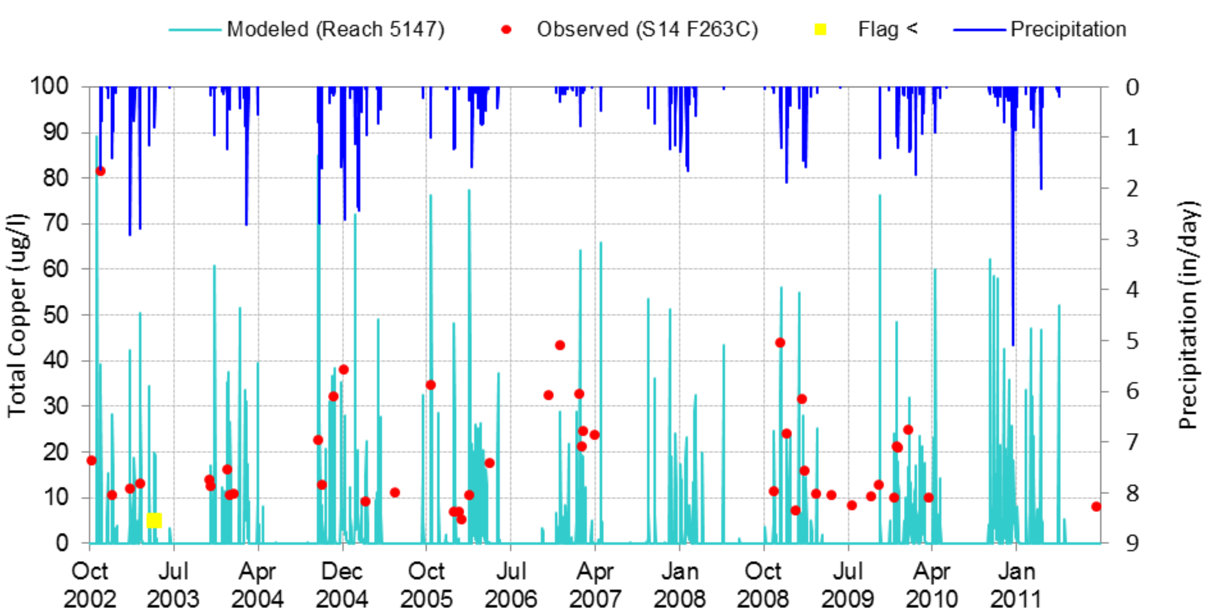

Figure 14. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

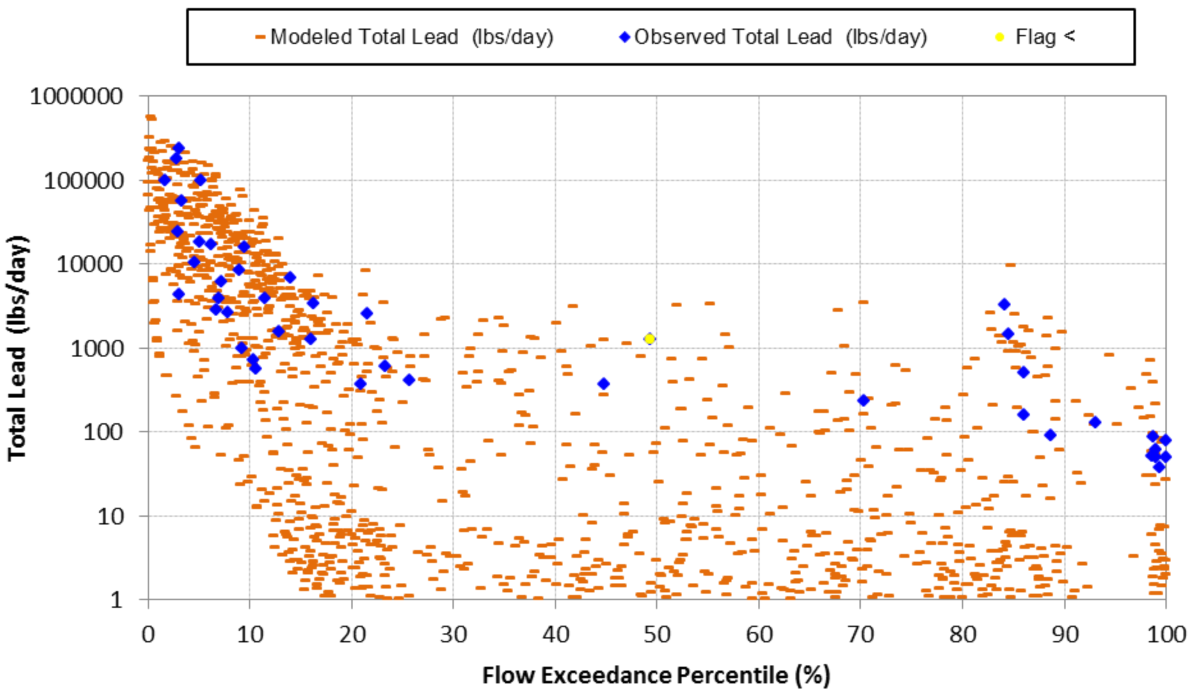

Figure 15. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

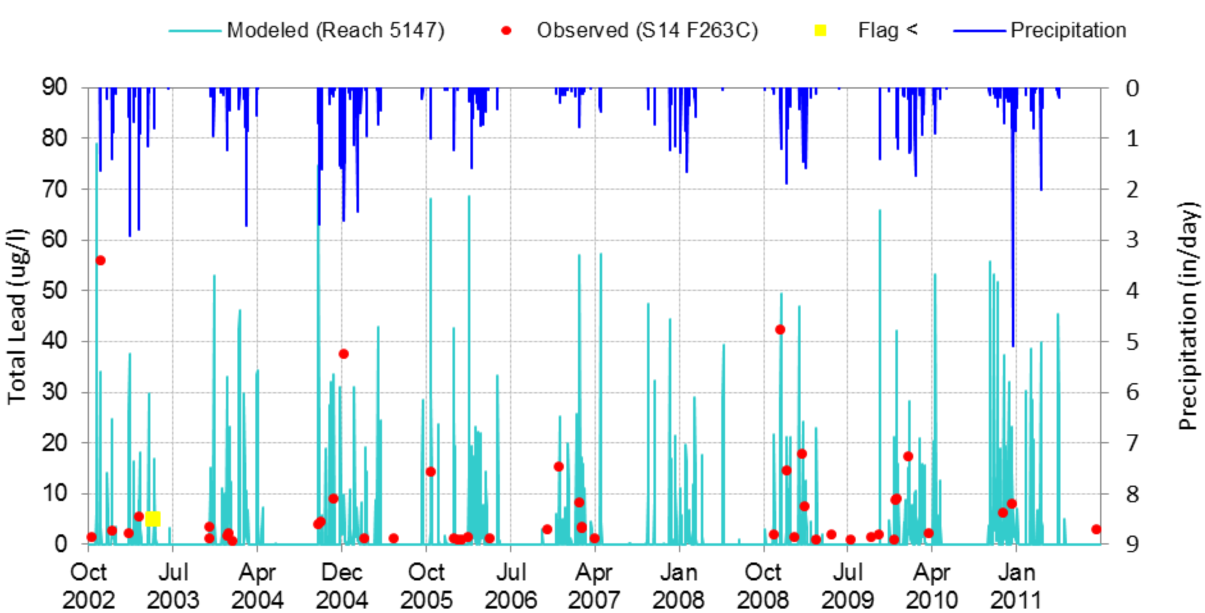

Figure 16. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

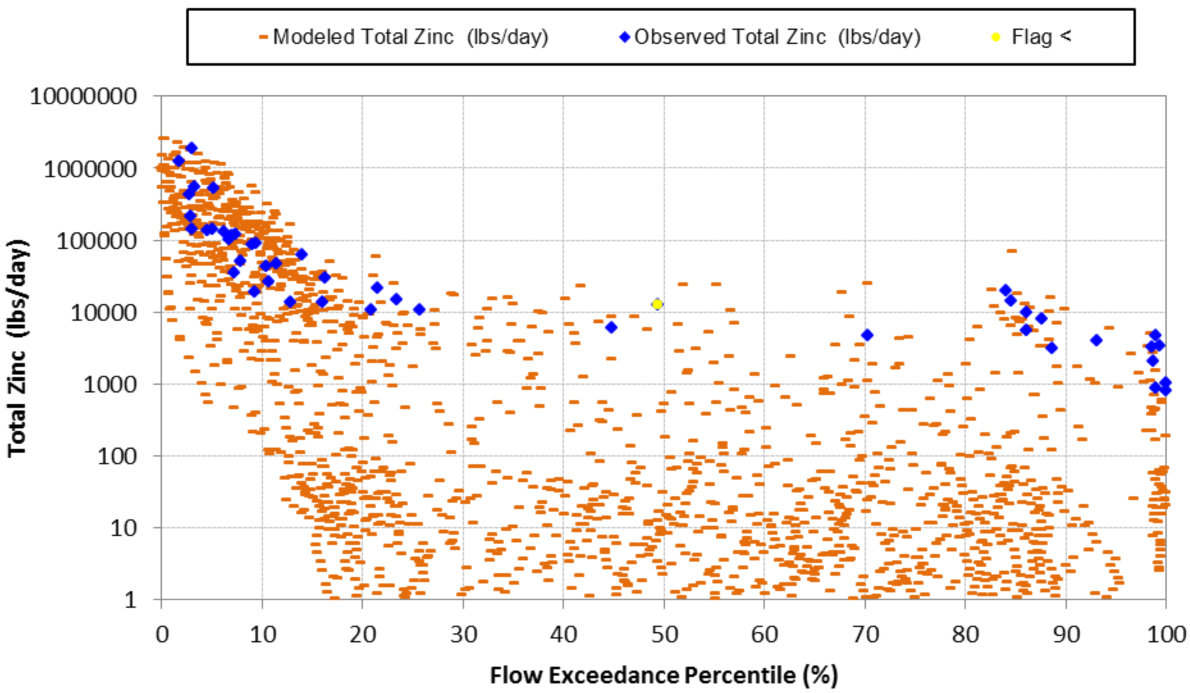

Figure 17. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

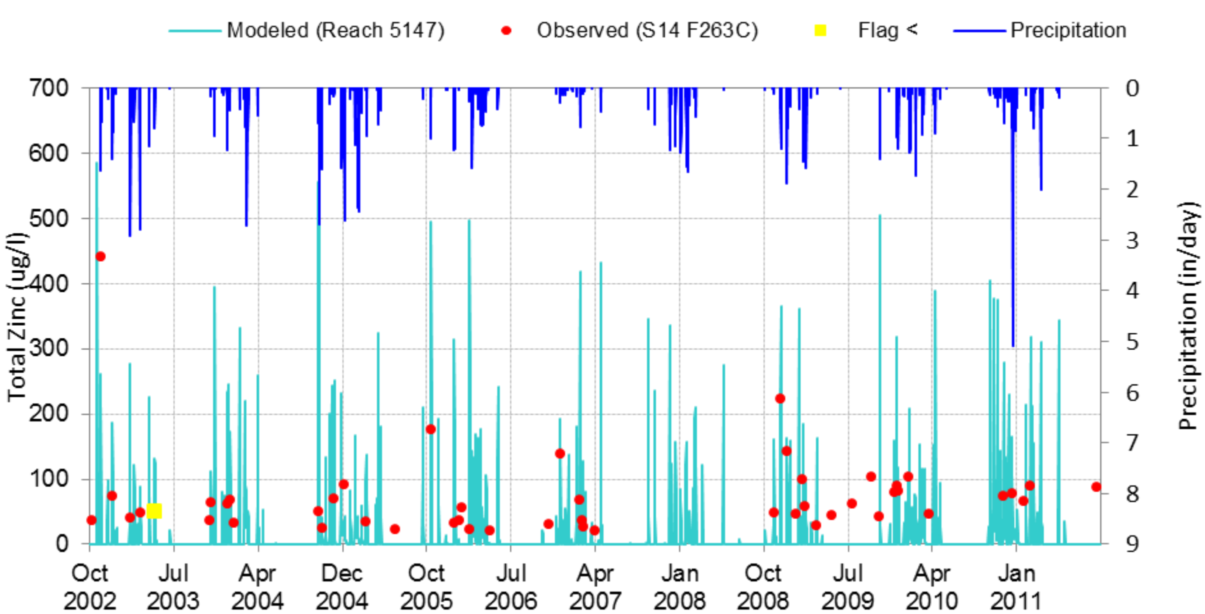

Figure 18. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

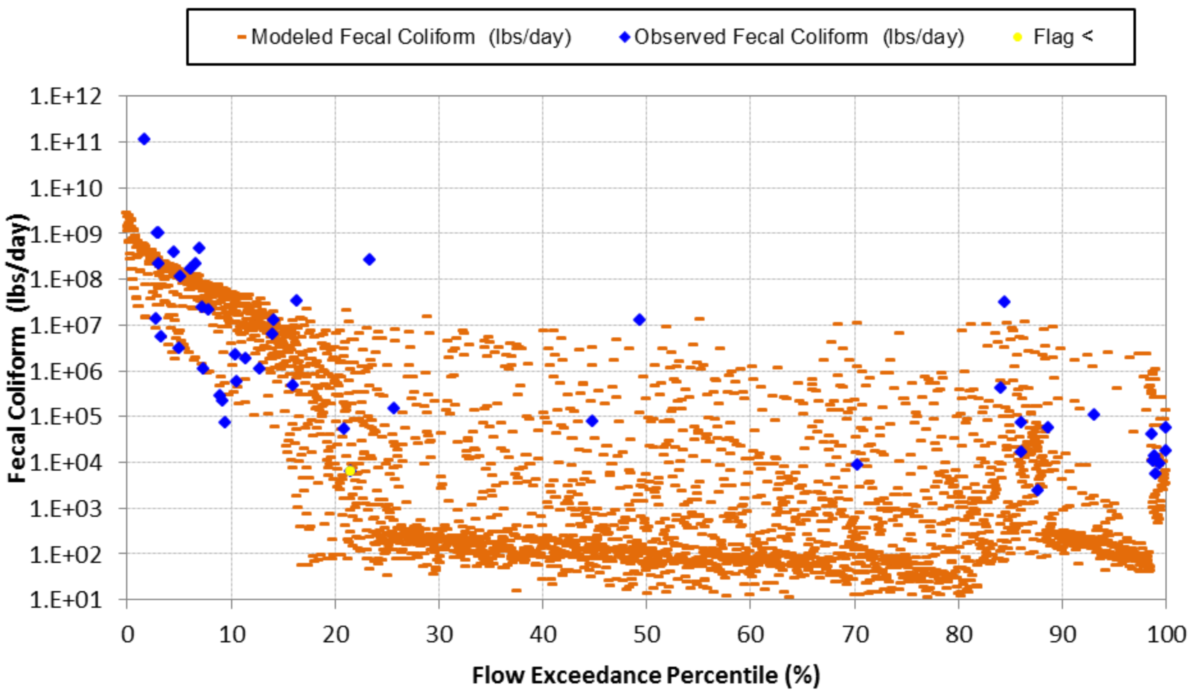

Figure 19. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011).

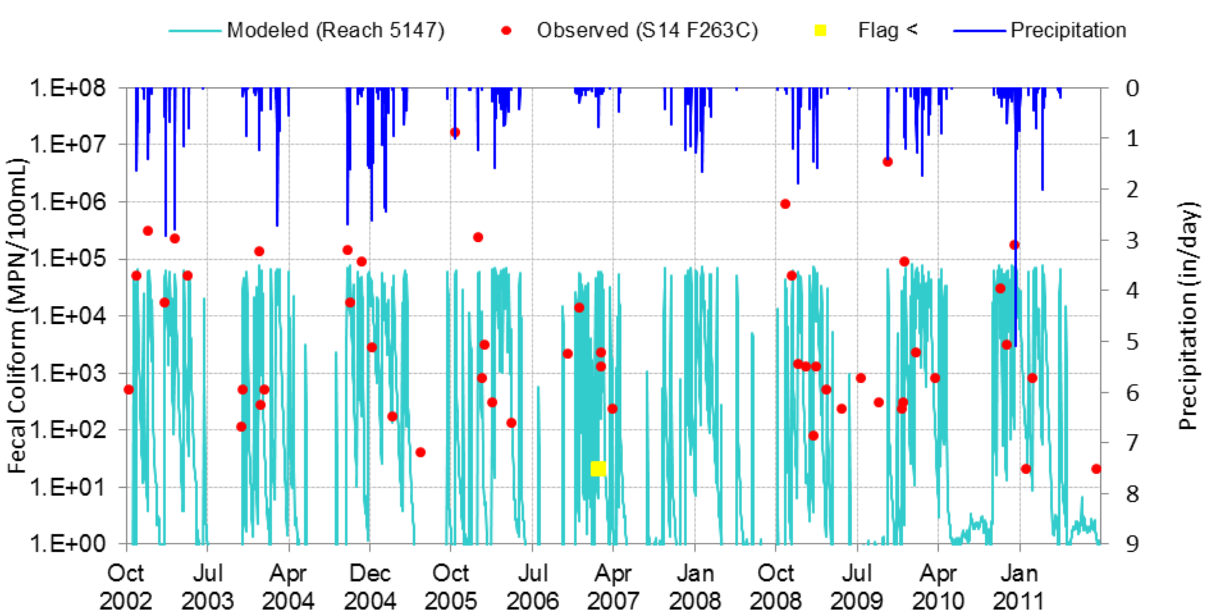

Figure 20. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011).

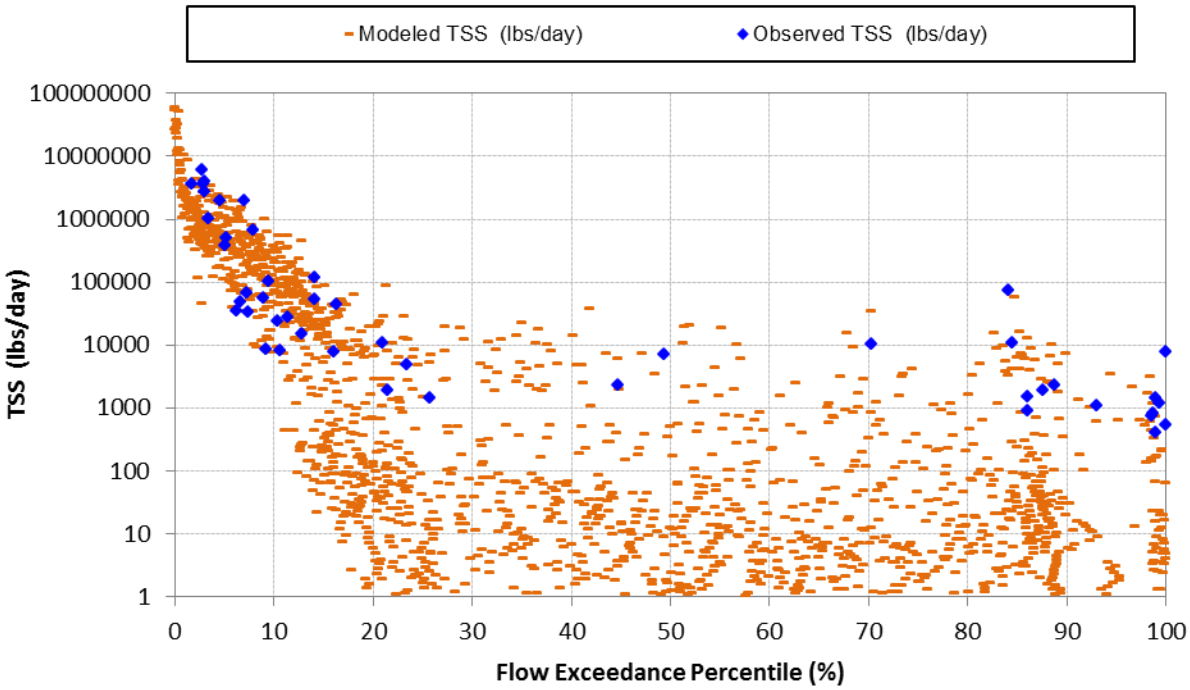

Figure 21. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011).

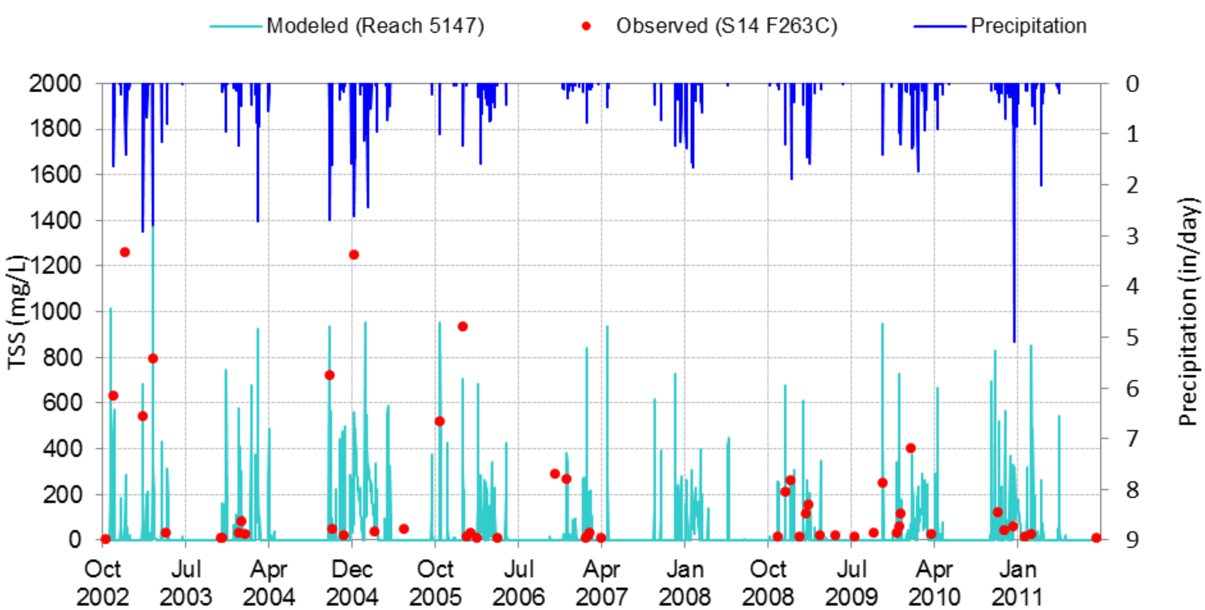

Figure 22. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011).

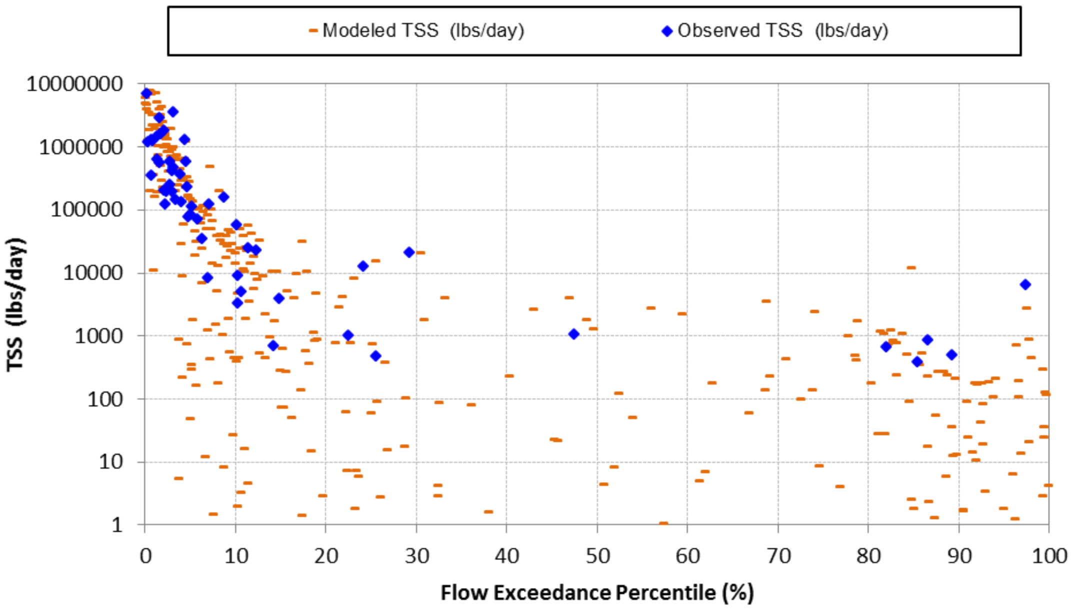

Figure 23. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

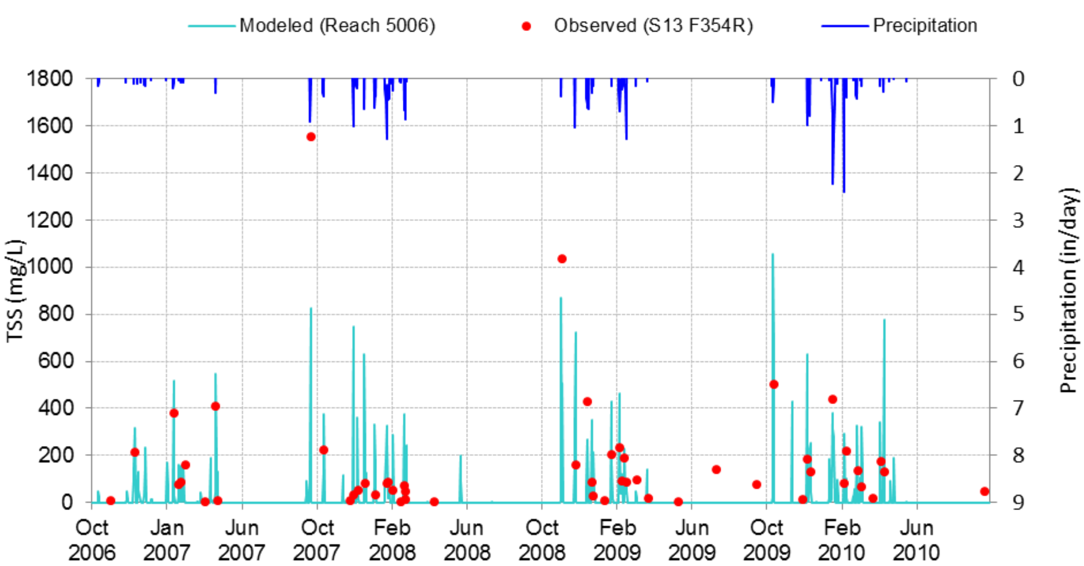

Figure 24. Simulated vs. observed timeseries plots for Total Sediment (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

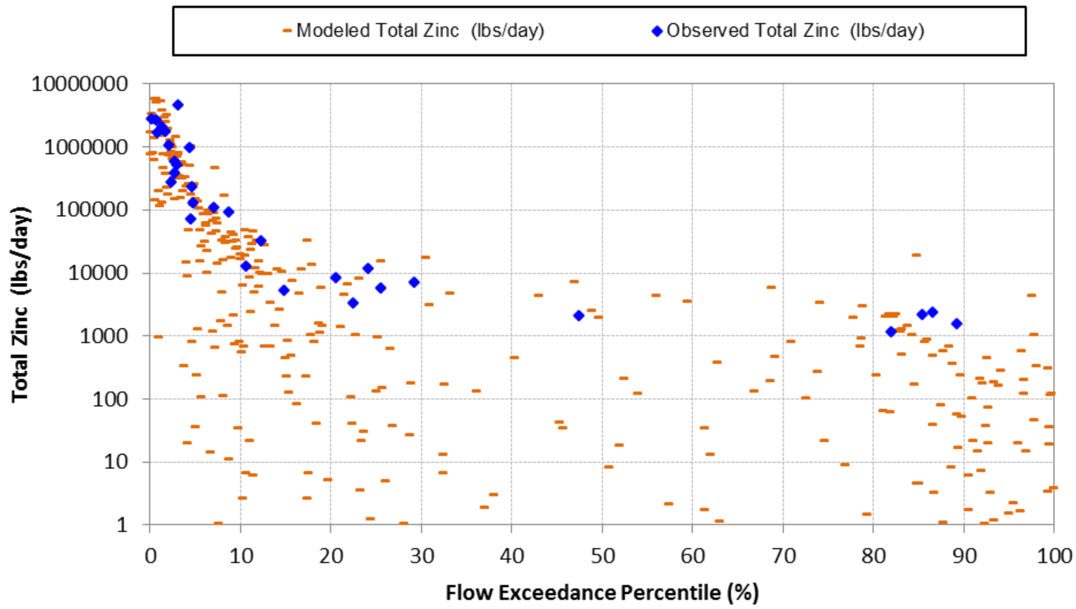

Figure 25. Simulated vs. observed load duration plots for Total Zinc (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

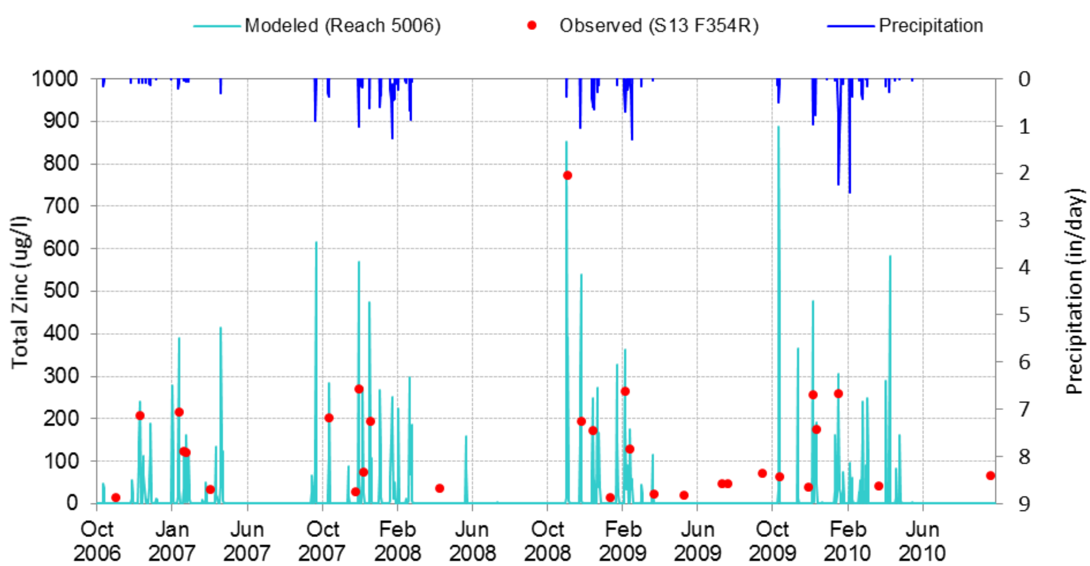

Figure 26. Simulated vs. observed timeseries plots for Total Zinc (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

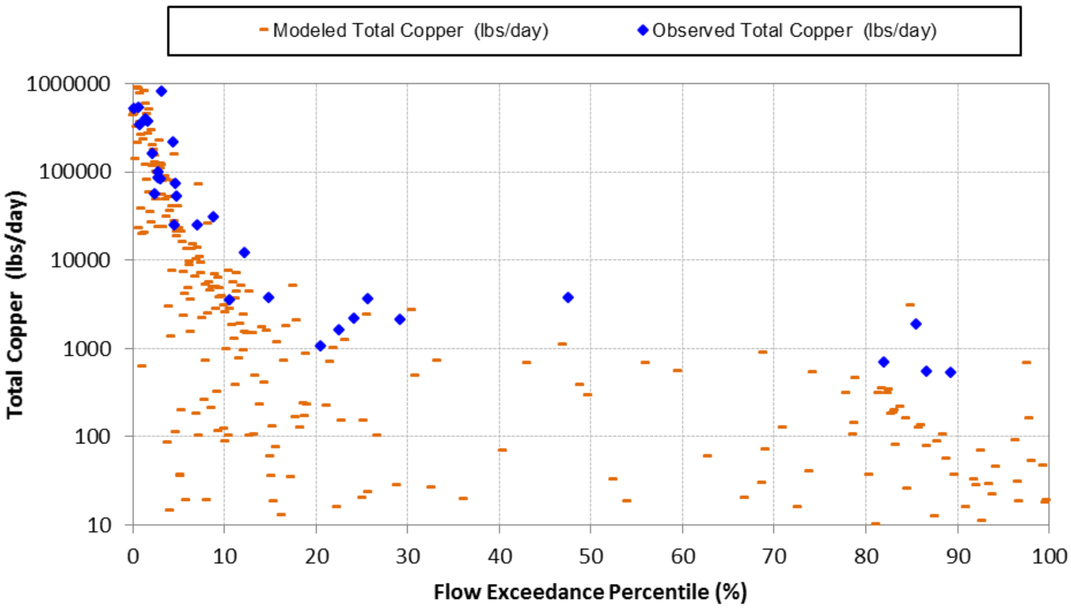

Figure 27. Simulated vs. observed load duration plots for Total Copper (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

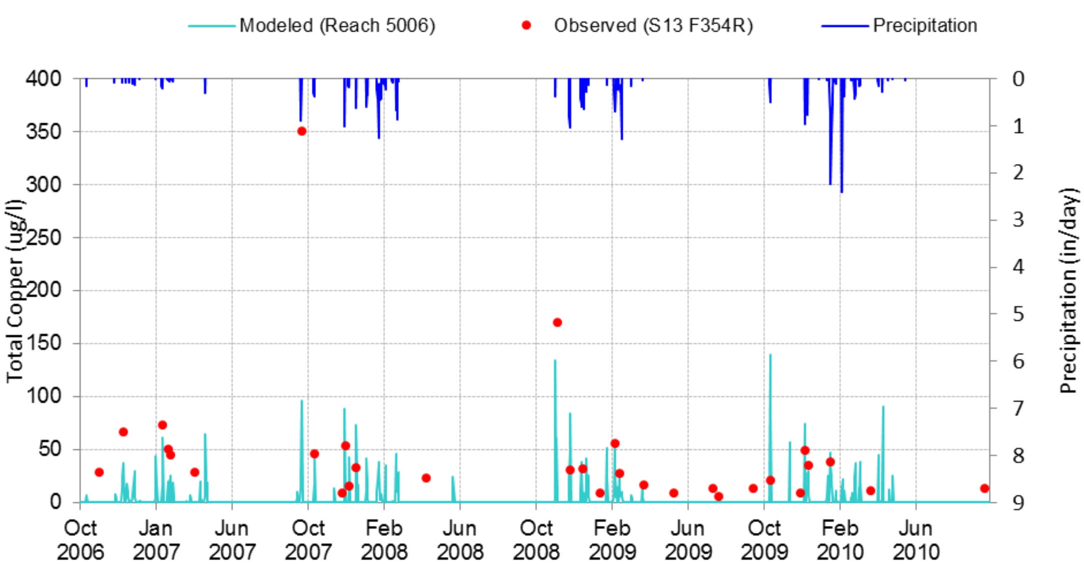

Figure 28. Simulated vs. observed timeseries plots for Total Copper (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

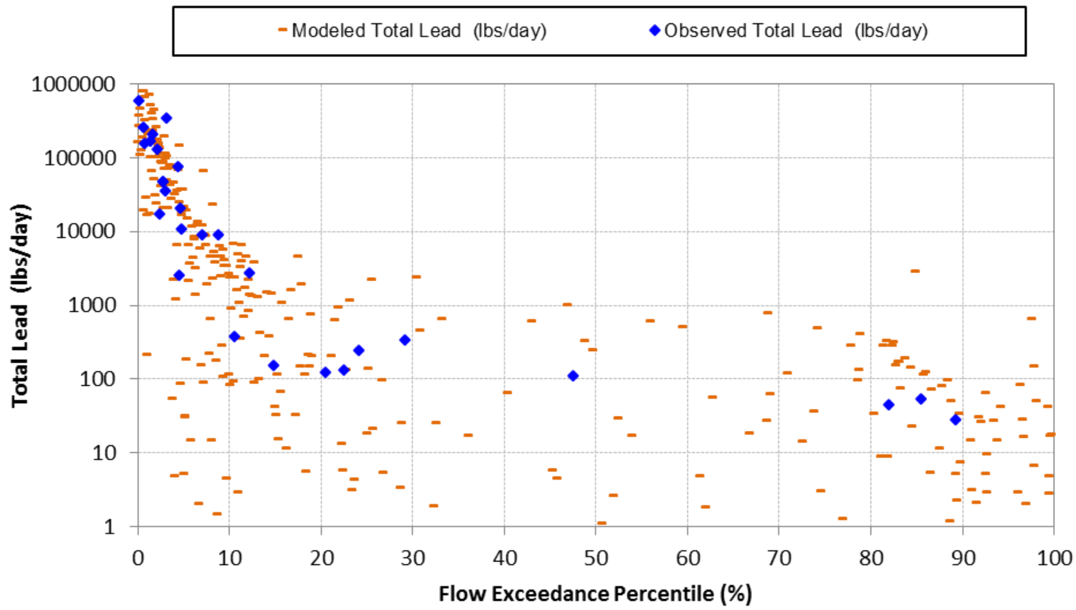

Figure 29 Simulated vs. observed load duration plots for Total Lead (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

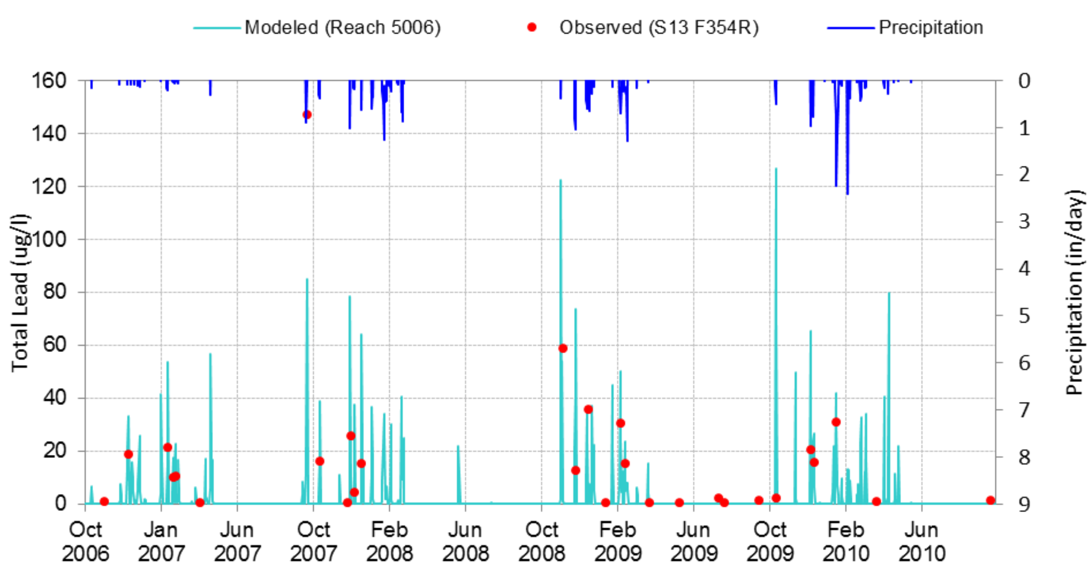

Figure 30. Simulated vs. observed timeseries plots for Total Lead (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

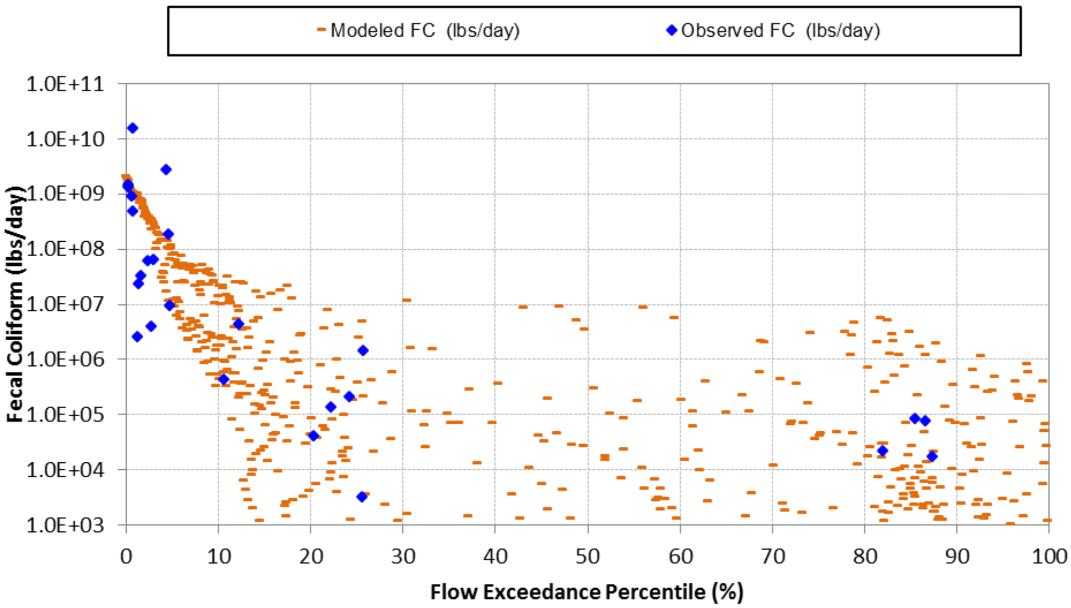

Figure 31. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

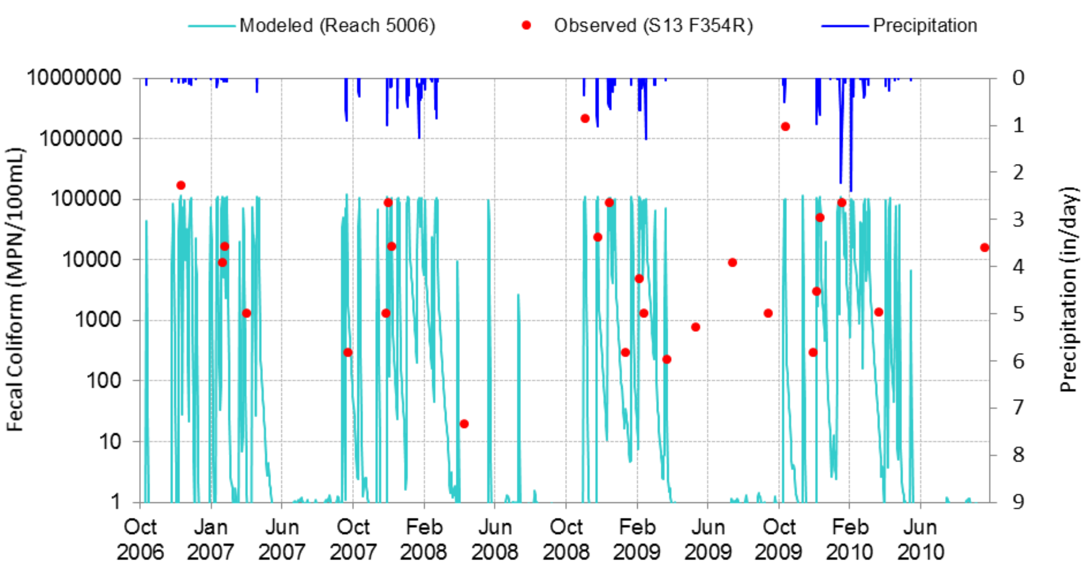

Figure 32. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

2. Lower Los Angeles River

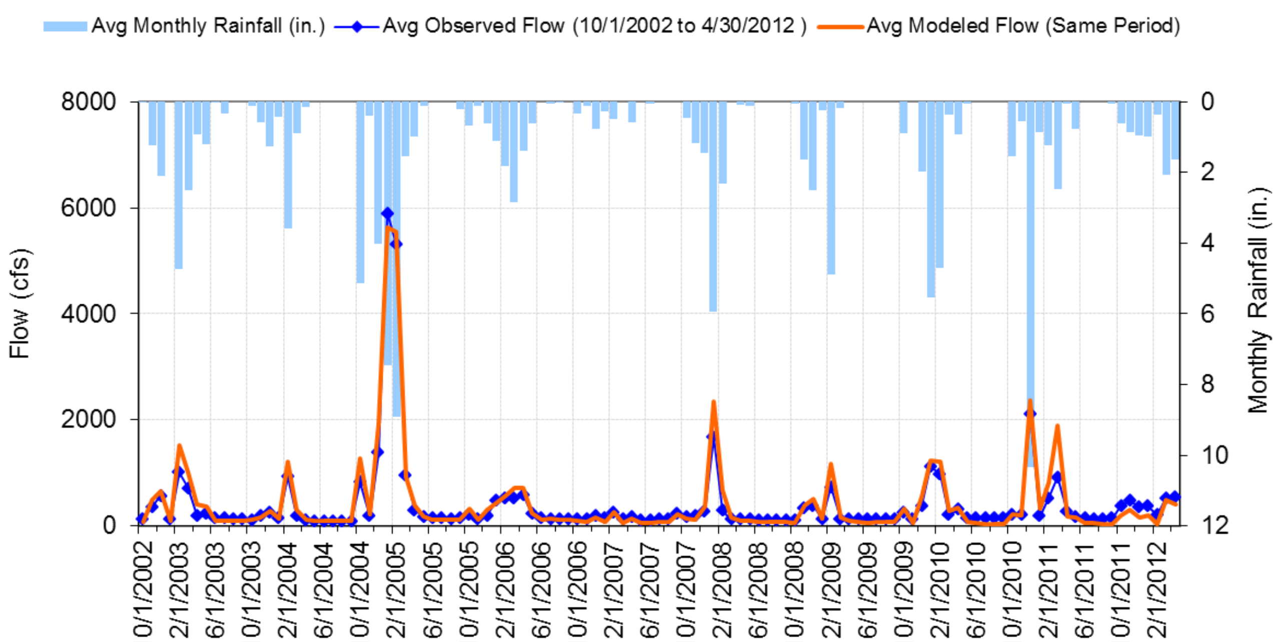

Figure 33. Monthly hydrograph for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

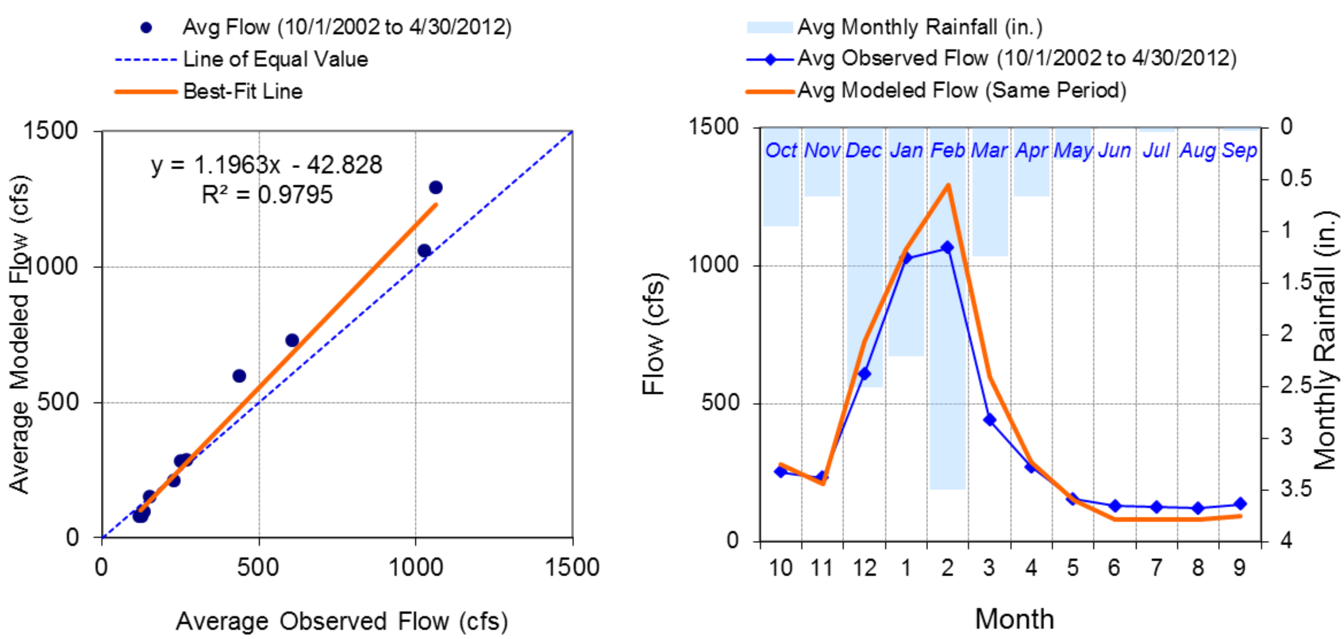

Figure 34. Aggregated monthly hydrograph for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

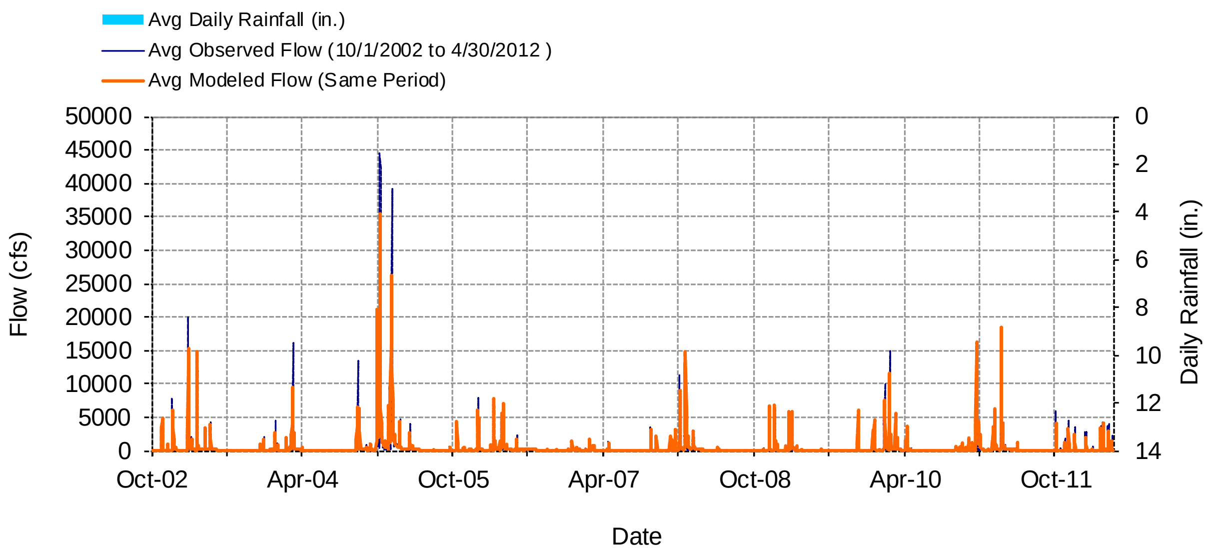

Figure 35. Mean daily flow for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

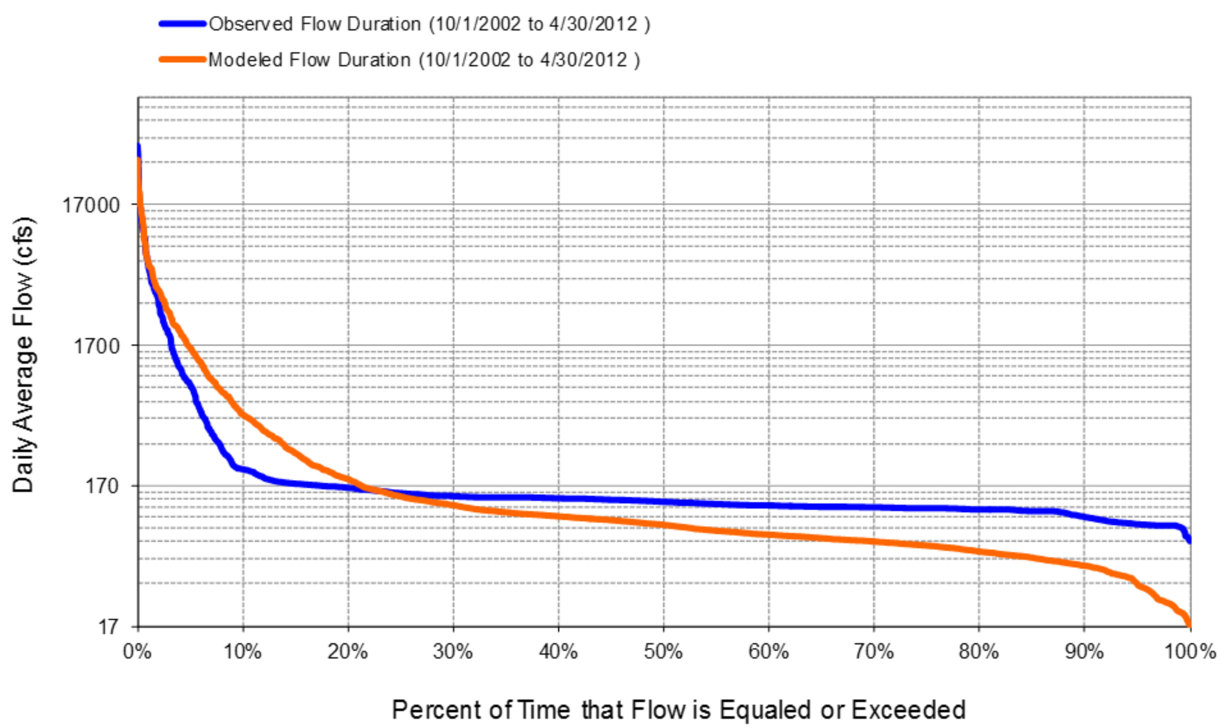

Figure 36. Daily flow exceedance for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

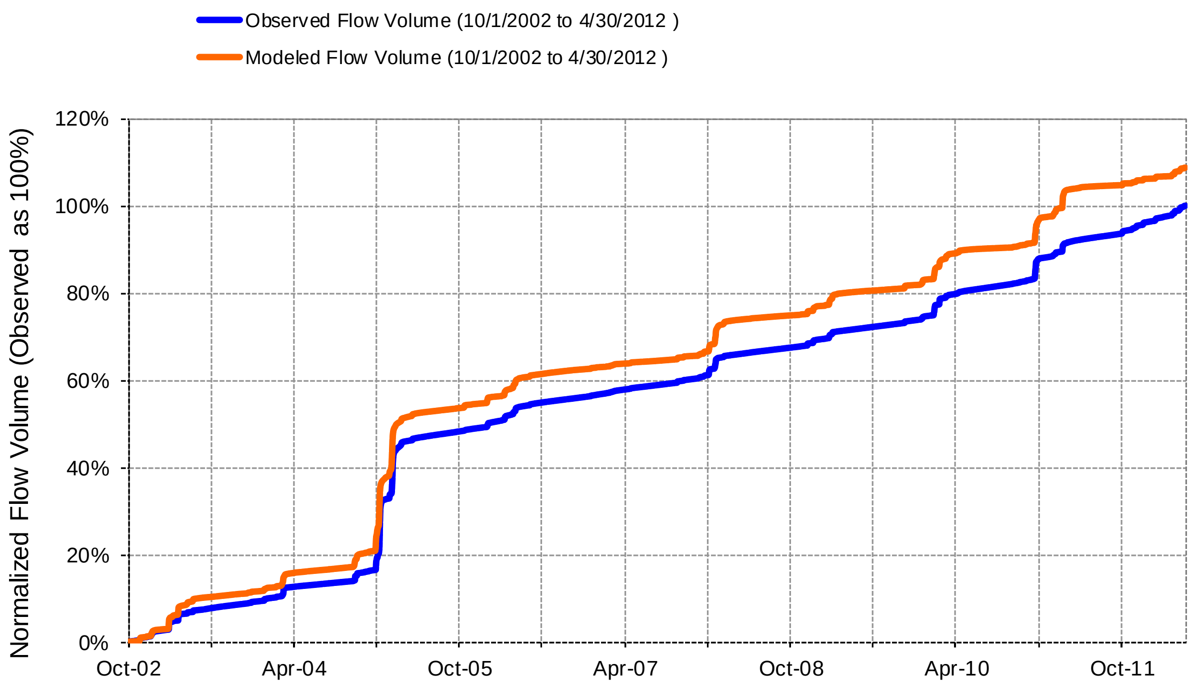

Figure 37. Flow accumulation for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

Table 2. Summary of water quality data evaluated for the Lower Los Angeles River

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
S10	Total Copper (ug/l)	0.5	12.975	25.8	49.55	424
S10	Total Lead (ug/l)	0.2	2.45	15.6	35.775	1070
S10	TSS (mg/L)	1	63	142.5	295	2280
S10	Total Zinc (ug/l)	22.3	63.85	124	261.75	2590
S10	Fecal Coliform (MPN/100mL)	20	500	24000	240000	24000000
S10	Total Nitrogen (mg/l)	0.03	0.60245	1.064	1.725	6.75
S10	Total Phosphorous (mg/l)	0.05	0.24	0.3785	0.538	8.24

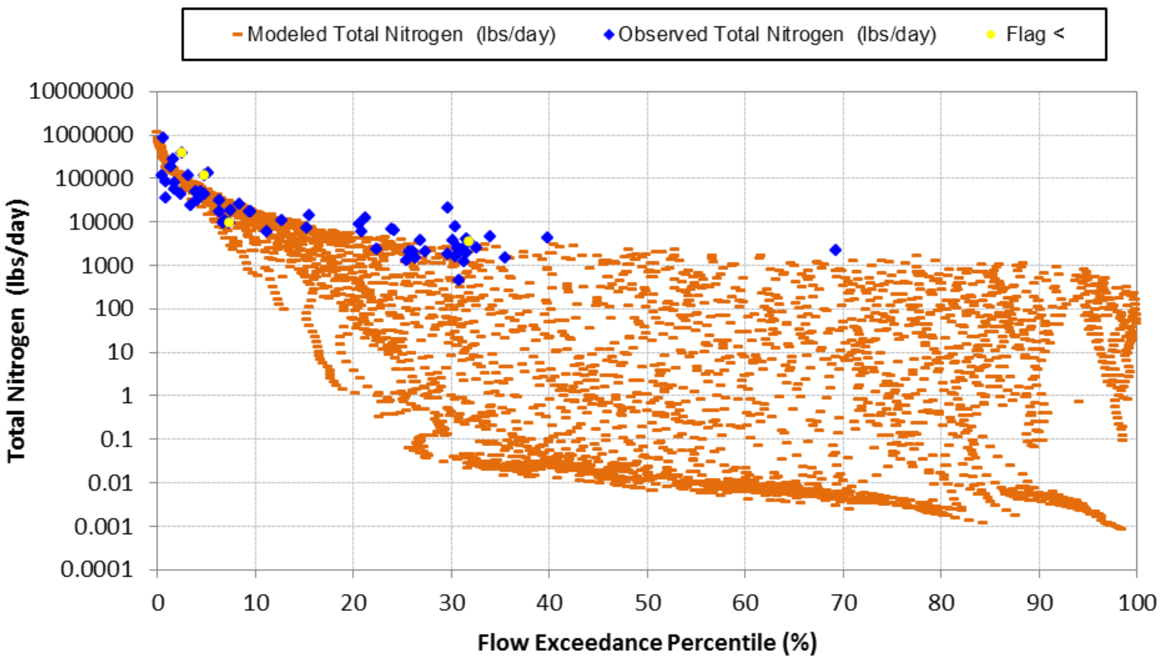

Figure 38. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

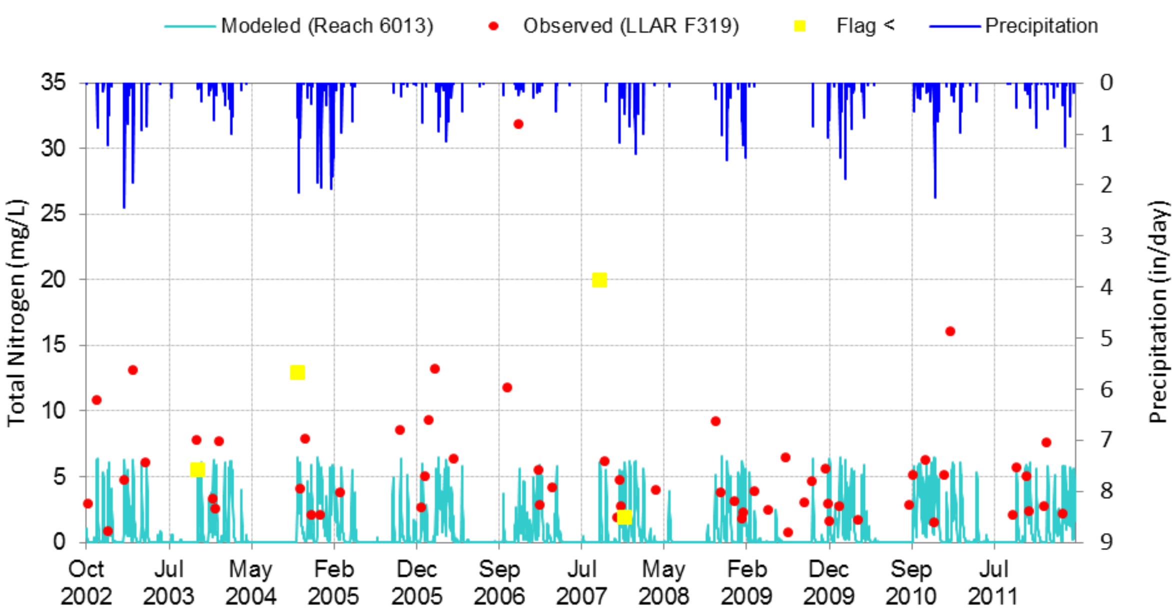

Figure 39. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

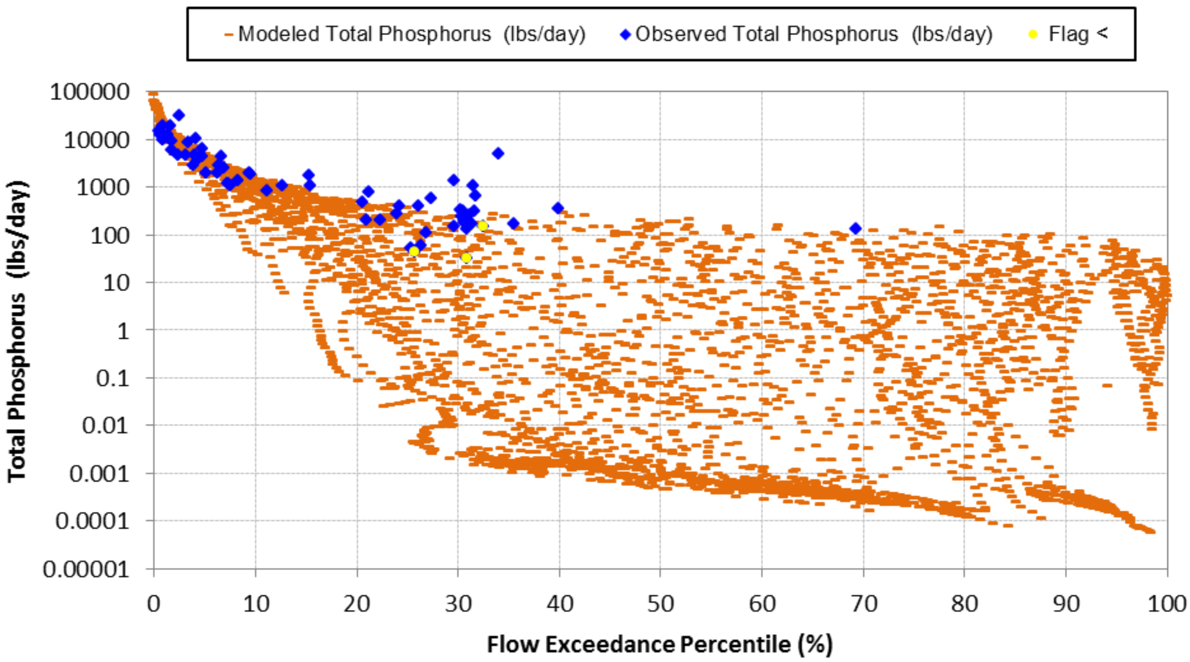

Figure 40. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

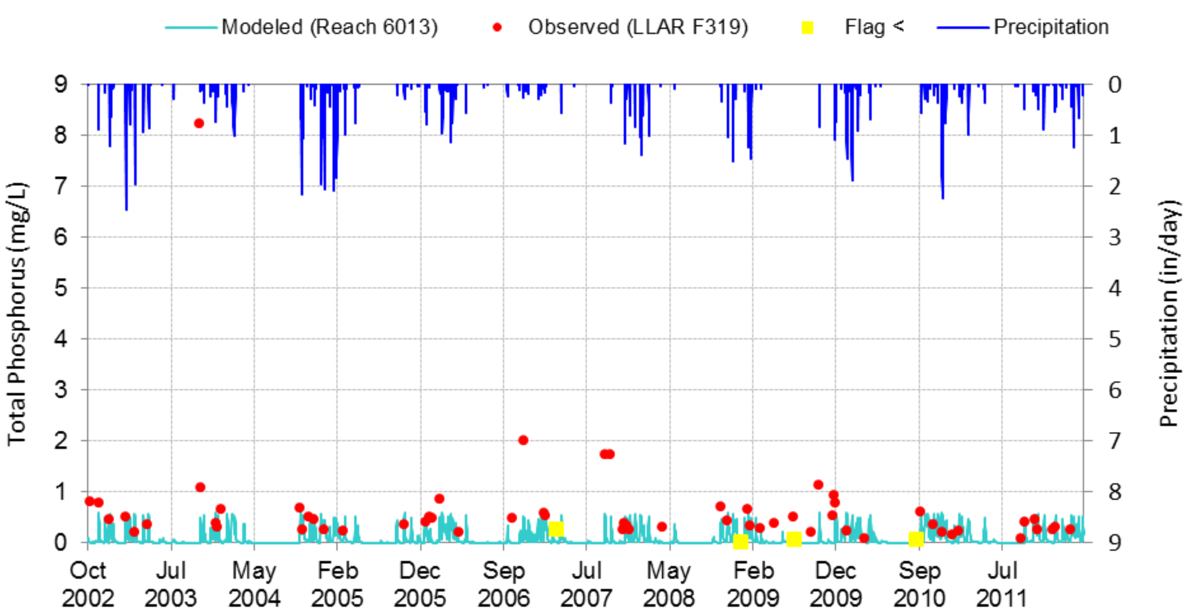

Figure 41. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

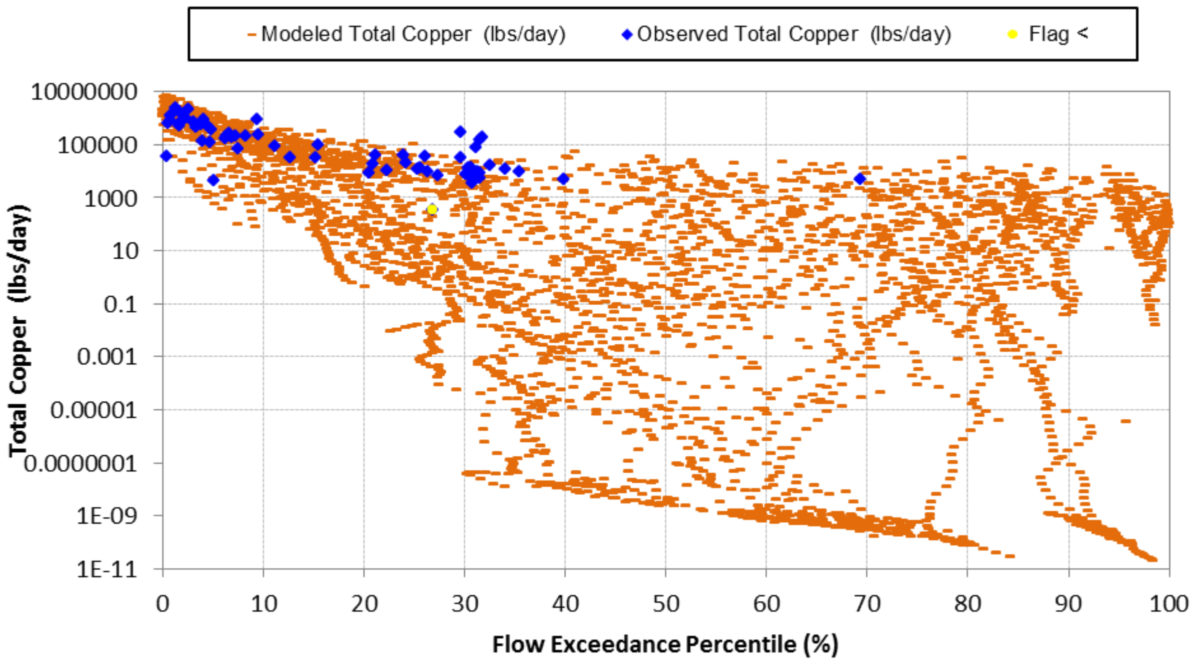

Figure 42. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

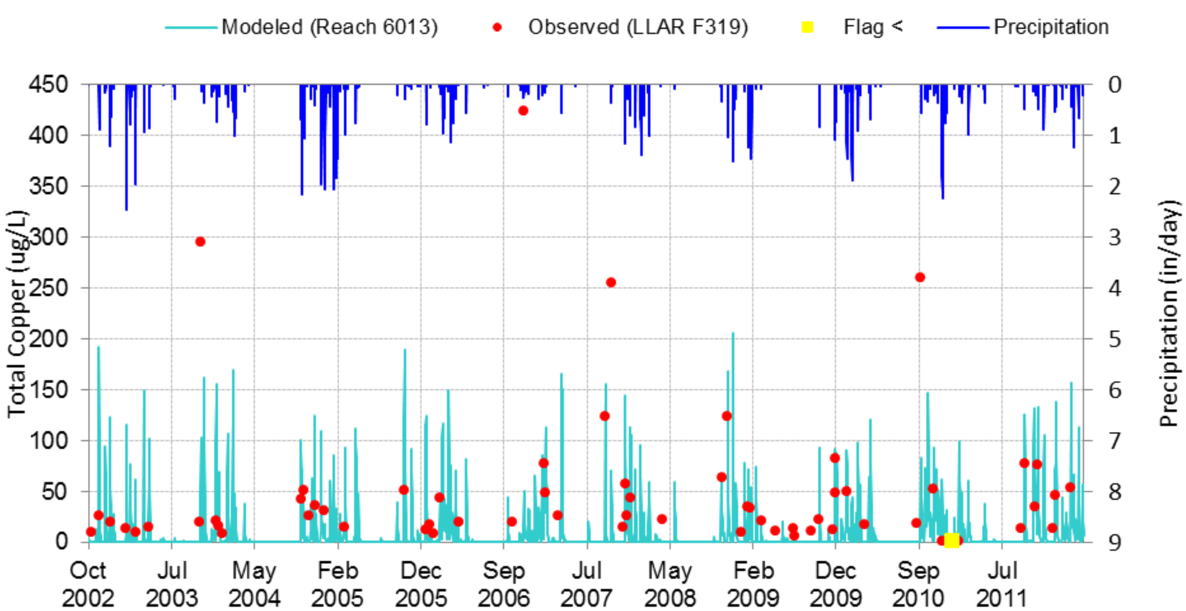

Figure 43. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

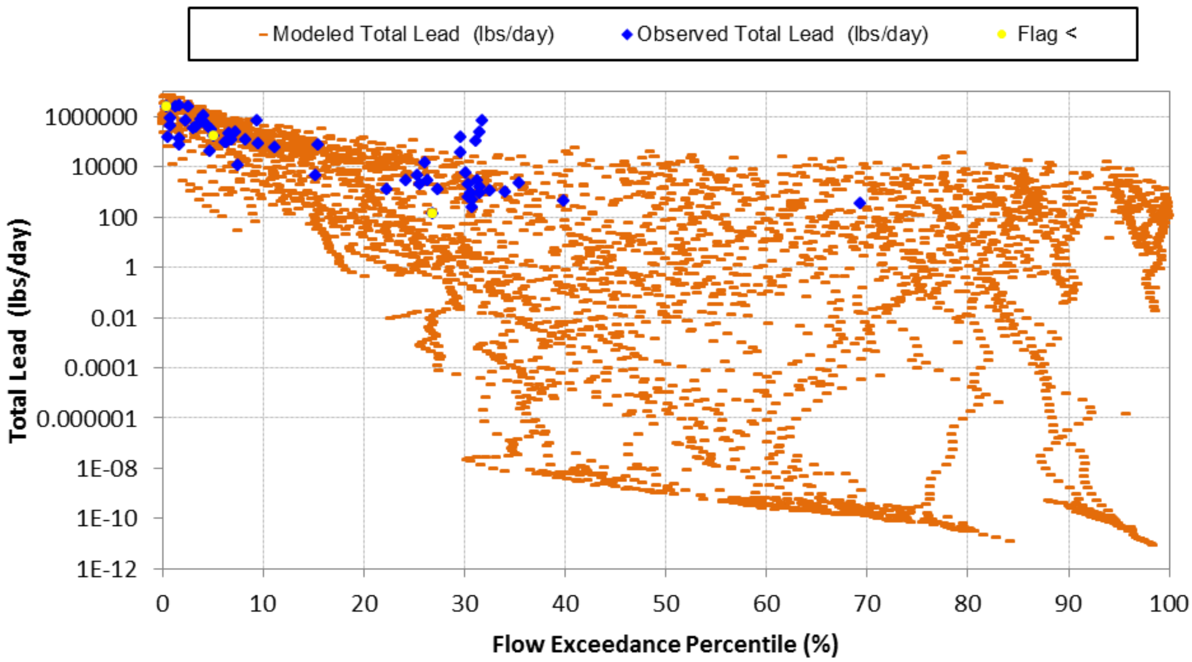

Figure 44. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

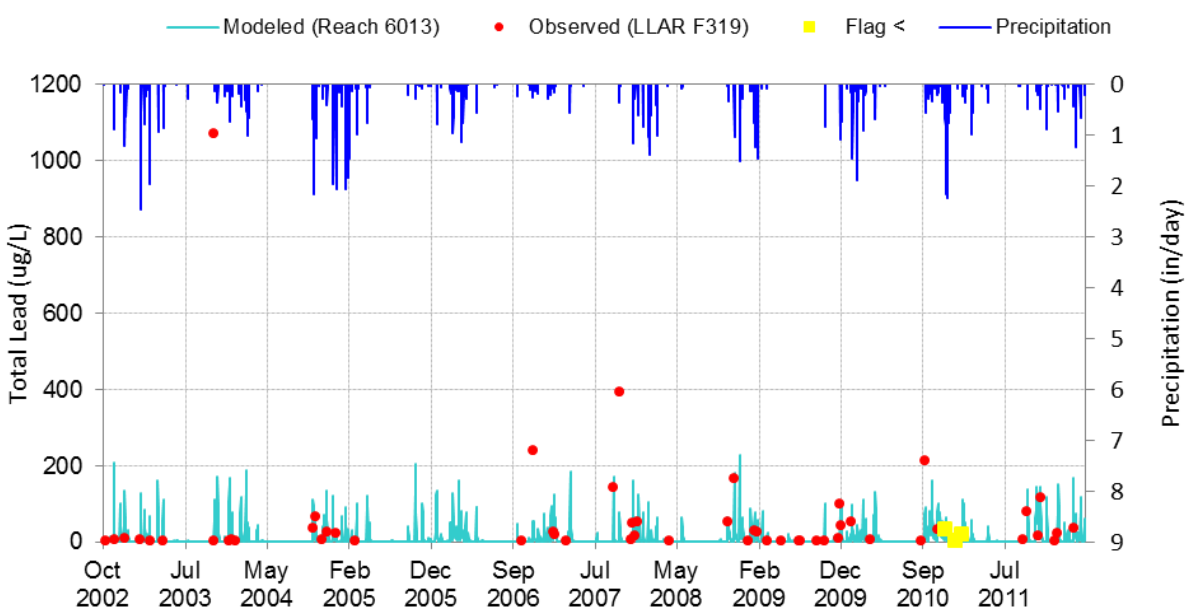

Figure 45. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

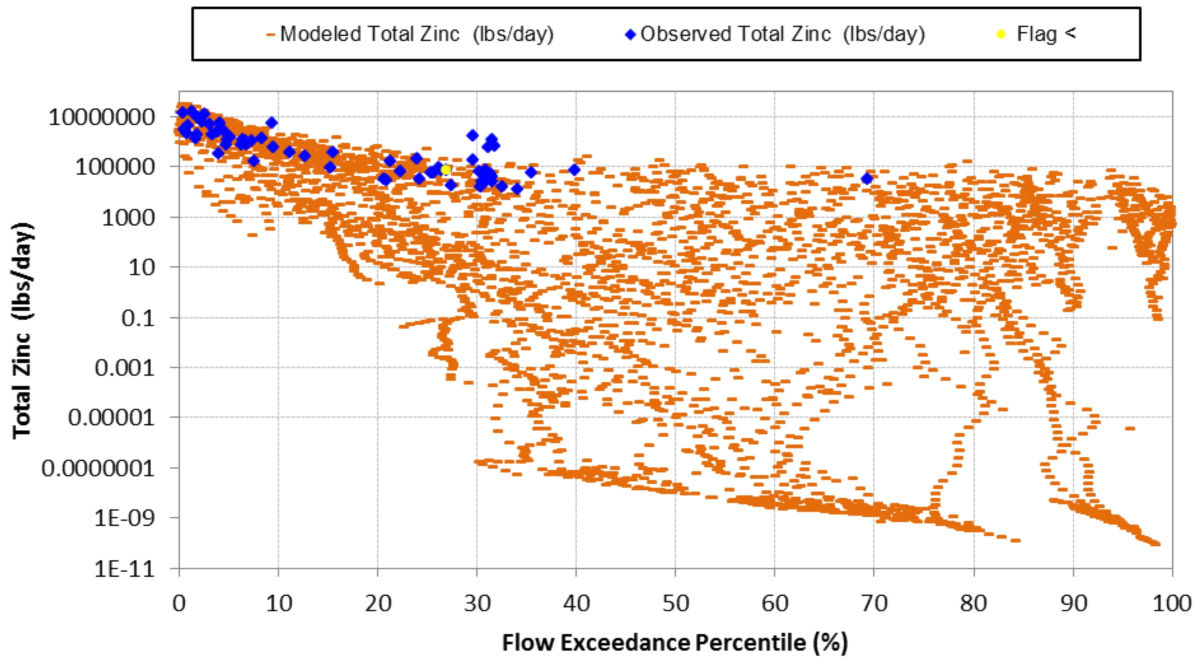

Figure 46. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

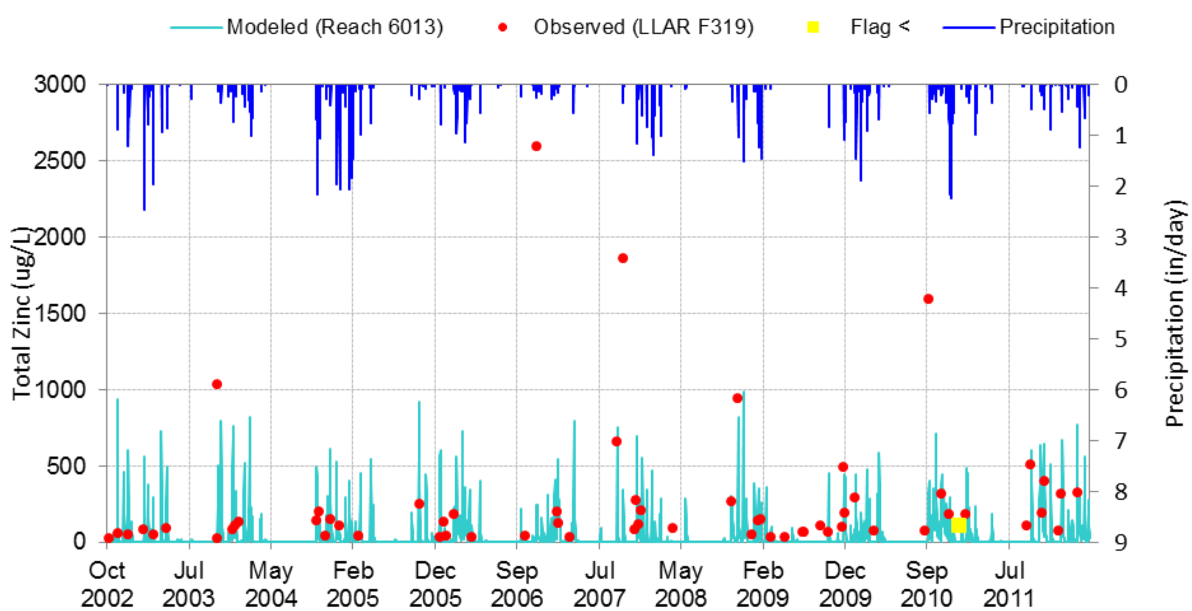

Figure 47. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

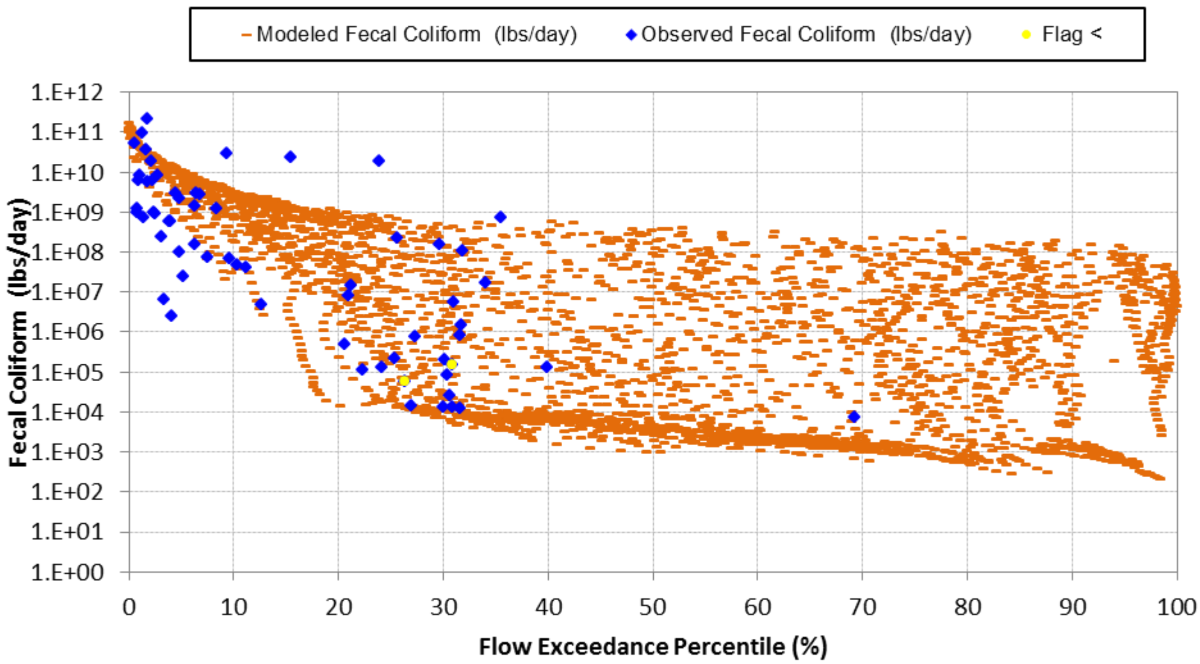

Figure 48. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

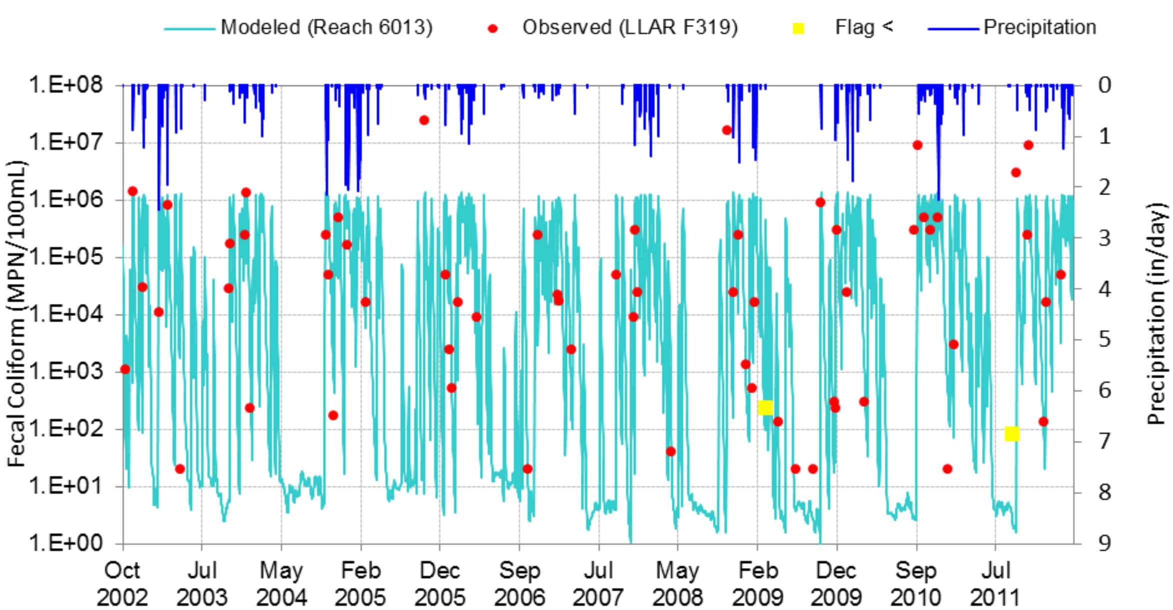

Figure 49. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

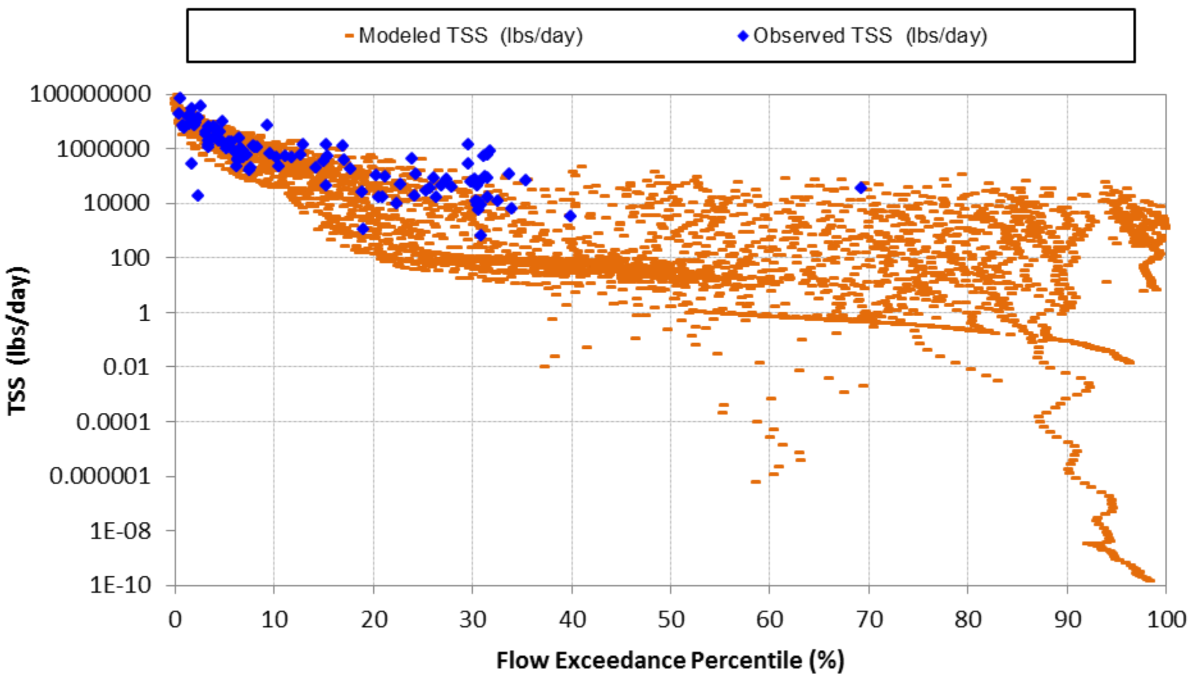

Figure 50. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

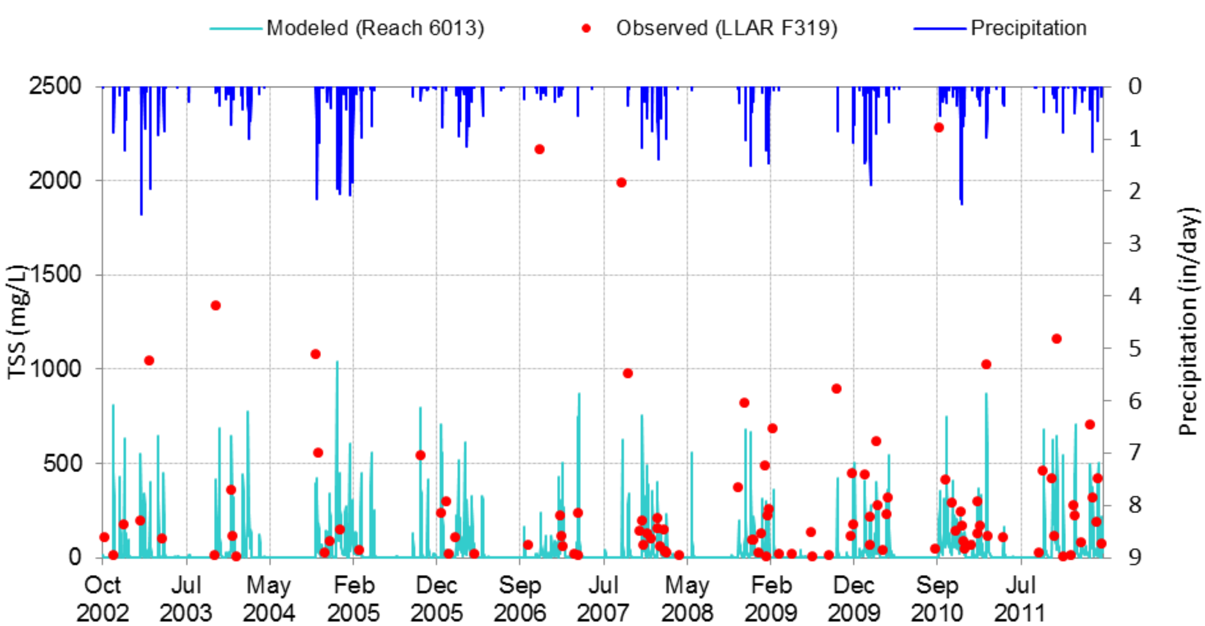

Figure 51. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

3. Los Cerritos Channel

Table 3. Summary of water quality data evaluated for Los Cerritos Channel

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
Stearns St.	Total Copper (ug/l)	8.4	17.25	25	43.5	240
Stearns St.	Total Lead (ug/l)	0.78	3.025	17	41.75	370
Stearns St.	TSS (mg/L)	2	52.5	110	210	1700
Stearns St.	Total Zinc (ug/l)	9.5	33	180	390	2600
Stearns St.	Fecal Coliform (MPN/100mL)	18	2275	8000	28500	1600000
Stearns St.	Total Nitrogen (mg/l)	0.9	2.147	3.292	4.532	23.7
Stearns St.	Total Phosphorous (mg/l)	0.083	0.22	0.53	0.91	6.2

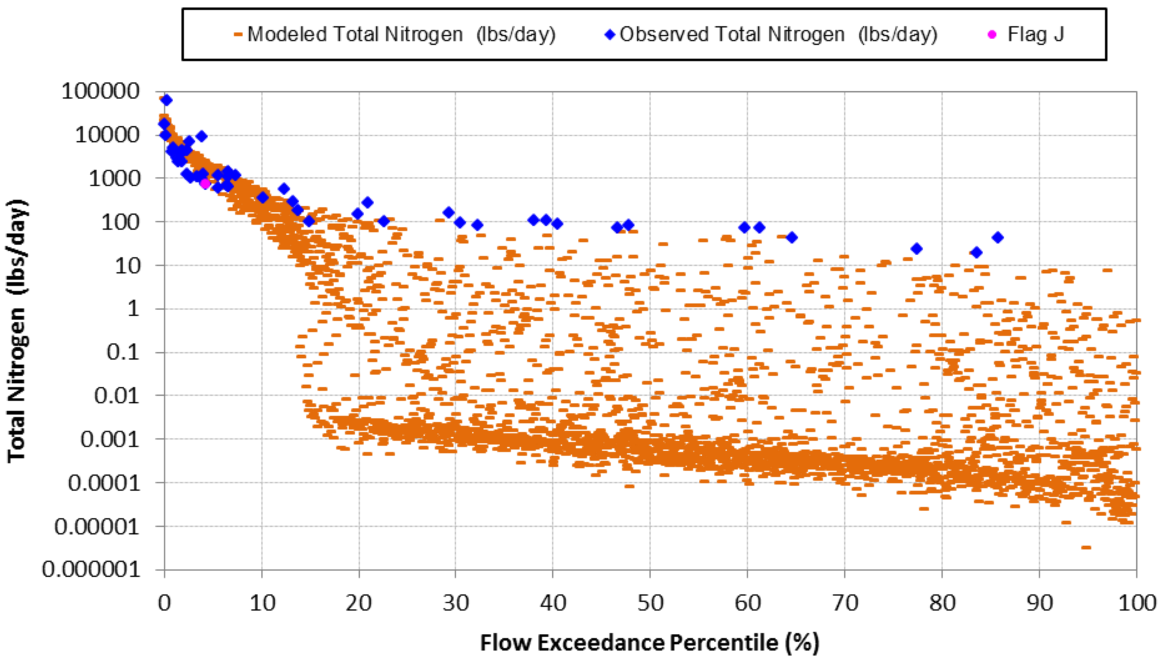

Figure 52. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

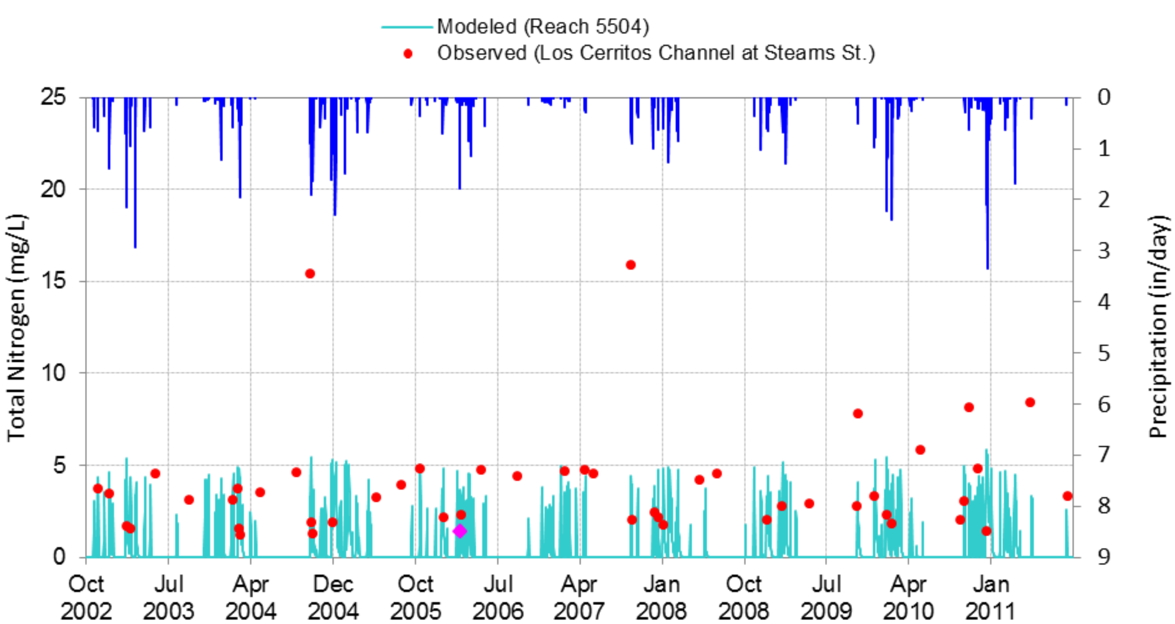

Figure 53. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

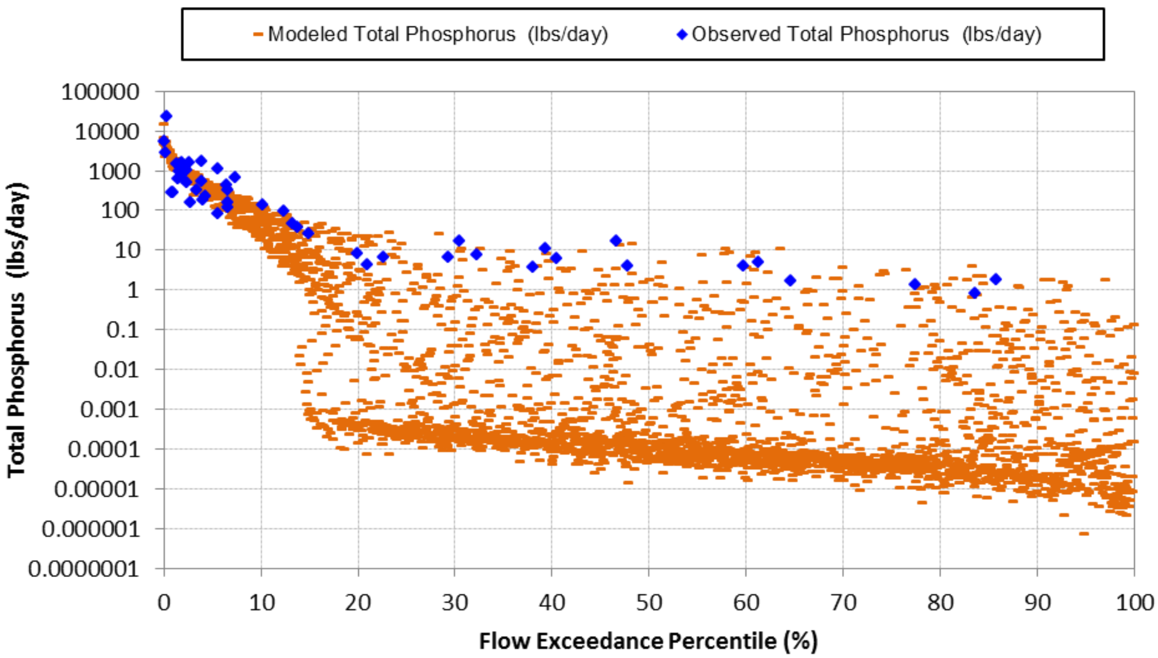

Figure 54. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

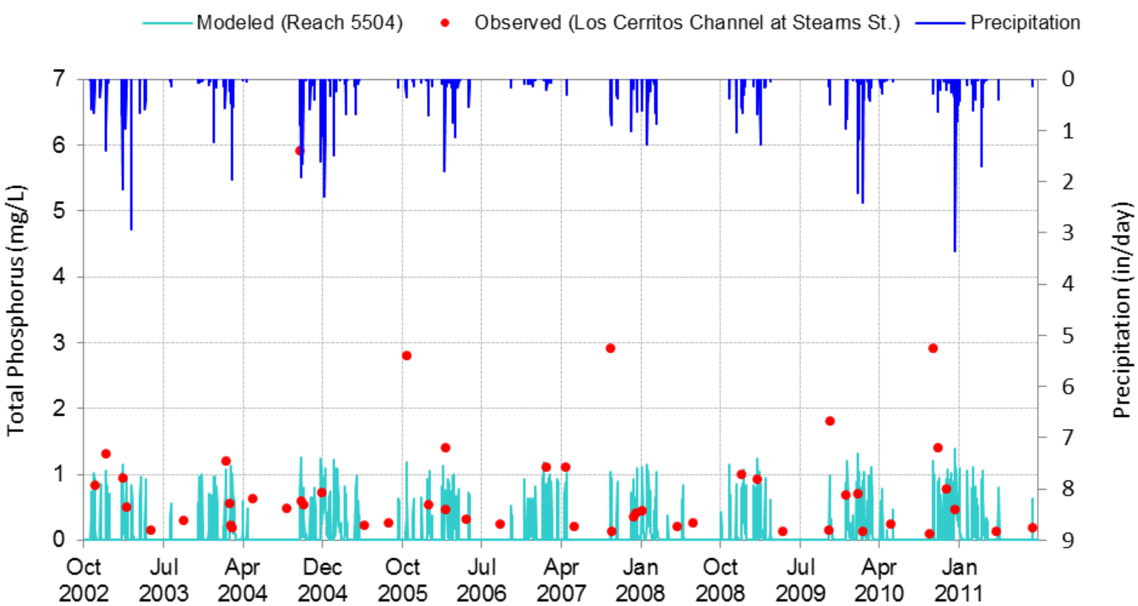

Figure 55. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

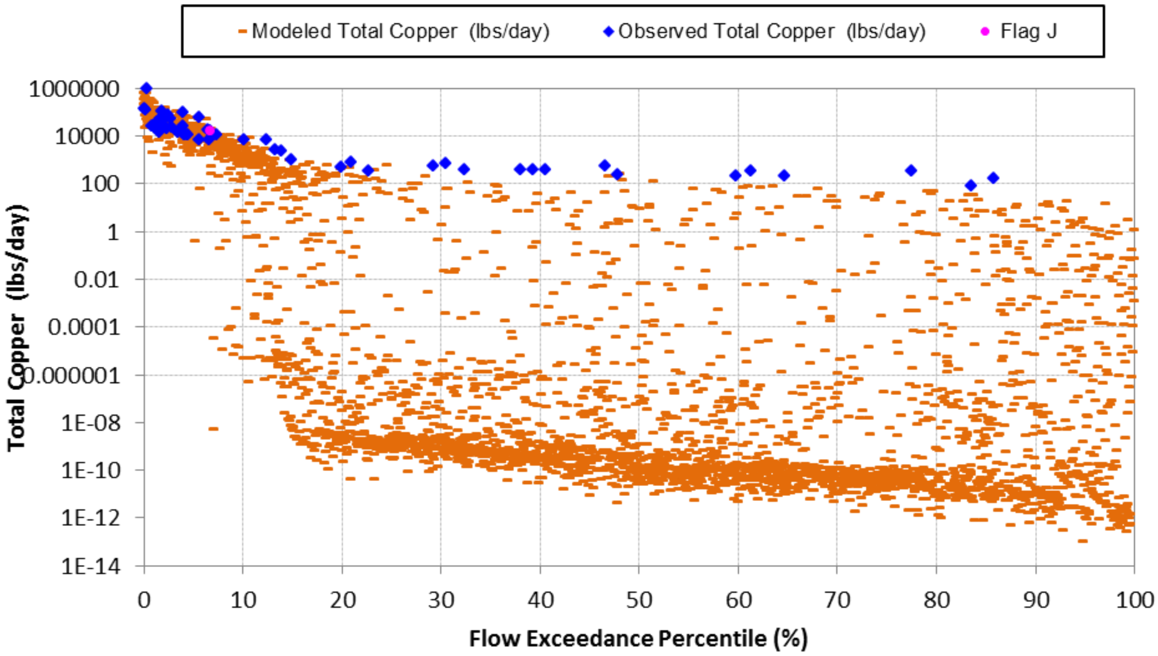

Figure 56. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

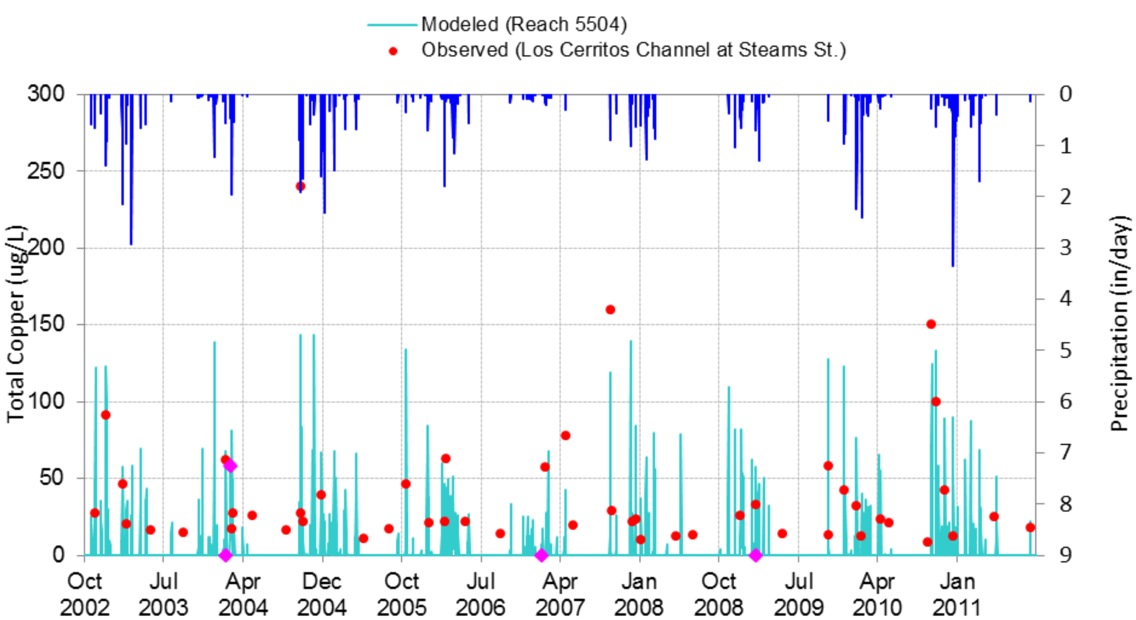

Figure 57. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

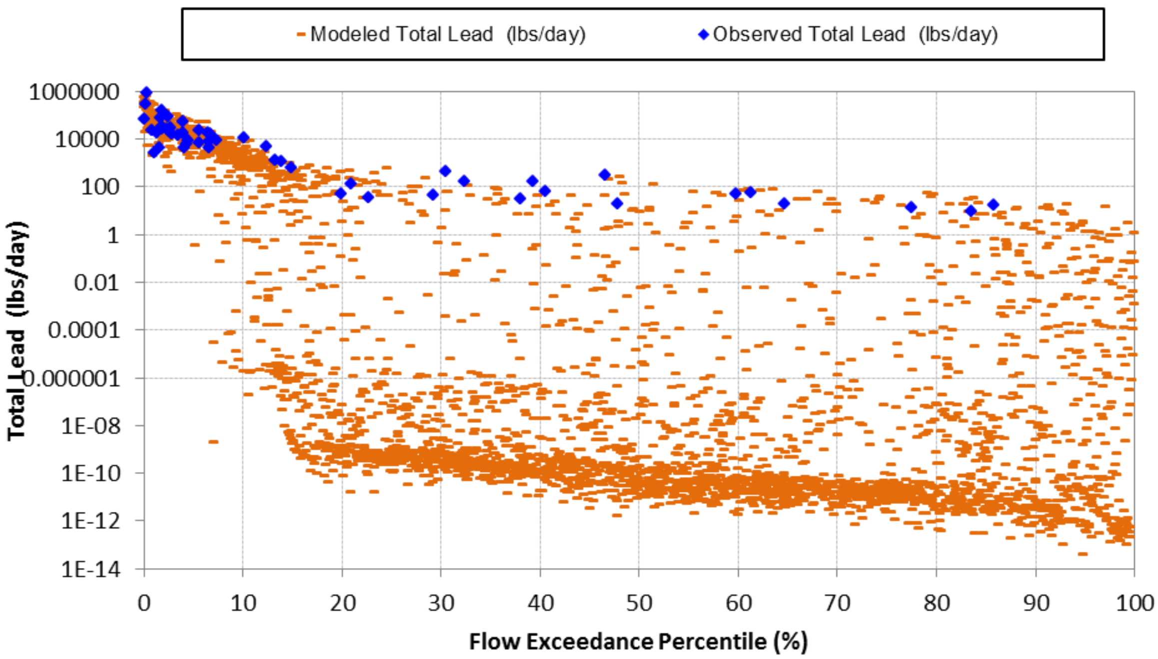

Figure 58. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

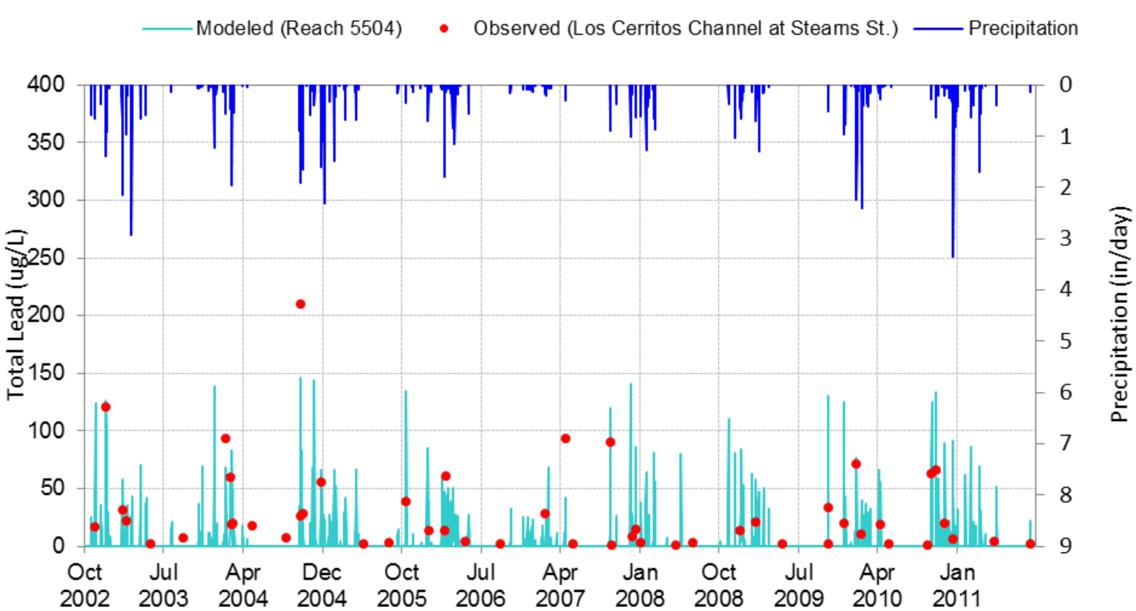

Figure 59. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

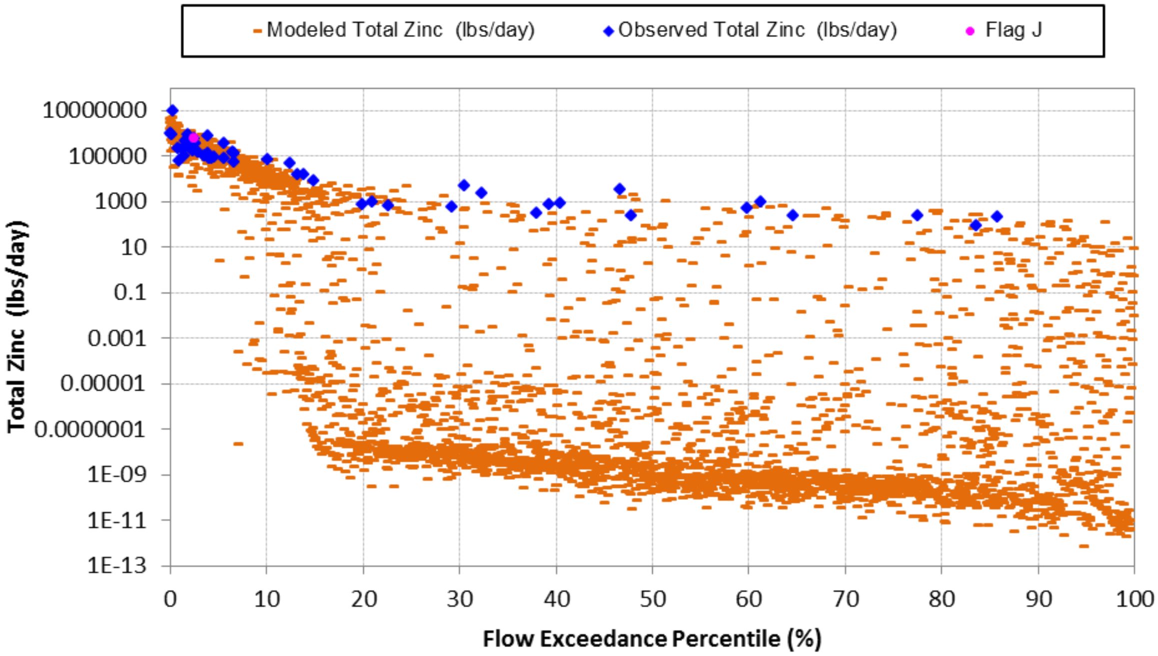

Figure 60. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

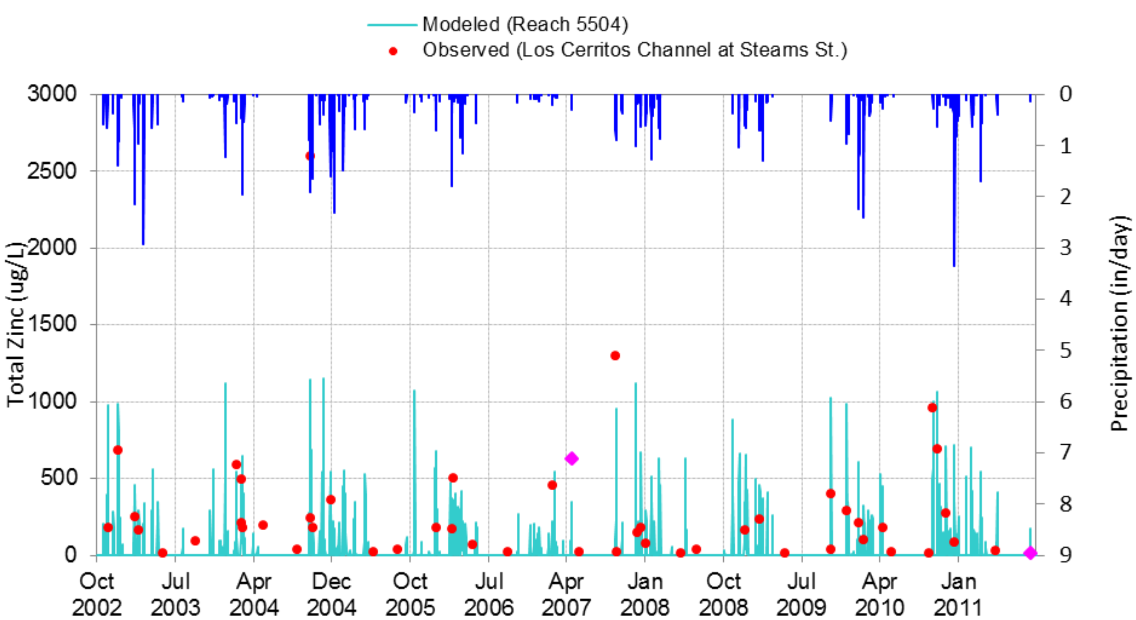

Figure 61. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

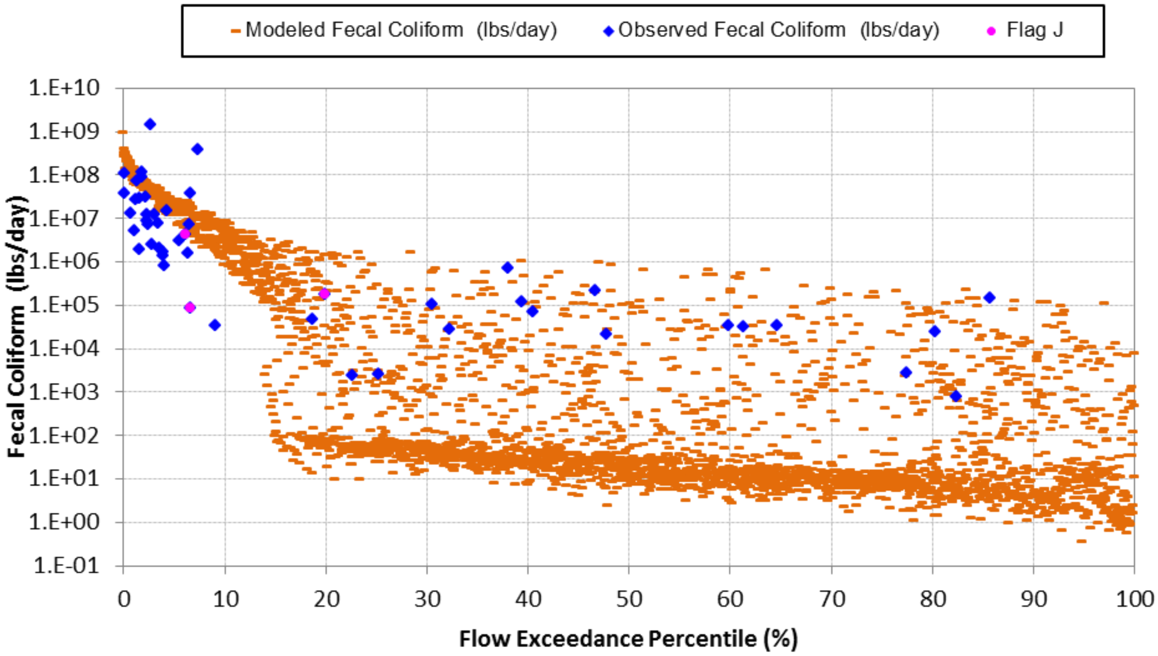

Figure 62. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

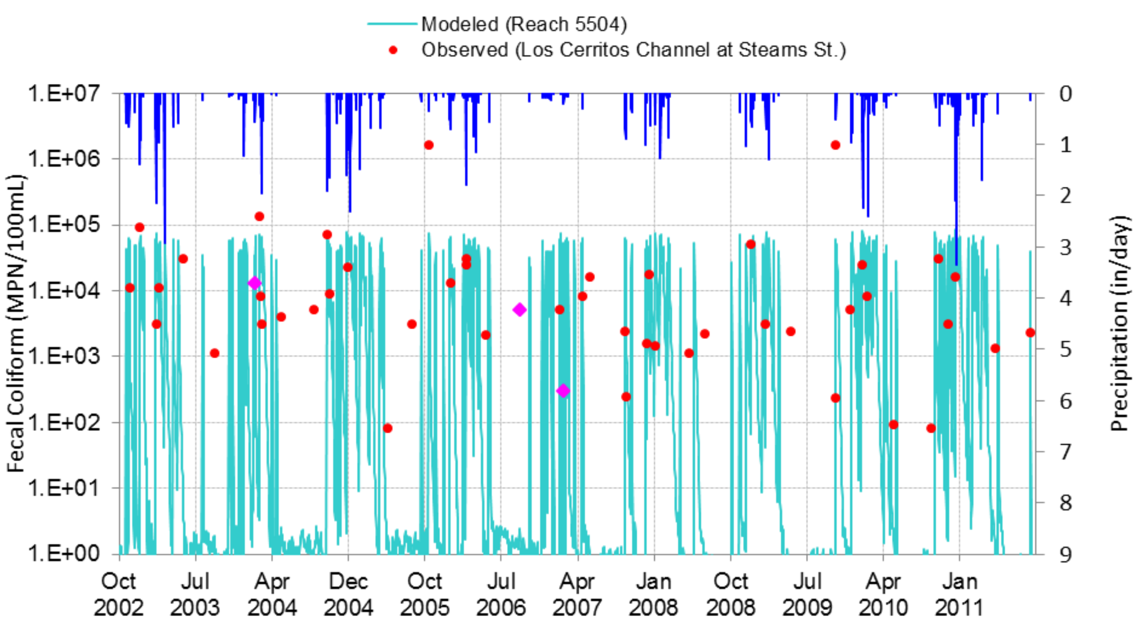

Figure 63. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

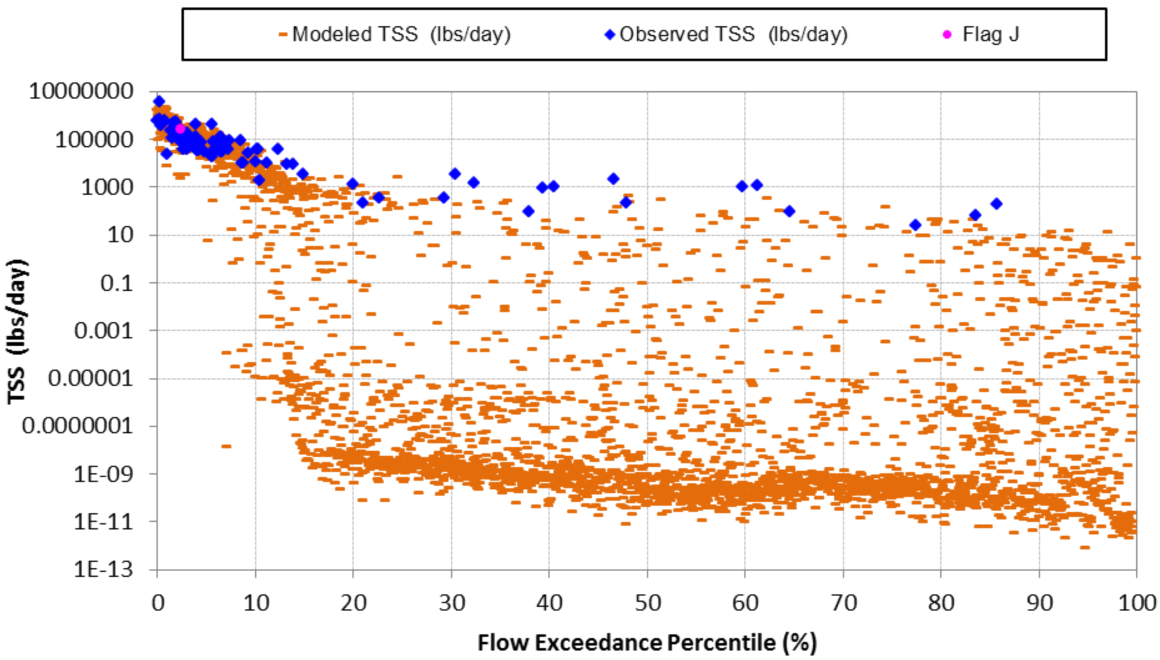

Figure 64. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

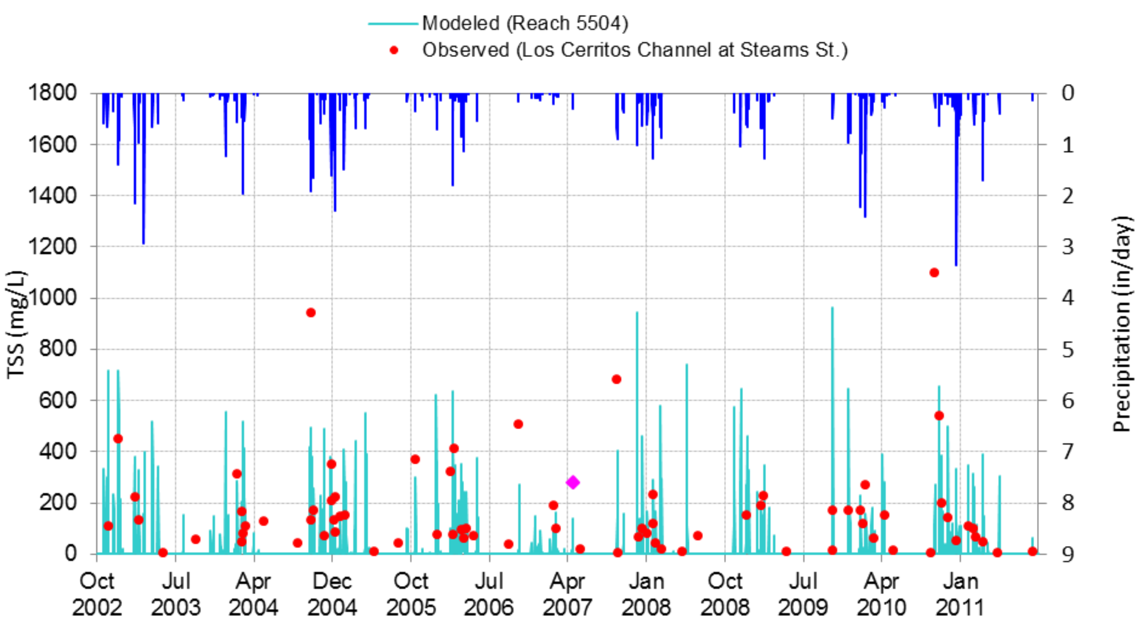

Figure 65. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

Attachment F: Modeled Existing Versus Allowable Pollutant Loadings Plots

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

Tetra Tech
9444 Balboa Ave., Suite 215
San Diego, CA 92123

January 15, 2015

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1. Lower San Gabriel River

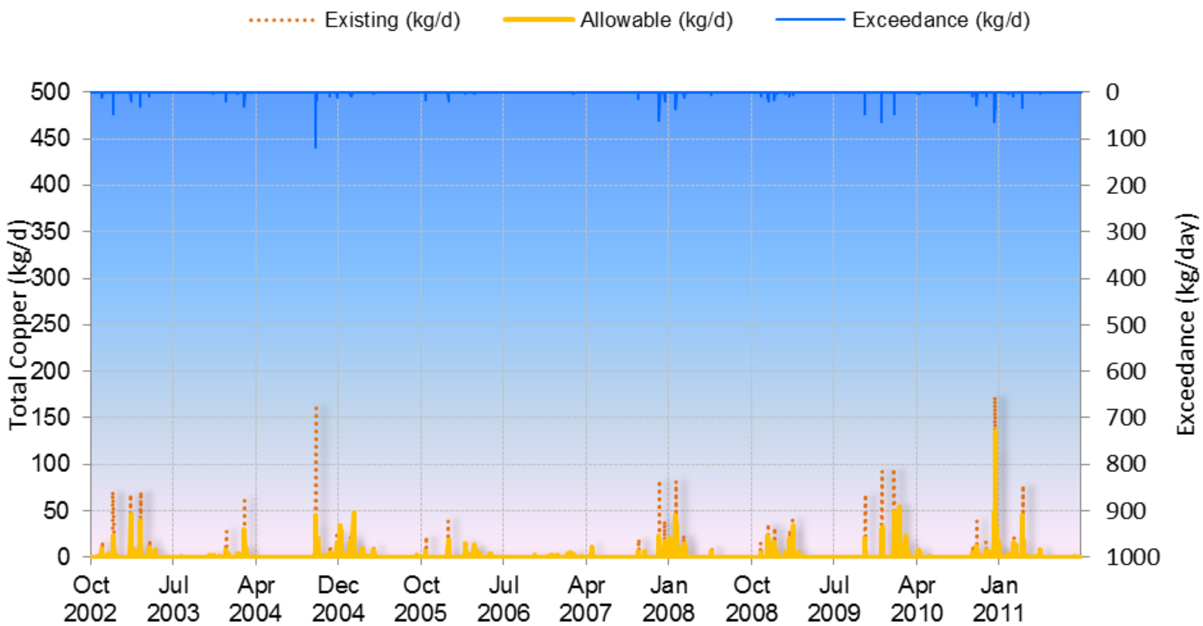

Figure 1. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

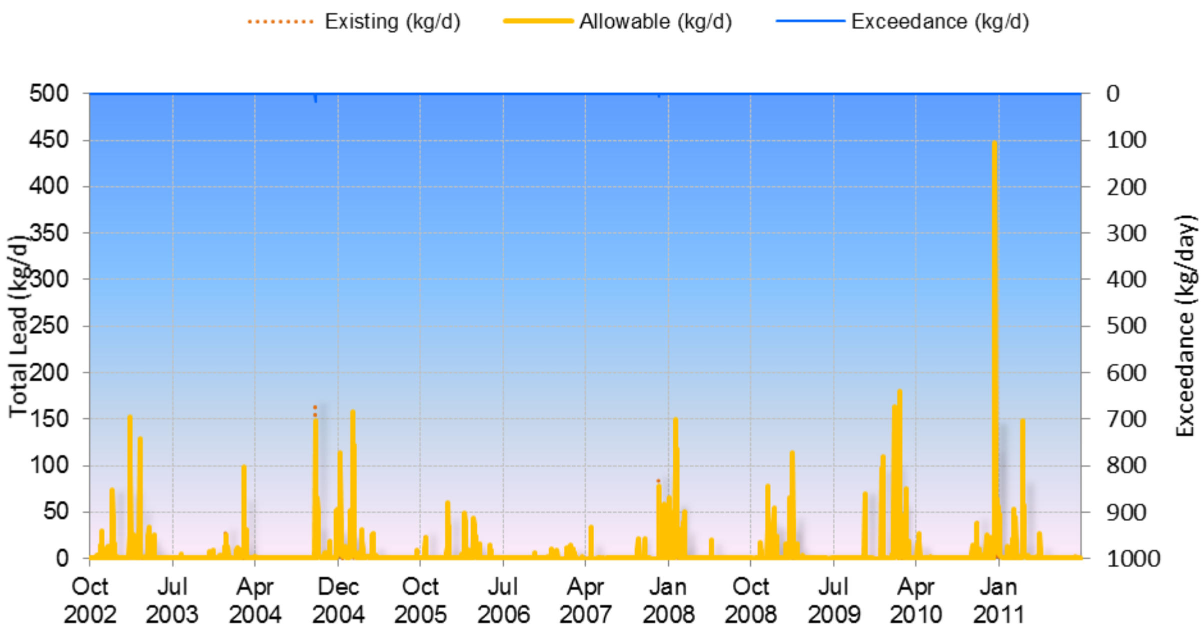

Figure 2. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

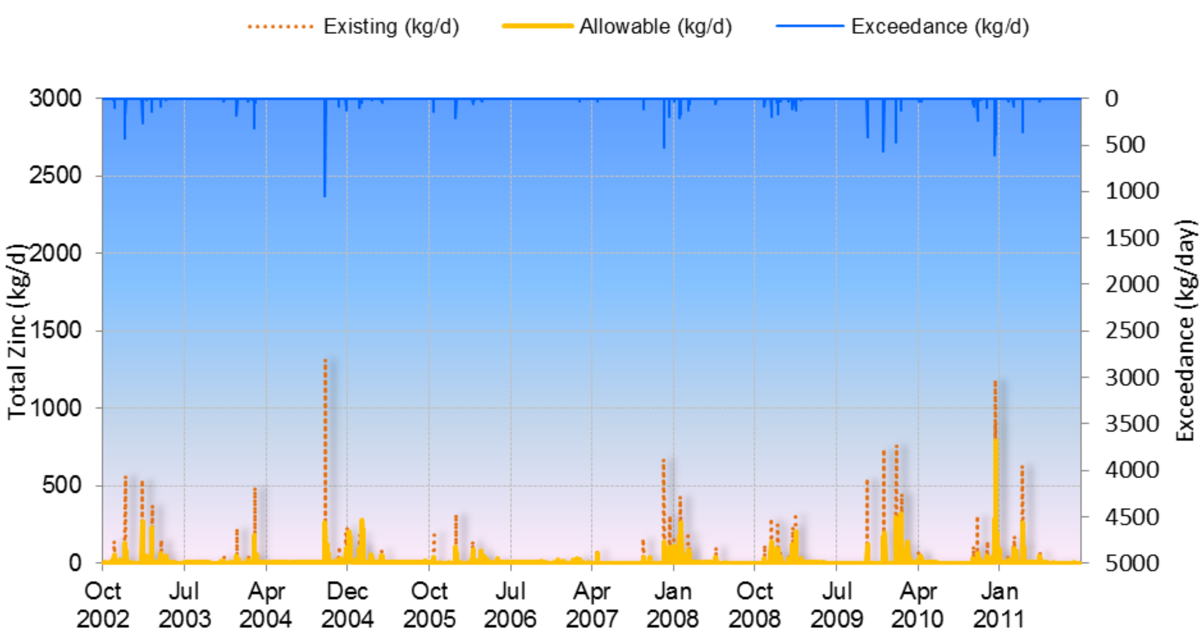

Figure 3. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

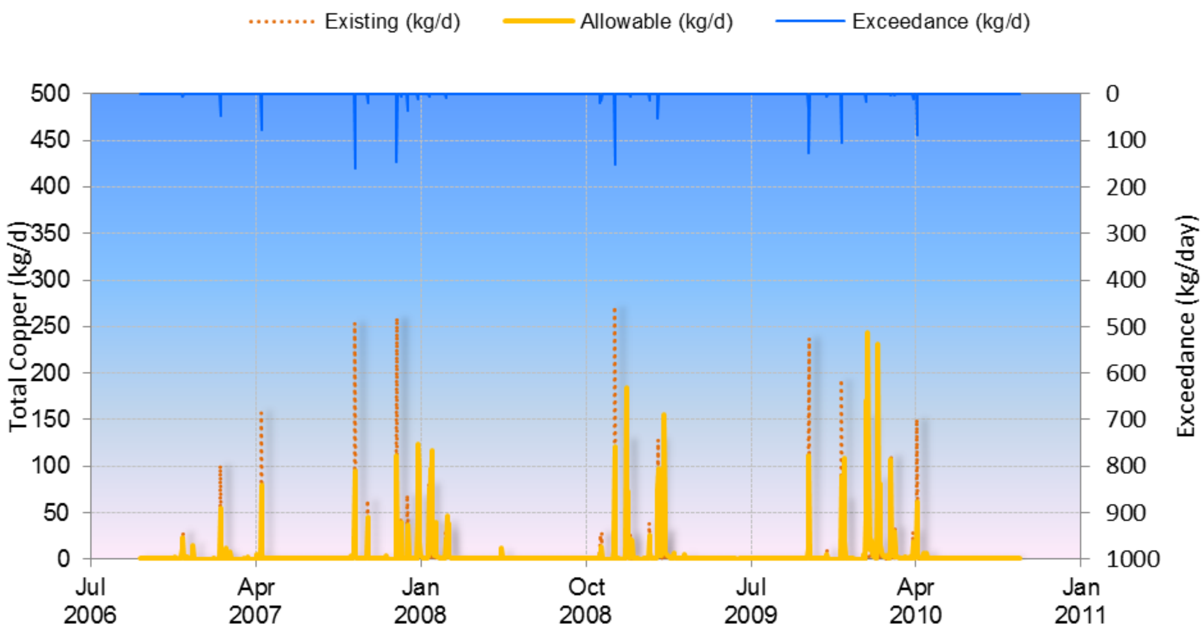

Figure 4. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2006 through 9/30/2011) at Coyote Creek mass emission station S13.

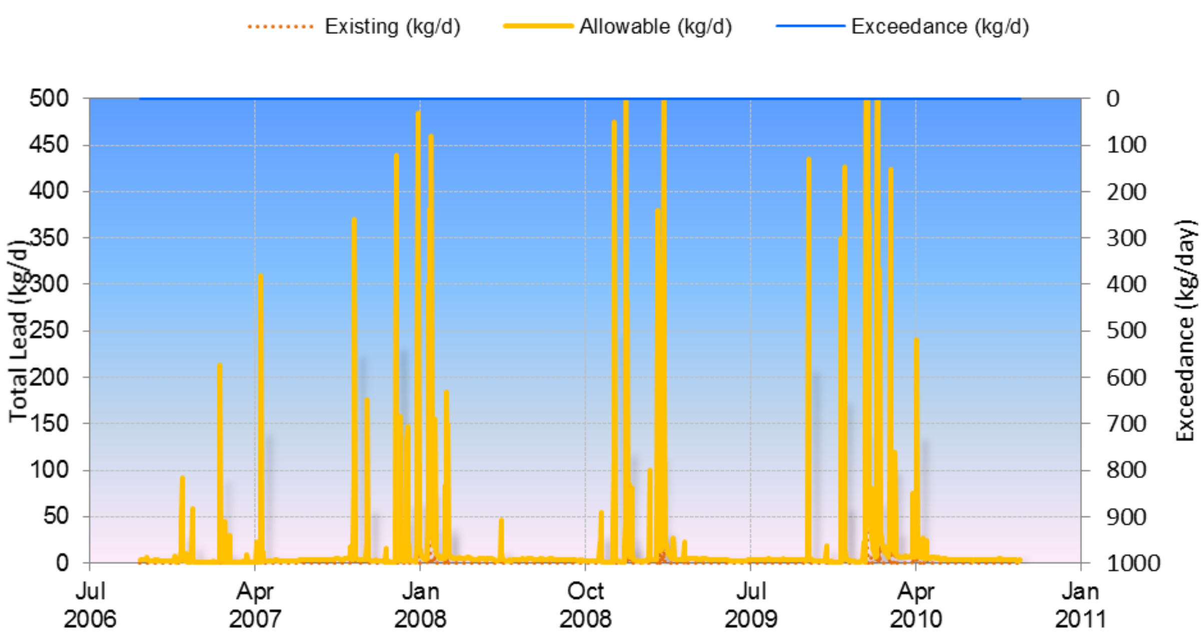

Figure 5. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2006 through 9/30/2011) at Coyote Creek mass emission station S13.

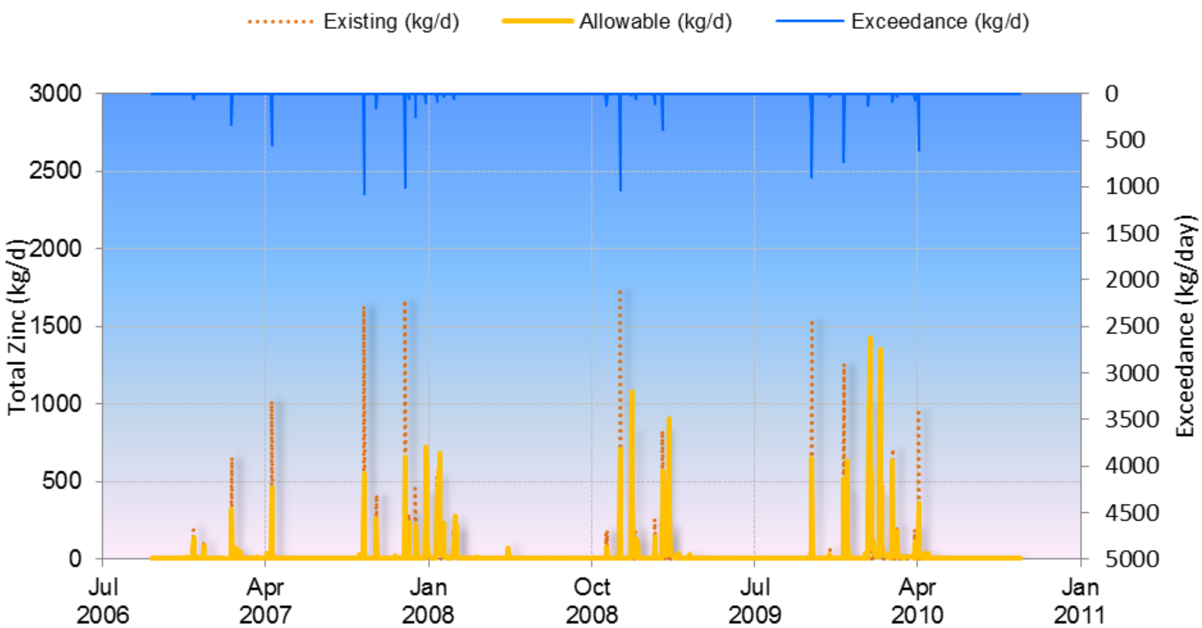

Figure 6. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2006 through 9/30/2011) at Coyote Creek mass emission station S13.

2. Lower Los Angeles River

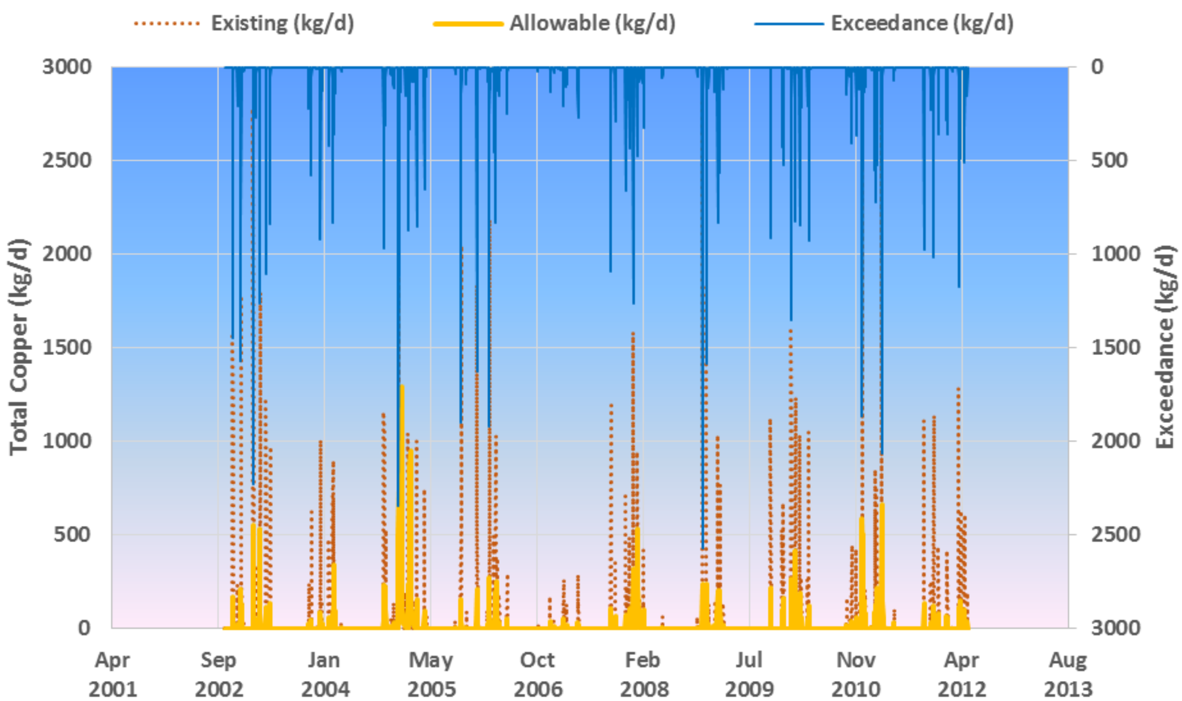

Figure 7. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

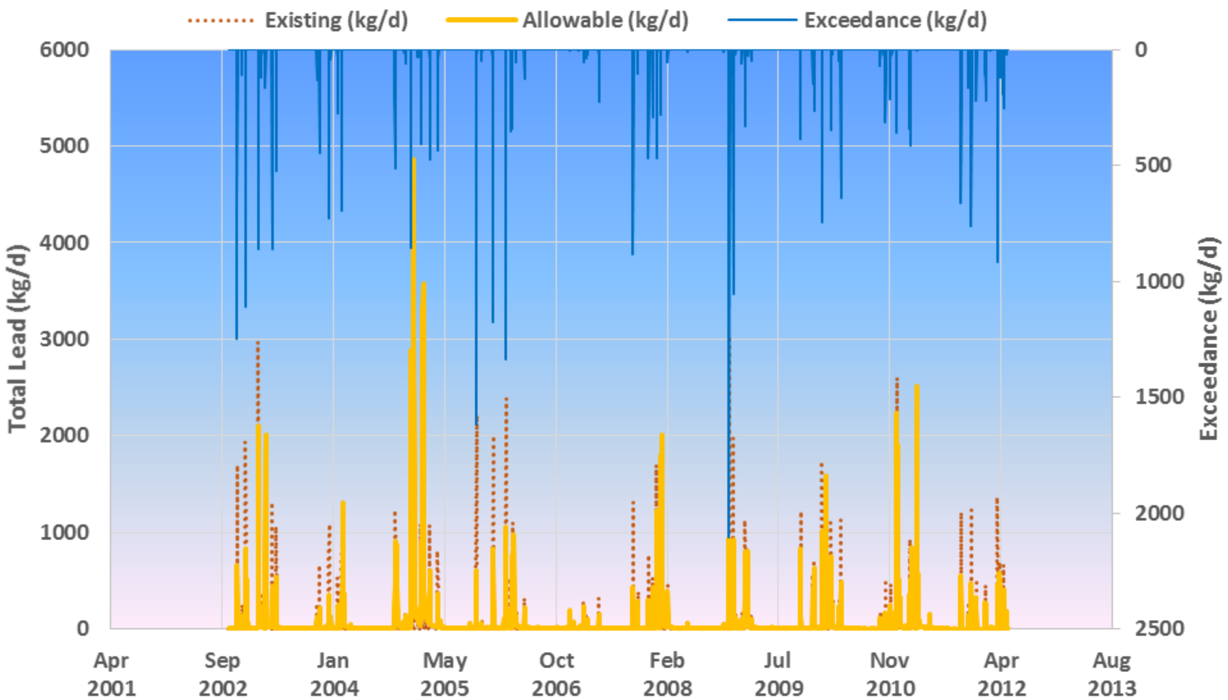

Figure 8. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

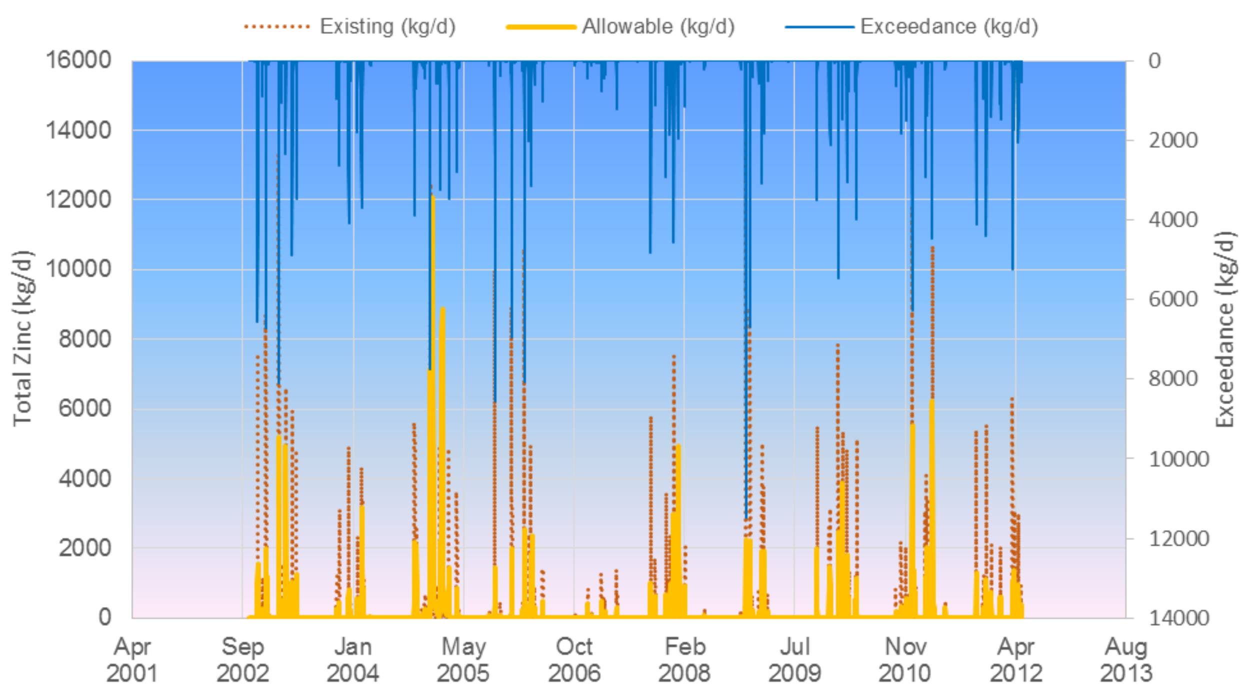

Figure 9. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

3. Los Cerritos Channel

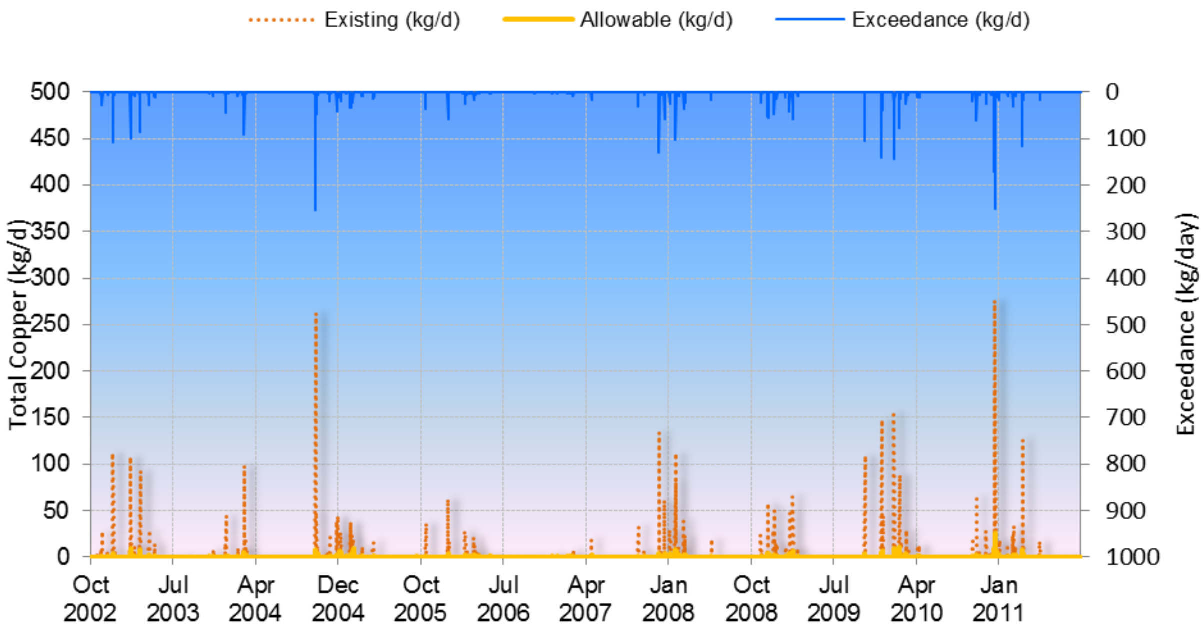

Figure 10. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel City of Long Beach Stearns Street monitoring station.

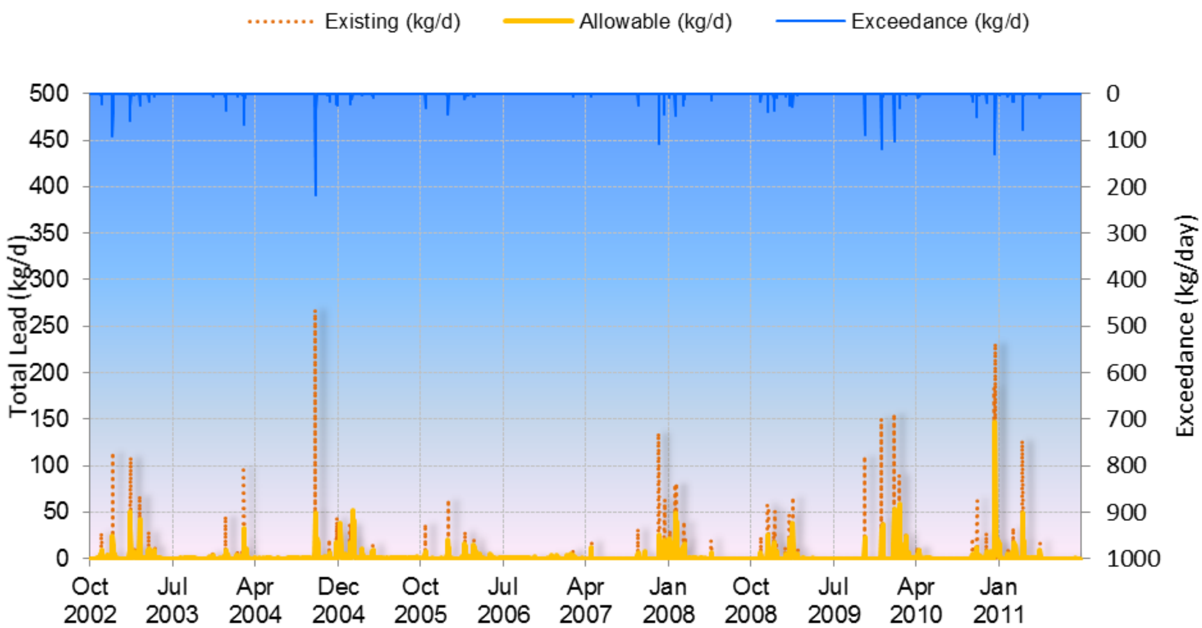

Figure 11. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel City of Long Beach Stearns Street monitoring station.

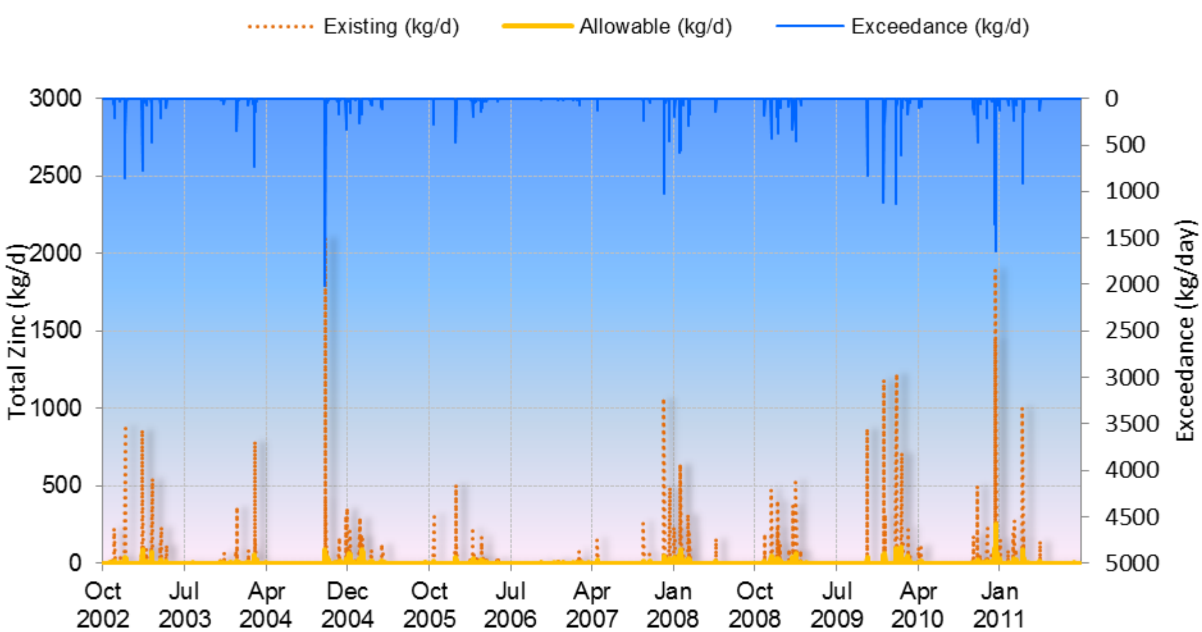

Figure 12. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel City of Long Beach Stearns Street monitoring station.

Watershed Management Program Appendix 7

A-7-1 Legal Authority Letters

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Telephone 213.626.8484 Facsimile 213.626.0078

December 9, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of Artesia to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of Artesia (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Title 6, Chapter 7 of the Artesia Municipal Code ("AMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (AMC § 6-7.09--Requirements for industrial/commercial and construction activities);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (AMC § 6-7.06--Prohibited activities; AMC § 6-7.08--Good housekeeping provisions);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (AMC § 6-7.06--Prohibited activities);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (AMC § 6-7.06--Prohibited activities; AMC § 6-7.08--Good housekeeping provisions; AMC § 6-7.11--Enforcement);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or

orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (AMC § 6-7.11--Enforcement);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (AMC § 6-7.11--Enforcement);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (AMC § 6-7.06--Prohibited activities; AMC § 6-7.11--Enforcement);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (AMC § 6-7.06--Prohibited activities; AMC § 6-7.11--Enforcement);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects; AMC § 6-7.08--Good housekeeping provisions);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects)); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4 (MBMC §

5.84.100--Adoption urban stormwater mitigation plan (SUSMP); AMC § 6-7.08--Good housekeeping provisions; AMC § 6-7.11--Enforcement).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (MBMC Chapter 5.84) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges).
- Administrative Penalties and Citations (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations; AMC Title 1, Chapter 7—Administrative Citations).

B. Nuisance Remedies

- Public nuisance under State law.

- City nuisance abatement procedures (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations; AMC Title 1, Chapter 7—Administrative Citations).

C. Criminal Remedies

- Misdemeanor citations/prosecution (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, AMC Title 1, Chapter 7—Administrative Citations).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

Kevin G. Ennis

Kevin G. Ennis
City Attorney

cc: Mayor and Members of the City Council
William Rawlings, City Manager
Justine Menzel, Deputy Executive Director
Candice K. Lee, Esq.
Andrew Brady, Esq.

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December 6, 2013

Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013-1105

Re: Statement of Legal Authority

Dear Mr. Unger:

This letter is provided to serve as the Statement of Legal Authority for the City of Bellflower (the "City") that must be submitted with its Annual Report pursuant to Part VI.A.2.b. of Order No. R4-2012-0175 for NPDES Permit No. CAS004001. As legal counsel for the City, it is my considered legal opinion the City has all the necessary legal authority to implement and enforce the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order during the reporting period of July 1, 2012 through June 30, 2013, to the extent permitted by State and Federal law, subject to the limitations on municipal action under the California and United States Constitutions.

Per the requirement in Part VI.A.2.b.i., here are citations to the Bellflower Municipal Code ("BMC") for each of the following requirements found in Part VI.A.2.a:

i. Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.

BMC Sections: 13.20.090 Control of Pollutants from Industrial and Commercial Facilities, 13.20.100 Control of Pollutants from Industrial Activities, 13.20.110 Control of Pollutants from Construction Activities Requiring General Construction Activity Stormwater Permit, and 13.20.120 Control of Pollutants from Other Construction Activities

ii. *Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

iii. *Prohibit and eliminate illicit discharges and illicit connections to the MS4.*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.070 Illicit Connections

iv. *Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.*

BMC Section: 13.20.060 Illegal Disposal/Dumping

v. *Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);*

BMC Section: 13.20.140 Violation, Inspection, Enforcement

vi. *Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.*

BMC Section: 13.20.140 Violation, Inspection, Enforcement

vii. *Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Co-permittees;*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

viii. *Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation;*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

ix. *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters.*

This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4;

BMC Section: 13.20.140 Violation, Inspection, Enforcement

x. *Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations;*

BMC Sections: 13.20.090 Control of Pollutants from Industrial and Commercial Facilities and 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

xi. *Require that structural BMPs are properly operated and maintained;*

BMC Section: 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

xii. *Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.*

BMC Section: 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

Per the requirement in Part VI.A.2.b.ii., the City's legal procedures available to mandate compliance with applicable municipal ordinances identified in the above section, and therefore with the conditions of the Order, can be found in BMC Section 13.20.140 Violation, Inspection, Enforcement. Here is the relevant text of that provision:

13.20.140 Violation, Inspection, Enforcement.

A. Violation of any provision of this chapter, any stormwater pollution prevention plan or any permit issued pursuant to this chapter shall be a violation per Chapter 1.08.

B. The Director of Community Development, or the Director's designees, may issue notices of violation and administrative orders to achieve compliance with the provisions of this chapter. Failure to comply with the terms and conditions of such a notice of violation or an administrative order shall constitute a violation of this chapter.

C. The violation of any provision of this chapter is hereby declared to be a nuisance, and may be abated by the City in accordance with its authority to abate nuisances.

D. The remedies listed in this chapter are not exclusive of any other remedies available to the City under any applicable Federal, State or local law and it is within the discretion of the City to seek cumulative remedies.

[...]

F. The Director of Community Development, or the Director's designees, may issue notice of violation and administrative orders to any other person who has failed to comply with either a notice of violation or other administrative order an invoice for costs (invoice of cost) for reimbursement of the City's actual costs incurred in issuing and enforcement of any provision of this chapter.

G. The Director of Community Development, or the Director's designees, may require that any person engaged in any activity and/or owning or operating any facility which may cause or contribute to stormwater pollution or contamination, illicit discharges and/or discharge of nonstormwater to the stormwater system, undertake such monitoring activities and/or analysis and furnish such reports as the officer may specify. The burden, including costs, of these activities, analysis and reports shall bear a reasonable relationship to the need for the monitoring, analysis and the benefits to be obtained.

Thus, enforcement actions can be completed administratively or judicially if necessary.

Please contact the undersigned if you have any questions.

Sincerely,

ALESHIRE & WYNDER, LLP

Joseph W. Pannone
City Attorney for the City of Bellflower

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awattorneys.com

December 3, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013-1105

Re: Statement of Legal Authority

Dear Mr. Unger:

This letter is provided to serve as the Statement of Legal Authority for the City of Cerritos (the "City") that must be submitted with its Annual Report pursuant to Part VI.A.2.b. of Order No. R4-2012-0175 for NPDES Permit No. CAS004001. As legal counsel for the City, I have determined that it has all the necessary legal authority to implement and enforce the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order during the reporting period of July 1, 2012 through June 30, 2013, to the extent permitted by State and Federal law, subject to the limitations on municipal action under the California and United States Constitutions.

Per the requirement in Part VI.A.2.b.i., here are citations to the City's Municipal Code for each of the following requirements found in Part VI.A.2.a:

i. Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.

Municipal Code Sections: 6.32.050 Construction sites requiring building permit and/or grading plan and 6.32.060 Industrial activity sites

ii. Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.

Municipal Code Section: 6.32.030 Illicit discharges and connections

iii. *Prohibit and eliminate illicit discharges and illicit connections to the MS4.*

Municipal Code Section: 6.32.030 Illicit discharges and connections

iv. *Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.*

Municipal Code Sections: 6.32.030 Illicit discharges and connections and 6.32.040 Illicit disposal

v. *Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);*

Municipal Code Sections: 6.32.010 Purpose and 6.32.080 Violation—Penalty

vi. *Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.*

Municipal Code Section: 6.32.080 Violation—Penalty

vii. *Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Co-permittees;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

viii. *Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

ix. *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4;*

Municipal Code Section: 6.32.080 Violation—Penalty, subsection (D)

x. *Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

xi. *Require that structural BMPs are properly operated and maintained;*

Municipal Code Section: 6.32.055 Urban runoff mitigation plan for new development

xii. *Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.*

Municipal Code Section: 6.32.055 Urban runoff mitigation plan for new development

Per the requirement in Part VI.A.2.b.ii., the City's legal procedures available to mandate compliance with applicable municipal ordinances identified in the above section, and therefore with the conditions of the Order, can be found in Municipal Code Section 6.32.080 Violation—Penalty. Here is the relevant text of that provision:

6.32.080 Violation—Penalty.

(A) The violation of any provision of this chapter, or failure to comply with any of the requirements of this chapter, shall constitute a misdemeanor; except that notwithstanding any other provision of this chapter, any such violation constituting a misdemeanor under this chapter may, at the sole discretion of the authorized enforcement officer, by charged and prosecuted as an infraction.

(B) In addition to the penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to the public health, safety and welfare, is declared and deemed a nuisance, may be summarily abated and/or restored by the authorized enforcement officer, and/or civil action to abate, enjoin or otherwise compel the cessation of such nuisance.

(1) The cost of such abatement and restoration shall be borne by the owner of the property and the cost thereof shall be invoiced to the owner of the property. If the invoice is not paid with sixty days, a lien shall be placed upon and against the property. If the lien is not satisfied within three months, the property may be sold in satisfaction thereof in a like manner as other real property is sold under execution.

(2) If any violation of this chapter constitutes a seasonal recurrent nuisance, the authorized enforcement officer shall so declare. Thereafter such seasonal and recurrent nuisance shall be abated every year without the necessity of any further hearing.

(3) In any administrative or civil proceeding under this chapter in which the city prevails, the city shall be awarded all costs of investigation, administrative overhead, out-of-pocket expenses, costs of suit and reasonable attorney fees.

(C) Penalties for Failure to Comply with BMPs. The authorized enforcement officer shall enforce this chapter as follows:

(1) For the first failure to comply with any provision of this chapter, the authorized enforcement officer shall issue to the affected person or business a written notice which includes the following information:

(a) A statement specifying the violation committed;

(b) A specified time period within which the affected person or business must correct the failure or file a written notice disputing the notice of failure to comply;

(c) A statement of the penalty for continued noncompliance.

(2) For each subsequent failure to comply with any provision of this chapter, following written notice issued pursuant to subsection (C)(1) of this section, the authorized enforcement officer may levy a penalty of one hundred dollars each day during which a person or business fails to comply with the provisions of this chapter. Each day following written notice shall constitute a separate offense. Said penalty shall be set by the city council resolution.

[...]

Thus, enforcement actions can be completed administratively or judicially if necessary.

Please contact the undersigned if you have any questions.

Sincerely,

ALESHIRE & WYNDER, LLP

Mark W. Steres

Mark W. Steres
City Attorney for the City of Cerritos

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WOODRUFF, SPRADLIN & SMART
A Professional Corporation

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December 4, 2013

VIA FIRST CLASS MAIL

Mr. Samuel Unger
Executive Officer
Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Re: Legal Authority Certification for the City of Diamond Bar

Dear Mr. Unger:

The City of Diamond Bar ("City"), through its City Attorney, submits this statement in its capacity as a Permittee pursuant to Part VI.A.2 of RWQCB Order R4-2012-0175 ("Order").

1. Legal Authority Statement

The undersigned City Attorney for the City of Diamond Bar does hereby state that in my opinion the City has or will timely obtain adequate legal authority to comply with the legal requirements imposed upon the City set forth in the regulations to the Clean Water Act, 40 CFR [Code of Federal Regulations] 122.26(d)(2)(i)(A-F), and to the extent permitted by State and Federal law and subject to the limitations on municipal action under the California and United States Constitutions. The City has the authority under the Constitution and statutes of the State of California to enact and enforce ordinances. The City has enacted ordinances to implement and enforce a stormwater control program. These ordinances contain specific enforcement provisions such as the suspension and revocation of permits and stop work orders and/or are enforceable under the generally applicable enforcement provisions of the City's Municipal Code (misdemeanors or infractions; suspension or revocation of permits and stop work orders; and nuisance abatement and recovery of abatement expenses).

2. Status of Implementation

The City has recently amended its ordinances regulating stormwater discharges to ensure that it has the adequate legal authority to implement and enforce its stormwater control program as directed by the "Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)", hereafter the "NPDES Permit". The City

anticipates one additional cleanup amendment will be brought to the City Council this month or in early December of this year.

3. City Departments

The City's Public Works Department, Community Development Department and Code Enforcement Officers are all involved with the regulation of stormwater runoff and runoff related activities, including grading, water quality, erosion control, and litter. One or more of these City departments or department directors are authorized and directed to take the actions contemplated by the regulations, *e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc. The City Attorney has authority under the ordinances and state law to bring criminal and civil enforcement actions.

Please do not hesitate to contact the undersigned should you have any questions or need any additional information.

Sincerely,

WOODRUFF, SPRADLIN & SMART
A Professional Corporation

DAVID A. DEBERRY
City Attorney, City of Diamond Bar

cc: James DeStefano, City Manager
David Liu, Public Works Director
Kimberly Young, Associate Engineer

City of Downey
FUTURE UNLIMITED

YVETTE M. ABICH GARCIA
City Attorney

December 12, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

RE: Legal Authority Certification for the City of Downey

Dear Mr. Unger:

As the City Attorney for the City of Downey, I have reviewed the City's existing ordinances, applicable statutes, and/or applicable contracts and have determined that as of the date of this letter, the City can operate pursuant to the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI.A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001] (the "2012 NPDES Permit"). Enforcement of the City's storm water ordinances can be completed administratively or, if necessary, through the judicial system.

This letter is limited to the matters contained herein, and should not be read as expressing any opinion on any other matter except on the matters expressly set forth herein.

Please call the undersigned if you have any questions.

Sincerely,

CITY OF DOWNEY

Yvette M. Abich Garcia
City Attorney

cc: John L. Hunter & Associates

"*Our Youth - Our Future*"

CITY OF HAWAIIAN GARDENS

December 15, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

RE: Legal Authority Certification for the City of Hawaiian Gardens

Dear Mr. Unger:

As legal counsel for the City of Hawaiian Gardens, I have reviewed its existing ordinances, applicable statutes, and/or existing contracts and have determined that the City has enacted the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI.A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001].

Please call the undersigned if you have any questions, or you may contact me by e-mail at osandoval@wss-law.com.

Sincerely,

Omar Sandoval

Omar Sandoval, Esq.
Woodruff, Spradlin & Smart
555 Anton Boulevard, Suite 1200
Costa Mesa, California 92626
Main:(714) 558-7000
Fax: (714) 835-7787

cc: John L. Hunter & Associates

COUNTY OF LOS ANGELES
OFFICE OF THE COUNTY COUNSEL

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500 WEST TEMPLE STREET
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County Counsel

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December 16, 2013

Mr. Samuel Unger, P.E., Executive Officer
California Regional Water Quality Control Board – Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013-2343

Attention: Mr. Ivar Ridgeway

Re: Certification By Legal Counsel For Los Angeles County Flood Control District's Annual Report

Dear Mr. Unger:

Pursuant to the requirements of Part VI(A)(2)(b) of Order No. R4-2012-0175 (the "Order"), the Office of the County Counsel of the County of Los Angeles makes the following certification in support of the Annual Report of the Los Angeles County Flood Control District ("LACFCD"):

Certification Pursuant To Order Part VI(A)(2)(b)

"*Each Permittee must submit a statement certified by its chief legal counsel that the Permittee has the legal authority within its jurisdiction to implement and enforce the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and this Order.*"

LACFCD has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and the Order.

Order Part VI(A)(2)(b)(i)

"*Citation of applicable municipal ordinances or other appropriate legal authorities and their relationship to the requirements of 40 CFR §122.26(d)(2)(i)(A-F) and this Order*"

Citations Of Applicable Ordinances Or Other Legal Authorities

Although many portions of State law, the Charter of the County of Los Angeles, the Los Angeles County Code and LACFCD's Flood Control District Code ("Code") are potentially applicable to the implementation and enforcement of these requirements, the primary applicable laws and ordinances are as follows:

Los Angeles County Code, Title 12, Chapter 12.80 STORMWATER AND RUNOFF POLLUTION CONTROL, including:

§12.80.010 - §12.80.360 Definitions

§12.80.370 Short title.

§12.80.380 Purpose and intent.

§12.80.390 Applicability of this chapter.

§12.80.400 Standards, guidelines and criteria.

§12.80.410 Illicit discharges prohibited.

§12.80.420 Installation or use of illicit connections prohibited.

§12.80.430 Removal of illicit connection from the storm drain system.

§12.80.440 Littering and other discharge of polluting or damaging substances prohibited.

§12.80.450 Stormwater and runoff pollution mitigation for construction activity.

§12.80.460 Prohibited discharges from industrial or commercial activity.

§12.80.470 Industrial/commercial facility sources required to obtain a NPDES permit.

§12.80.480 Public facility sources required to obtain a NPDES permit.

§12.80.490 Notification of uncontrolled discharges required.

§12.80.500 Good housekeeping provisions.

§12.80.510 Best management practices for construction activity.

§12.80.520 Best management practices for industrial and commercial facilities.

§12.80.530 Installation of structural BMPs.

§12.80.540 BMPs to be consistent with environmental goals.

§12.80.550 Enforcement—Director's powers and duties.

§12.80.560 Identification for inspectors and maintenance personnel.

§12.80.570 Obstructing access to facilities prohibited.

§12.80.580 Inspection to ascertain compliance—Access required.

§12.80.590 Interference with inspector prohibited.

§12.80.600 Notice to correct violations—Director may take action.

§12.80.610 Violation a public nuisance.

§12.80.620 Nuisance abatement—Director to perform work when—Costs.

§12.80.630 Violation—Penalty.

§12.80.635 Administrative fines.

§12.80.640 Penalties not exclusive.

§12.80.650 Conflicts with other code sections.

§12.80.660 Severability.

§12.80.700 Purpose.

§12.80.710 Applicability.

§12.80.720 Registration required.

§12.80.730 Exempt facilities.

§12.80.740 Certificate of inspection—Issuance by the director.

§12.80.750 Certificate of inspection—Suspension or revocation.

§12.80.760 Certificate of inspection—Termination.

§12.80.770 Service fees.

§12.80.780 Fee schedule.

§12.80.790 Credit for overlapping inspection programs.

§12.80.800 Annual review of fees.

Los Angeles County Code, Title 12, Chapter 12.84 LOW IMPACT DEVELOPMENT STANDARDS, including:

§12.84.410 Purpose.

§12.84.420 Definitions.

§12.84.430 Applicability.

§12.84.440 Low Impact Development Standards.

§12.84.445 Hydromodification Control.

§12.84.450 LID Plan Review.

§12.84.460 Additional Requirements.

Los Angeles County Code, Title 22 PLANNING AND ZONING, Part 6 ENFORCEMENT PROCEDURES, including:

§22.60.330 General prohibitions.

§22.60.340 Violations.

§22.60.350 Public nuisance.

§22.60.360 Infractions.

§22.60.370 Injunction.

§22.60.380 Enforcement.

§22.60.390 Zoning enforcement order and noncompliance fee.

Los Angeles County Code, Title 26 BUILDING CODE, including:

§26.103 Violations And Penalties

§26.104 Organization And Enforcement

§26.105 Appeals Boards

§26.106 Permits

§26.107 Fees

§26.108 Inspections

LACFCD Code Chapter 21 - STORMWATER AND RUNOFF POLLUTION CONTROL including:

§21.01 Purpose and Intent

§21.03 Definitions

§21.05 Standards, Guidelines, and Criteria

§21.07 Prohibited Discharges

§21.09 Installation or Use of Illicit Connections Prohibited

§21.11 Littering Prohibited

§21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity

§21.15 Notification of Uncontrolled Discharges Required

§21.17 Requirement to Monitor and Analyze

§21.19 Conflicts With Other Code Sections

§21.21 Severability

§21.23 Violation a Public Nuisance

California Government Code §6502

California Government Code §23004

California Water Code §8100 *et. seq.*

Relationship Of Applicable Ordinances Or Other Legal Authorities To The Requirements of 40 CFR §122.26(d)(2)(i)(A-F) And The Order

Although, depending upon the particular issue, there may be multiple ways in which particular sections of the County of Los Angeles' ordinances, LACFCD's ordinances, and statutes relate to the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and the Order, the table below indicates the basic relationship with Part VI(A)(2)(a) of the Order:

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
i. Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.450 [construction] §12.80.460 [industrial and commercial] §12.80.470 and .480 [industrial and commercial NPDES requirements] §12.84.440 [LID standards] §12.84.445 [hydromodification control] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.340 [violations] §22.60.350 [public nuisance] §22.60.360 [infractions] §22.60.370 [injunction] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.103 [violations and penalties]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§26.104 [enforcement] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
ii. Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited] LACFCD Code: §21.07 Prohibited Discharges
iii. Prohibit and eliminate illicit discharges and illicit connections to the MS4.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.420 [illicit connections prohibited] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.23 Violation a Public Nuisance

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
iv. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.440 [littering and other polluting prohibited] LACFCD Code: §19.07 Interference With or Placing Obstructions, Refuse, Contaminating Substances, or Invasive Species in Facilities Prohibited §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
v. Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows).	Los Angeles County Code: §12.80.490 [notification of uncontrolled discharge] §12.80.570 [obstructing access to facilities] §12.80.580 [compliance inspection] §12.80.610 [violation a nuisance] §12.620 [nuisance abatement] §12.80.635 [violation penalty]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§12.80.640 [penalties not exclusive] §12.84.440 [LID standards] §12.84.445 [hydromodification control] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.340 [violations] §22.60.350 [public nuisance] §22.60.360 [infractions] §22.60.370 [injunction] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.103 [violations and penalties] §26.104 [enforcement] §26.106 [permits] §26.108 [inspections] LACFCD Code: §19.11 Violation a Public Nuisance §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.19 Conflicts With Other Code Sections §21.23 Violation a Public Nuisance
vi. Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.	Same as item v., above
vii. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees.	California Government Code §6502 California Government Code §23004
viii. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation.	California Government Code §6502 California Government Code §23004
ix. Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4.	Los Angeles County Code: §12.80.490 [notification of uncontrolled discharge] §12.80.570 [obstructing access to facilities] §12.80.580 [compliance inspection] §12.80.610 [violation a nuisance] §12.80.620 [nuisance abatement] §12.80.635 [violation penalty] §12.80.640 [penalties not exclusive] §22.60.380 [enforcement.] §26.106 [permits] §26.108 [inspections]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
x. Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations.	Los Angeles County Code: §12.80.450 [construction mitigation] §12.80.500 [good housekeeping practices] §12.80.510 [construction BMPs] §12.80.520 [industrial/commercial BMPs] §12.84.440 [LID standards] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
xi. Require that structural BMPs are properly operated and maintained.	Los Angeles County Code: §12.80.530 [installation of structural BMPs] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.23 Violation a Public Nuisance
xii. Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.	Los Angeles County Code: §12.80.530 [installation of structural BMPs] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance

<u>Order Part VI(A)(2)(b)(ii)</u>

"*Identification of the local administrative and legal procedures available to mandate compliance with applicable municipal ordinances identified in subsection (i) above and therefore with the conditions of this Order, and a statement as to whether enforcement actions can be completed administratively or whether they must be commenced and completed in the judicial system.*"

The local administrative and legal procedures available to mandate compliance with the above ordinances are specified in those ordinances, particularly in:

Los Angeles County Code:

§12.80.550 Enforcement—Director's powers and duties.

§12.80.600 Notice to correct violations—Director may take action.

§12.80.610 Violation a public nuisance.

§12.80.620 Nuisance abatement—Director to perform work when—Costs.

§12.80.630 Violation—Penalty.

§12.80.635 Administrative fines.

§12.80.640 Penalties not exclusive.

§12.84.450 LID Plan Review.

§12.84.460 Additional Requirements.

Title 26, §103 Violations And Penalties

Title 26, §104 Organization And Enforcement

Title 26, §105 Appeals Boards

Title 26, §106 Permits

§22.60.330 General prohibitions.

§22.60.340 Violations.

§22.60.350 Public nuisance.

§22.60.360 Infractions.

§22.60.370 Injunction.

§22.60.380 Enforcement.

§22.60.390 Zoning enforcement order and noncompliance fee.

LACFCD Code:

§21.05 Standards, Guidelines, and Criteria

§21.07 Prohibited Discharges

§21.09 Installation or Use of Illicit Connections Prohibited

§21.11 Littering Prohibited

§21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity

§21.15 Notification of Uncontrolled Discharges Required

§21.17 Requirement to Monitor and Analyze

§21.23 Violation a Public Nuisance

LACFCD attempts to first resolve each enforcement action administratively. However, the above cited ordinances also provide LACFCD with the authority to pursue such actions in the judicial system as necessary.

Very truly yours,

JOHN F. KRATTLI
County Counsel

By Judith Fries
JUDITH A. FRIES
Principal Deputy County Counsel
Public Works Division

JAF:jyj

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December 9, 2013

Lisa Rapp, Director of Public Works
City of Lakewood
5050 Clark Avenue
Lakewood, CA 90712

Re: Order No. R4-2012-0175
NPDES No. CAS004001

Dear Ms. Rapp:

In my capacity as City Attorney for the City of Lakewood (the "City"), I hereby confirm that the City has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR @ 122.26(d)(2)(i)(A-F) and the Order referenced above. Such legal authority is derived from Article 11, Section 7 of the California Constitution, Section 13002 of the California Water Code, and Section 5801 of the Lakewood Municipal Code, which incorporates by reference the pertinent provisions of the Los Angeles County Code.

The City is authorized to take enforcement action by administrative proceedings or in the judicial system.

Very truly yours,

Steven N. Skolnik

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Telephone 213.626.8484 Facsimile 213.626.0078

December 9, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of La Mirada to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of La Mirada (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the

extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Chapter 13.12 of the La Mirada Municipal Code ("LMMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (LMMC § 13.12.070—Industrial Site Activity; 13.12.060—Construction sites requiring a building permit and/or grading plan);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (LMMC § 13.12.040 --Illicit discharges and connection.; LMMC § 13.12.050--Illicit disposal);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (LMMC § 13.12.040 --Illicit discharges and connections; LMMC § 13.12.050--Illicit disposal);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (LMMC § 13.12.040 --Illicit discharges and connections.; LMMC §

13.12.050--Illicit disposal; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (LMMC § 13.12.040 --Illicit discharges and connections; LMMC § 13.12.050--Illicit disposal; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (LMMC § 13.12.070—Industrial Site Activity; 13.12.060—Construction sites requiring a building permit and/or grading plan; LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4 (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (LMMC Chapter 13.12) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).
- Administrative Penalties and Citations (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

B. Nuisance Remedies

- Public nuisance under State law.
- City nuisance abatement procedures (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

C. Criminal Remedies

- Misdemeanor citations/prosecution (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

James L. Markman

James L. Markman
City Attorney

cc: Mayor and Members of the City Council
Jeff Boynton, City Manager
Gary Sanui, Public Works Director
Marlin Muñoz, Senior Administrative Analyst
Candice K. Lee, Esq.
Andrew Brady, Esq.

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Long Beach Legal Authority

The legal authority certifications of the cities of the LCC are included in this section. The City of Long Beach's MS4 permit is on a separate timeline (effective date 15 months after the Los Angeles County-Wide MS4 Permit) and a legal authority letter will be submitted separately. A status report will be included in the Long Beach separate area WMP when submitted on or before March 28, 2015.

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December 11, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
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Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of Norwalk to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of Norwalk (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Chapter 18.04 of the Norwalk Municipal Code ("NMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (NMC § 18.04.100--Requirements for industrial/commercial and construction activities);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (NMC § 18.04.070--Prohibited activities);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or

orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (NMC §18.04.110--Enforcement);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (NMC §18.04.110--Enforcement);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (NMC § 18.04.070--Prohibited activities; NMC §18.04.110--Enforcement);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (NMC § 18.04.070--Prohibited activities; NMC §18.04.110--Enforcement);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects; NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their

effectiveness in reducing the discharge of pollutants to the MS4 (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (NMC Chapter 18.04) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (NMC Chapter 1.16--Violations).
- Administrative Penalties and Citations (NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).

B. Nuisance Remedies

- Public nuisance under State law.

- City nuisance abatement procedures (NMC Chapter 1.16—Violations; NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).

C. Criminal Remedies

- Misdemeanor citations/prosecution (NMC Chapter 1.12—Arrest and Citation Procedure).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (NMC Chapter 1.16—Violations; NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

Steven L. Dorsey
City Attorney

cc: Mayor and Members of the City Council
Michael Egan, City Manager
Adriana Figueroa, Administrative Services Manager
Candice K. Lee, Esq.
Andrew Brady, Esq.

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December 13, 2013

Sam Unger, P.E., Executive Officer
California Regional Water Quality
Control Board -- Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013-1105

Subject: Certification of Legal Authority

Dear Mr. Unger:

Alvarez-Glasman & Colvin serves as the City Attorney's Office for the City of Pico Rivera. As the City Attorney for the City of Pico Rivera (the "City"), I am aware of the following legal authority requirements specified in VI.A.2.b, of the MS4 Permit for Los Angeles County, Order No. R4-2012-0175, NPDES Permit No. CAS004001:

Each Permittee must submit a statement certified by its chief legal counsel that the Permittee has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order. Each Permittee shall submit this certification annually as part of its Annual Report beginning with the first Annual Report required under this Order. These statements must include:

i. Citation of applicable municipal ordinances or other appropriate legal authorities and their relationship to the requirements of 40 CFR § 122.26(d)(2)(i)(A)-(F) and of this Order; and

ii. Identification of the local administrative and legal procedures available to mandate compliance with applicable municipal ordinances identified in subsection (i) above and therefore with the conditions of this Order, and a statement as to whether enforcement actions can be completed administratively or whether they must be commenced and completed in the judicial system.

The City has the legal authority to require compliance with the requirements associated with 40 CFR § 122.26(d)(2)(i)(A-F) and applicable provisions of the Order per Chapter 16.04 Storm Water and Urban Runoff Pollution Prevention of the City of Pico Rivera Municipal Code. The City has had such legal authority since 2002.

The City's Municipal Code provides for both administrative enforcement and legal enforcement of violations, which may result in administrative, civil, or criminal penalties. Section 16.04.140 provides that in the event the City serves a person with a notice of violation, and that person fails to comply within the given time period, the City has multiple remedies which are not listed to be exclusive or exhaustive, including: seeking prosecution of violations as a misdemeanor resulting in fines or imprisonment; seeking restitution of costs incurred by the City in the investigation and enforcement of compliance; and prosecution of violations as nuisance abatement resulting in liens and cost recovery.

Should you have any questions regarding this matter, please feel free to contact Deputy City Attorney Teresa Chen at (562) 699-5500.

Sincerely,

ALVAREZ-GLASMAN & COLVIN

Arnold M. Alvarez-Glasman
City Attorney

STEVEN N. SKOLNIK
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December 9, 2013

Noe Negrete, Director of Public Works
City of Santa Fe Springs
11710 Telegraph Road
Santa Fe Springs, CA 90670

Re: Order No. R4-2012-0175
NPDES No. CAS004001

Dear Mr. Negrete::

In my capacity as City Attorney for the City of Santa Fe Springs (the "City"), I hereby confirm that the City has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR @ 122.26(d)(2)(i)(A-F) and the Order referenced above. Such legal authority is derived from Article 11, Section 7 of the California Constitution, Section 13002 of the California Water Code, and Chapter 52 of the City Code.

The City is authorized to take enforcement action by administrative proceedings or in the judicial system.

Very truly yours,

Steven N. Skolnik

J & M

JONES & MAYER

ATTORNEYS AT LAW

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December 9, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

Re: Legal Authority Certification for the City of Whittier

Dear Mr. Unger:

As legal counsel for the City of Whittier, I have reviewed its existing ordinances including Chapter 8.36 of the Municipal Code, applicable statutes, and/or existing contracts and have determined that the City can operate pursuant to the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI. A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001] (the $2012 NPDES Permit").

Please call the undersigned if you have any questions.

Sincerely,

Richard L. Adams, II
Assistant City Attorney, City of Whittier

RLA/dm

cc: David Pelser, Director of Public Works
John L. Hunter & Associates

WMP Comments		
Permit Provision	**Regional Water Board Staff Comment**	**Watershed Group Response**
Part VI.C.1.d (Purpose of Watershed Management Program)	Section 1.1 of the draft WMP states, "the goal of these requirements is to reduce the discharge of pollutants from MS4 to the maximum extent practicable." The goal of the three permits and of a WMP is broader than presented (p. 1-1). Per Part VI.C.1.d of the LA County MS4 Permit, the goals of the Watershed Management Programs are to "… ensure that discharges from the Permittee's MS4: (i) achieve applicable water quality-based effluent limitations in Part VI.E and Attachments L through R pursuant to the corresponding compliance schedules, (ii) do not cause or contribute to exceedances of receiving water limitations in Parts V.A and VI.E and Attachments L through R, and (iii) do not include non-storm water discharges that are effectively prohibited pursuant to Part III.A. The programs shall also ensure that controls are implemented to reduce the discharge of pollutants to the maximum extent practicable (MEP) pursuant to Part IV.A.1." The revised WMP needs to acknowledge the broader goals set forth in the permit.	The language in 1.1 has been revised accordingly. The broader goals are also (and were previously) listed in Sections 1.2.3-1.2.4.
Part VI.C.5.a.ii.(1) (Category 1 Pollutants)	The MS4 permit requires WMPs to include the applicable numeric WQBELs for each approved TMDL within the WMA. These should be clearly listed within the WMP. They are currently identified in the RAA in Tables 5-4 and 5-5, but do not appear presented in the main document.	TMDL WQBELs have been added to a single table in Section 2.1.1.
Part VI.C.5.a.ii.(2)-(3) (Categories 2 and 3 Pollutants)	The WMP needs to specify the applicable water limitations for Category 2 water body pollutant combinations. These should be clearly listed within the WMP. It appears these are listed in Tables 2-3 to 2-11 in association with monitoring site specific summaries of exceedances of water quality objectives; however, it would provide greater clarity to also summarize them in a single table.	Applicable Category 2 water limitations have been added to a single table in Section 2.1.2.
Part VI.C.5.a.iii.(1)(a)(vii) (Source Assessment)	The MS4 Permit requires a map of the MS4 including major outfalls and major structural controls. Appendix H of the CIMP provides maps showing the major outfalls and Appendix D of the draft WMP provides a tabular list of existing and proposed BMPs. The revised WMP should include a map (or GIS project file) of these BMPs as well. Also, the outfall database should be submitted with the revised WMP. In addition, Section VII.A of Attachment E to the MS4 Permit requires maps of the drainage areas associated with the outfalls and these were not provided. Section 1.3.2 of the WMP does note that 107 catchments are located in the watershed, and maps showing these drainage areas should be provided. If these are not readily available, a process and timeline for developing this spatial information should be included in the revised WMP.	A map of existing structural controls has been added to Section 3.4.2.3. The major outfall database is included with the WMP resubmittal. The following language has been added to Section 1.3.2: Drainage areas for individual outfalls are not readily available at this time. Defining these areas would require significant resources. The Group proposes to provide drainages areas for major outfalls with significant discharges and outfalls to be monitored as part of the CIMP. To complete this task, existing drainage maps from the Flood Control District will be recalled and converted to GIS project files. This task will be completed within one year of WMP approval.

WMP Comments		
Permit Provision	**Regional Water Board Staff Comment**	**Watershed Group Response**
Part VI.C.5.a.iv (Watershed Control Measures)	Where data indicate impairment or exceedances of RWLs and the findings from the source assessment implicate discharges from the MS4, the Permit requires a strategy for controlling pollutants that is sufficient to achieve compliance as soon as possible. Although Section 3 includes a compliance strategy, the program needs to more clearly demonstrate that the compliance schedules (Section 5) ensure compliance is "as soon as possible." The WMP needs to provide a clear schedule that demonstrates implementation of the BMPs will achieve the required interim metal reductions by the compliance deadlines. The WMP schedule should at the least provide specificity on actions within the current and next permit terms. Also, given the Gateway Proposition 84 project has received funding as of May 2014, and sites have been identified for BMP installation, it would be reasonable to update the WMP to contain project milestones and implementation timeframes for projects that will be implemented under this grant.	Section 5 has been modified to more clearly demonstrate that compliance is "as soon as possible". The revised WMP has increased the degree of clarity and specificity regarding schedules and actions for the current and next permit terms. The Group considers this effort to be the maximum practicable considering the associated uncertainties. Greater certainty will be provided through the adaptive management process. Proposition 84 project milestones and timeframes have been added to Section 5.2.
Part VI.C.5.b.iv.(5)(c) (Section of Watershed Control Measures)	For the waterbody-pollutant combinations not addressed by TMDLs, the MS4 Permit requires that the plan demonstrates using the reasonable assurance analysis (RAA) that the activities and control measures to be implemented will achieve applicable receiving water limitations as soon as possible. The RAA demonstrates the control measures would be adequate to comply with the limitations/deadlines for the "limiting pollutants" for TMDLs and concludes that this will ensure compliance for all other pollutants of concern. However, it does not address the question of whether compliance with limitations for pollutants not addressed by TMDLs could be achieved in a shorter time frame.	Section 5 has been modified to more clearly demonstrate that the compliance schedule is as soon as possible for pollutants not addressed by TMDLs.
Part VI.C.5.b.iv.(1)(a)(ii) (Minimum Control Measures – Industrial/Commercial Facilities Program)	The Group Proposes to alter the commercial and industrial facility inspection frequencies in Parts VI.D.6.d and VI.D.6.e of the LA County MS4 Permit. The proposed modification includes a prioritization process in which the member Cities rate applicable facilities as high, medium, or low priority. High Priority facilities are inspected more frequently and low priority facilities are inspected less frequently. The prioritization scheme included in Figure ICF-2 prioritizes facilities by their potential water quality impact. However, the draft WMP also notes that Cities "may follow an alternative prioritization method provided it results in a similar three-tiered scheme." The revised WMP should ensure that any alternative prioritization method used by a City must also be based on water quality impact. No statement to this effect was included. Furthermore, the draft WMP also notes that Cities can prioritize and reprioritize facilities at any time based on their discretion. The Group should revise their draft	Table 3-3 has been modified to 1) clarify when facility prioritization occurs (after inspection or as information becomes available that clarifies water quality impacts), 2) ensure that prioritization be based on water quality impact, and 3) make it explicitly clear that the ratio of low priority to high priority facilities must always remain at 3:1 or lower when reprioritizing.

WMP Comments		
Permit Provision	**Regional Water Board Staff Comment**	**Watershed Group Response**
	WMP to clearly state when the initial prioritization of facilities will occur. Additionally, the Group should be explicitly clear that during any reprioritization, the ratio of low priority to high priority facilities must always remain at 3:1 or lower to maintain inspection frequencies identified in the draft WMP.	
Part VI.C.5.b.iv.(4)(b)-(c) (Selection of Watershed Control Measures)	The RAA identifies potential areas for green street conversion and assumes a 30% conversion of the road length in the suitable areas; however, the specific locations and projects are not identified. Although it may not be possible to provide detailed information on specific projects at this time, the WMP should at least commit to the construction of the necessary number of projects to ensure compliance with permit requirements per applicable compliance schedules.	Section 5 has been modified to increase the degree of clarity and specificity regarding schedules and actions for the current and next permit terms. The Group considers this effort to be the maximum practicable considering the associated uncertainties. Greater certainty will be provided through the adaptive management process.
Part VI.C.5.b.iv.(4)(d) (Watershed Control Measures – Milestones)	The MS4 Permit requires that the WMP provide specificity with regard to structural and non-structural BMPs, including the number, type, and location(s), etc. adequate to assess compliance. In a number of cases, additional specificity on the number, type and general location(s) of watershed control measures as well as the timing of implementation for each is needed. (Regional Water Board staff notes, for example, that many watershed control measures in the implementation schedule only reference the year (or years) that a measure or milestone will be implemented. This should be revised to include more specific and/or exact dates where appropriate.) Additionally, many watershed control measures in the implementation schedule are ongoing measures that are not new interim milestones (e.g. MCMs, implementation of SB 346, enhanced street sweeping, etc.). For transparency, Regional Board staff recommends that ongoing measures clearly be separated from interim milestones for structural controls and non-structural BMPs in the implementation schedule. Regional Water Board staff recognizes uncertainties may complicate establishment of specific implementation dates, however there should at least be more specific on actions within the current and next permit terms to ensure that the following interim requirements are met: (1) a 10% reduction in metals loads during wet weather and a 30% reduction in dry weather by 2017 and (2) a 35% reduction in metals loads during wet weather and a 70% reduction during dry weather by 2020.	Section 5 has been modified to increase the degree of clarity and specificity regarding schedules and actions for the current and next permit terms. The Group considers this effort to be the maximum practicable considering the associated uncertainties. Greater certainty will be provided through the adaptive management process. The ongoing nonstructural measures listed in Table 5.1 have been clearly separated from the new measures.
Part VI.C.5.b.iv.(4)(c) (Watershed Control Measures – SB 346 Copper Reductions)	The draft WMP appears to rely mostly on the phase-out of copper in automotive brake pads, via approved legislation SB 346, to achieve the necessary copper load reductions. Given the combination of other Cu sources identified in various LA TMDLs such as building materials, other vehicle wear, air deposition from fuel combustion and industrial facilities, and that SB 346 progressively phases out Cu content in brakes of new cars (5% by weight until 2021, 0.5% by weight until 2025), then other structural and non-structural BMPs may still be needed to reduce Cu loads sufficiently to achieve compliance deadlines from interim and/or final WQBELs.	The RAA approach of controlling zinc, in concert with the modeled effect of copper load reductions anticipated through SB 346, predicts that the application of the WCMs and Compliance Schedule of Chapter 3 and 5, respectively, will reduce copper loads sufficiently to achieve compliance deadlines from interim and/or final WQBELs.
Part VI.C.5.b.iv.(5)	The RAA identifies zinc as the limiting pollutant and notes that this pollutant will drive	Section 5.3.1 of the RAA justifies how Category 1, 2, and 3

WMP Comments		
Permit Provision	**Regional Water Board Staff Comment**	**Watershed Group Response**
(Reasonable Assurance Analysis – Limiting Pollutant)	reductions of other pollutants. If the Group believes that this approach demonstrates that activities and control measures will achieve applicable receiving water limitations, it should explicitly state and justify this for each category 1, 2, and 3 pollutant.	pollutants are controlled through the limiting pollutant approach. This statement, along with a reference to the RAA for justification, is included in Section 4.1. The revised introduction to Section 5 provides explicit statements regarding the implementation of this approach in order to achieve applicable receiving water limitations.
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – New Non-Structural Controls)	The draft assumes a 10% pollutant reduction from new non-structural controls. Although 10% is a modest fraction of the overall controls necessary, additional support for this assumption should be provided, particularly since the group appears to be relying almost entirely on these controls for near-term pollutant reductions to achieve early interim milestones/deadlines. Additionally, as part of the adaptive management process, the Permittees should commit to evaluate this assumption during Program implementation and develop alternate controls if it becomes apparent that the assumption is not supported.	Section 4.3 has been added to the WMP to address this comment.
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Irrigation Reductions)	For Dry weather, the WMP assumes a 25% reduction in irrigation (RAA, section 7.1.2). Additional support should be provided for this assumption, particularly since the group appears to be relying almost entirely on this non-structural BMP for near-term pollutant reductions to meet early interim milestones/deadlines. Additionally, as part of the adaptive management process, the Permittees need to commit to evaluate this assumption during program implementation and develop alternate controls if it becomes apparent that the assumption is not supported.	Section 4.2.1 has been added to the WMP to include this additional support.
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Regional BMPs)	Section 1.4.2 of Attachment A to the RAA points out that additional potential regional BMPs were identified to provide the remaining BMP volume noted in Table 9-4. It indicates they can be found in Section 4 of the WMP (actually, they are found in Section 3). The RAA should clarify that sufficient sites were identified so that the remaining necessary BMP volume can be achieved by those sites that were not "excluded for privacy".	Though specific addresses were not provided in the WMP, these locations are still potential sites for regional structural BMPs and may be used as such. The complete list of potential sites in Section 3 of the WMP, including those where the address has been excluded for privacy, provide the necessary BMP volume needed as established through the RAA.
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Permitted Industrial Facilities)	The draft WMP, including the RAA, excludes stormwater runoff from non-MS4 facilities within the WMA from the stormwater treatment target. In particular, industrial facilities that are permitted by the Water Boards under the Industrial General Permit or an individual stormwater permit were identified and subtracted from the treatment target. Regional Board staff recognizes that this was done with the assumption that these industrial facilities will retain their runoff and/or eliminate their cause/contribution to receiving water exceedances, as required by their respective NPDES permit. However, it is important that the Group's actions under its Industrial/Commercial Facilities Program – including tracking critical industrial sources, education industrial facilities regarding BMP requirements, and inspecting industrial facilities – ensure that all	The WMP commits to implementing the MCMs, which includes the Industrial/Commercial Facilities Program. In addition 1) the WMP includes a facility prioritization scheme to increase program effectiveness, and 2) template documents to aid in proper implementation are also included as an attachment to the WMP. These efforts ensure that all industrial facilities are implementing BMPs as required.

WMP Comments		
Permit Provision	**Regional Water Board Staff Comment**	**Watershed Group Response**
	industrial facilities are implementing BMPs as required.	
Part VI.C.5.b.iv.(5) (Reasonable Assurance Analysis – Caltrans Facilities)	The draft WMP, including the RAA, takes a similar approach for areas under the jurisdiction of the California Department of Transportation (Caltrans). Caltrans facilities that are permitted under the Caltrans MS4 permit (Order No. 2012-0011-DWQ) were also identified and subtracted from the treatment target. It should be noted that the Amendment to the Caltrans Permit (Order WQ 2014-0077-DWQ) includes provisions to address TMDL requirements throughout the state. Revisions to Attachment IV of the Caltrans Permit require that Caltrans prioritize all TMDLs for implementation of source control measures and BMPs, with prioritization being “consistent with the final TMDL deadlines to the extent feasible.” Additionally, the Caltrans Permit also included provisions for collaborative implementation through Cooperative Implementation Agreements between Caltrans and other responsible entities to conduct work to comply with a TMDL. By contributing funds to Cooperative Implementation Grant Program, Caltrans may receive credit for compliance units, which needed for compliance under the Caltrans Permit. In a similar manner, the LA County MS4 Permit includes provisions for Permittees to control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other MS4 owners – such as Caltrans – to successfully implement the provisions of the Order (see Parts VI.A.2.a.viii and VI.A.4.a.iii). Therefore, the Group should ensure that it is closely coordinating with appropriate Caltrans District staff regarding the identification and implementation of watershed control measures to achieve water quality requirements (i.e. applicable Receiving Water Limitations and WQBELs). Regional Water Board staff recognizes that the Group had taken the initial steps for such collaboration since Caltrans participates in the Group.	As noted in the Regional Board comment, the Group has taken the initial steps to collaborate with Caltrans, who is a participant in the Group. Coordinated effort between Caltrans and the Group will continue with implementation of the WMP.
Part VI>C>5.b.iv.(4)(a) (Watershed Control Measures, page 63)	In Section 3.4.1.1, the draft WMP states, “[a]s recognized by the footnote in Attachment K-4 of the Permit, the Participating Agencies have entered into an Amended Consent Decree with the United States and the State of California, including the Regional Board, pursuant to which the Regional Board has released the Participating Agencies from responsibility for toxic pollutants in the Dominguez Channel and the Greater Los Angeles and Long Beach Harbors.” This statement misinterprets the Regional Water Board’s findings. Footnote 1 to Table K-4 of the LA County MS4 Permit states, “[t]he requirements of this Order to implement the obligations of this TMDL do not apply to a Permittee to the extent that	The language in Section 3.4.1.1 has been revised.

WMP Comments		
Permit Provision	**Regional Water Board Staff Comment**	**Watershed Group Response**
	it is determined that the Permittee has been released from that obligation pursuant to the Amended Consent Decree entered in United States v. Montrose Chemical Corp., Case No. 90-3122 AAH (JRx).” As stated in the response to comments received on the Dominguez Channel and Greater Harbor Waters Toxic Pollutants TMDL, “…primarily one pollutant, DDT, is associated with the Superfund site and also addressed by the TMDL. The TMDL addresses numerous pollutants and utilizes a different process than Superfund. The other pollutants – heavy meals, PAHs, PCBs and other legacy pesticides are not within Superfund’s focus at the Montrose OU2 Site…” Further, the WQBELs in Attachment P, Part E of the LA County MS4 Permit and Part VIII.P of the Long Beach MS4 Permit are for ongoing discharges from the MS4, not for the historic contamination of the bed sediments. Therefore, the statement in the draft WMP incorrectly concludes that the aforementioned Consent Decree releases MS4 Permittees from any obligation to implement the WQBELs in the MS4 Permit.	
Part VI.C.5.b.iv.(6) (Legal Authority)	Appendix 7 to the draft WMP included a copy of legal certifications for all Group members except for Long Beach. The legal certification for Long Beach should be submitted in the revised WMP.	The City of Long Beach’s MS4 Permit is on a separate timeline (effective date 15 months after the Los Angeles MS4 Permit). A legal authority letter will be submitted separately. A status report will be included in the Long Beach WMP when submitted on or before March 28, 2015.
Part VI.C.5.c (Compliance Schedules)	Page 6-1 notes that “[t]he final non-TMDL water quality standard compliance date is projected to be sometime in 2040.” However, the pollutant reduction plan milestones in Section 5 only appear to go up to the year 2026. For watershed priorities related to addressing exceedances for receiving water limitations, the permit requires milestones based on measureable criteria or indicators, a schedule with dates for achieving the milestones, and a final date for achieving the receiving water limitations as soon as possible. These need to be included in the revised WMP.	Discussion of the 2040 non-TMDL compliance date (in this case for bacteria) has been moved to Section 5.4.14.

RAA Comments		
Comment #	**Regional Water Board Staff Comment**	**Watershed Group Response**
A.1	The Lower San Gabriel River Watershed Management Area (LSGR WMA) is subject to interim and final water quality-based effluent limitations pursuant to Attachment P, Part A "San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL" for both wet and dry weather conditions. The LSGR WMA is required to analyze a strategy to implement pollutant controls necessary to achieve applicable interim and final water quality-based effluent limitations for metals and selenium consistent with the interim and final implementation deadlines in the Basin Plan amendment, Resolution No. R13-004 – Implementation Plan for the TMDLs for Metals and Selenium in the San Gabriel River and Impaired Tributaries. These include: By September 30, 2017, for WQBELs applicable in wet weather a 10% reduction, and dry weather a 30% reduction in the difference between current pollutant loads and the WQBEL. By September 30, 2020, for WQBELs applicable in wet weather a 35%, and in dry weather a 70% reduction in the difference between current pollutant loads and the WQBEL. As proposed in the WMP, the 10% load reduction was assumed to result from the cumulative effect of nonstructural BMPs. There is uncertainty in the ability of these BMPs to meet the required reductions by September 2017. Additional support for the anticipated pollutant load reductions from these non-structural BMPs and source control measures over the next two to three years should be provided to increase the confidence that these measures can achieve the near-term interim WQBELs by September 2017.	Section 4.3 has been added to the WMP to address this comment.
A.2	Section 5 Compliance Schedule of the draft Watershed Management Plan only provided implementation schedule for non-structural targeted control measures up to 2017. The LSGR Watershed Management Group must provide measurable milestones for implementing each one of the proposed control measures that will allow an assessment of progress toward the interim and final WQBELs and receiving water limitations every two years.	Section 5 has been modified to increase the degree of clarity and specificity regarding schedules and actions for the current and next permit terms (see Table 5.1). The Group considers this effort to be the maximum practicable considering the associated uncertainties. Greater certainty will be provided through the adaptive management process.
A.3	LSGR WMA is also subject to Category 2 priority pollutants, including coliform bacteria. The LSGR WMP proposes to address bacteria with the same runoff reduction and stormwater capture measures proposed for Category 1 pollutants as well as ongoing implementation of minimum control measures. However, this might not be effective enough in reducing bacteria loading. The LSGR WMP acknowledges that it will address bacteria more directly during the second and third adaptive management cycles. The LSGR WMP should include a more specific strategy to implement pollutant controls necessary to address this and other Category 2 pollutants prior to the second and third adaptive management cycles.	The RAA approach of controlling zinc predicts that the application of the WCMs and Compliance Schedule of Chapter 3 and 5, respectively, will reduce Category 2 pollutant loads sufficiently to achieve compliance deadlines from interim and/or final WQBELs. The effectiveness of the implementation of this approach will be assessed through the adaptive management process and, if necessary, new strategies will be developed through this process.
B.1	The model predicted stormwater runoff volume is used as a surrogate for required pollutant load reductions for wet weather conditions. Thus the predicted flow volume becomes a very important parameter for evaluating required volume reductions and BMP scenarios. Based on the results of the hydrology calibration shown in Table 4-3, the error difference between modeled flow volumes and observed data is 19% for the Lower San Gabriel River. The higher error percentage could be due to the exclusion of contributions of flow volume from upstream.	It should be noted that the entire watershed was included in the model for calibration purposes, including areas upstream and outside of the area addressed by the RAA. As such, there was no absence of upstream flow contributing to the error difference. As stated in the comment, once calibration was completed, upstream areas were subtracted from the model

RAA Comments		
Comment #	**Regional Water Board Staff Comment**	**Watershed Group Response**
	For calibration purposes, upstream flow volume should be included to determine whether that improves the model performance to within the "Good" or "Very Good" range, per the RAA Guidelines. Once model calibration has been completed, the upstream flow volume can then be excluded when presenting the volume reduction targets in Tables 8-3 to 8-4.	for presenting load reduction targets. The plots in Attachment E have been updated to show the daily calibration results. The Tables in Section 4.1.1 and 4.1.2 have been updated to show the modeled versus observed volume error for the daily calibration results (versus the monthly that were shown previously).
B.2	While we understand that there is significant reliance on a volume-based approach, the predicted baseline concentrations and loads for all modeled pollutants of concern, including TSS, should be presented in summary tables for wet weather conditions. This model output should be available, since it is the basis for the percent reductions in pollutant load presented in Table 5-6. (See Table 5. Model Output for Both Process-based BMP Models and Empirically-based BMP models, pages 20-21 of the RAA Guidelines)	Additional table added to report to reflect the baseline loads. Found on page 39 as Table 5-6.
B.3	Further, the differences between baseline concentrations/loads and allowable concentration/loads should be presented in time series for each pollutant under long-term continuous simulation and as a summary of the differences between pollutant concentrations/loads and allowable concentrations/loads for the critical wet weather period. (See Table 5. Model Output for Both Process-based BMP Models and Empirically-based BMP Models, pages 20-21 of the RAA Guidelines)	Time series plots were added as a new attachment (Attachment F). Text was added to the report in Section 5.3.1 to refer the reader to the attachment for the plots.
B.4	We note that modeling was not conducted for organics (DDT, PCBs, and PAHs). It is not clear why these pollutants were not modeled or why previous modeling of these pollutants could not be used, such as that conducted during the development of the Dominguez Channel and Greater LA and Long Beach Harbor Waters Toxic Pollutants TMDL. An explanation for the lack of modeling is needed.	It should be noted that the original watershed modeling (based on LSPC) supporting the Dominguez Channel and Greater LA and Long Beach Harbor Waters Toxic Pollutants TMDL did not include simulation of DDT, PCBs, and PAHs. Rather, modeled sediment was used as a surrogate to estimate watershed loadings. Therefore, 90th percentile of observed concentrations were assigned, meet requirements set forth by RAA guidance provided by the Regional Water Quality Control Board.
B.5	The report presents the existing runoff volumes, required volume reductions, and proposed volume reductions from BMP scenarios to achieve the 85th percentile, 24-hour volume retention standard for each major watershed area (e.g., LLAR, LCC and LSGR) and by jurisdiction. The same information on the runoff volume associated with the 85th percentile, 24-hour event and the proposed runoff volume reduction from each BMP scenario also needs to be presented for each modeled subbasin (e.g. a series of tables similar to 8-1 through 8-4 and 9-4 through 9-7). See Table 5 of the RAA Guidelines. Additionally, more explanation is needed as to what constitutes the "incremental" and "cumulative" critical year storm volumes in tables 9-4 through 9-7 and how these values were derived from previous tables.	Attachment B was updated to include the requested tables. Sentence of text was added to provide some clarification in Section 9.2.1 – Third paragraph.

Response to Regional Board Comments for the Lower San Gabriel River WMP/RAA

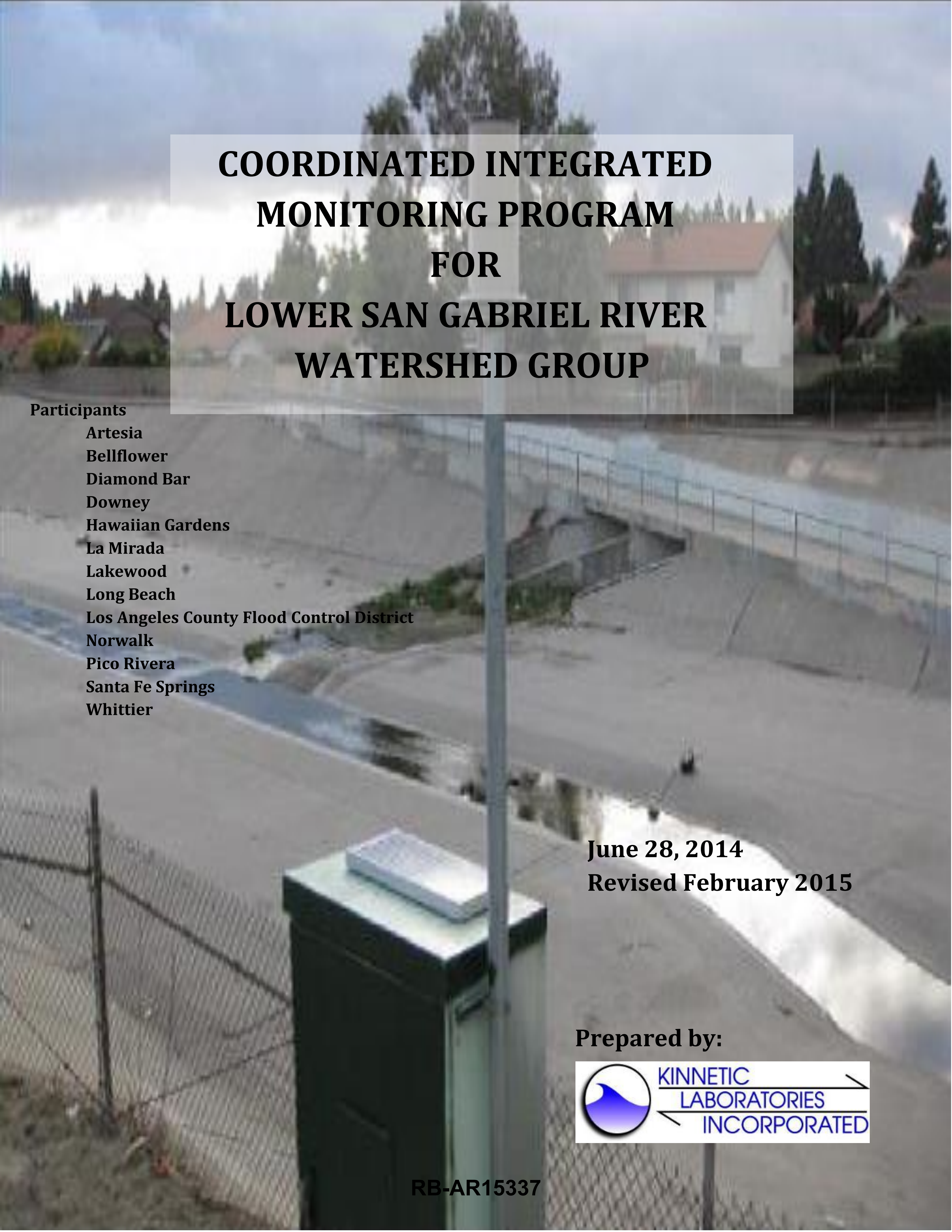
RAA Comments		
Comment #	**Regional Water Board Staff Comment**	**Watershed Group Response**
B.6	The report needs to present the same information, if available, for non-stormwater runoff. Alternatively, the report should include a commitment to collect the necessary data in each watershed area, through the non-stormwater outfall screening and monitoring program, so that the model can be re-calibrated during the adaptive management process to better characterize non-stormwater flow volumes and to demonstrate that proposed volume retention BMPs will capture 100 percent of non-stormwater that would otherwise be discharged through the MS4 in each watershed area.	A commitment to recalibration has been included in WMP Section 4.2.
B.7	The ID number for each of the subwatersheds from the model input file should be provided and be shown in the simulation domain to present the geographic relationship of subwatersheds, within each watershed area, that are simulated in the LSPC model.	The maps were added to Attachment C with the other supporting figures.

RB-AR15335

Watershed Management Program Appendix 8

A-8-1 Coordinated Integrated Monitoring Program

INCLUDED AS A SEPARATE SUBMITTAL



COORDINATED INTEGRATED MONITORING PROGRAM FOR LOWER SAN GABRIEL RIVER WATERSHED GROUP

Participants

- Artesia
- Bellflower
- Diamond Bar
- Downey
- Hawaiian Gardens
- La Mirada
- Lakewood
- Long Beach
- Los Angeles County Flood Control District
- Norwalk
- Pico Rivera
- Santa Fe Springs
- Whittier

June 28, 2014
Revised February 2015

Prepared by:

KINNETIC LABORATORIES INCORPORATED

RB-AR15337

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Coordinated Integrated Monitoring Program

for the

Lower San Gabriel Watershed Group

1. Introduction

The San Gabriel River is one of seven major watersheds partly or completely within Los Angeles County. Most of the river lies in southeastern Los Angeles County, bordering San Bernardino County, but a portion of this watershed originates in northern Orange County. During dry weather conditions, the lower portion of the San Gabriel River is hydrologically separated from the upper San Gabriel River at a location where waters from the upper San Gabriel River and the Rio Hondo Branch of the Los Angeles River pass through a narrow gap in the hills surrounding the San Gabriel Valley. During the rainy season, significant runoff is intercepted from the upper watershed and used to recharge groundwater. Flows measured just above the Whittier Narrows dam must exceed 260 cfs in order for flow to start to pass through into the lower San Gabriel River.

Due to this natural separation, thirteen cities and the Los Angeles County Flood Control District opted to develop a Watershed Monitoring Program (WMP) and Coordinated Integrated Monitoring Program (CIMP) to address the lower portion of the San Gabriel River. The watershed addressed by this group includes Reaches 1 and 2 of the San Gabriel River Watershed and portions of Coyote Creek that originate from jurisdictions within Los Angeles County. In addition, a small portion of Diamond Bar that discharges to Brea Creek and ultimately, San Jose Creek Reach 1 is also addressed by this CIMP (Figure 1-1-1).

The Los Angeles Regional Water Quality Control Board (Regional Board) adopted a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. R4-2012-0175 (Permit) on November 8, 2012 that became effective on December 28, 2012. The purpose of the Permit is to ensure the MS4s in Los Angeles County are not causing or contributing to exceedances of water quality objectives established to protect the beneficial uses in the receiving waters. The Permit includes guidance for development of a Monitoring and Reporting Program (MRP- Attachment E) to demonstrate that water quality within the permitted area is compliant with established receiving water limitations (RWLs).

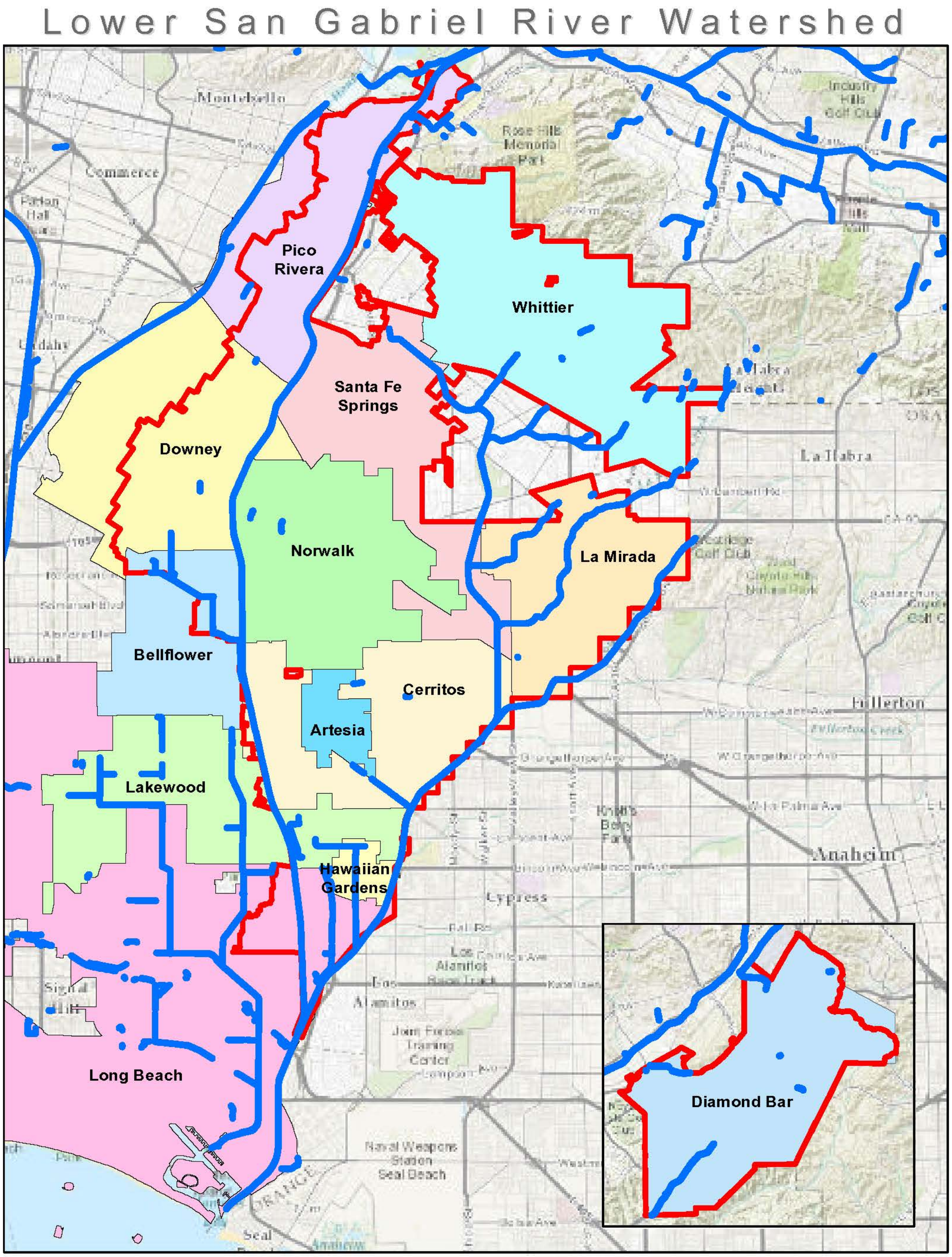

Figure 1-1. Lower San Gabriel River Watershed and Participating Jurisdictions.

The Permit allows development of a Coordinated Integrated Monitoring Program (CIMP) to specify approaches for addressing the objectives of the MRP. The Lower San Gabriel River (LSGR) Watershed Group (WG) chose to develop and implement a CIMP to address the unique conditions of this region. Unlike the upper San Gabriel River Watershed, the LSGR Watershed is largely built out with the exception of portions of the upper North Fork of Coyote Creek (also known as La Canada Verde) that originates in the vicinity of the Whittier Hills. The North Fork of Coyote Creek is a very complex drainage area that includes 11 different water bodies identified by the Regional Board as tributaries in the 2011 Basin Plan Amendments[1].

The LSGR Watershed encompasses approximately 78.5 square miles of Los Angeles County and comprises 11.4% drainage area for the San Gabriel River Watershed. There are 150 stream miles located in the watershed. The LSGR Watershed includes two major branches, Coyote Creek and the lower two reaches of the San Gabriel River. Coyote Creek approximates the jurisdictional boundaries of Orange County and Los Angeles County. Areas north of Coyote Creek are primarily within Los Angeles County while areas to the south of the Creek are largely in Orange County.

Reaches 1 and 2 of the San Gabriel River comprise a narrow drainage area that extends from the Whittier Narrows Dam to San Gabriel River Estuary. The Whittier Narrows is a natural gap formed in the hills along the southern boundary of the San Gabriel Valley. The Whittier Narrows Dam is a flood control and water conservation project managed by the U.S. Army Corps of Engineers. Water that exceeds the infiltration and storage capacity of the facility is released into San Gabriel River Reach 2. This segment of the River has been further modified as a recharge facility (the Montebello Forebay) allowing groundwater recharge. The channel is unlined from the Whittier Narrows Dam to Firestone Boulevard; as such waters entering this area percolate through the unlined channel and typically do not pass through Reach 2 into Reach 1.

Dry weather discharges to San Gabriel River Reach 1 are limited to discharges of tertiary-treated municipal and industrial wastewater from the Los Coyotes Water Reclamation Plant (WRP). The outfall to San Gabriel River Reach 1 is 1,230 feet upstream of the Artesia freeway. During the summer, this water flows into the San Gabriel River Estuary through a low flow channel. The Coyote Creek channel joins the San Gabriel River upstream of the Estuary, but is also contained in a low flow channel until reaching the Estuary.

The CIMP allows the unique characteristics of the LSGR to be addressed while also integrating requirements of the current Los Angeles County MS4 Permit, the City of Long Beach MS4 permit and monitoring required for applicable Total Maximum Daily Loads (TMDLs). This new approach represents an expansion and reorganization of monitoring in order to allow better assessment of the effectiveness of control measures using a watershed-based approach. The program focuses on controlling pollutants that have TMDLs, are 303(d) listed, and have exceeded water quality criteria in the past and may be causing or contributing to exceedances of RWLs.

[1] LARWQCB 2011. List of Water Bodies added to Tributaries

The CIMP is structured to support the Watershed Management Program's adaptive management process. New information and data resulting from the monitoring program are intended to assist in evaluating the effectiveness of management actions and to regularly re-evaluate the monitoring plan to better identify sources of contaminants. This plan was developed to address five primary objectives listed in Part II.A.1 of the MRP, are as follows:

- Assess the chemical, physical, and biological impacts of discharges from the MS4s on receiving waters.
- Assess compliance with receiving water limitations and water quality-based effluent limitations (WQBELs) established to implement TMDL wet and dry weather load allocations.
- Characterize pollutant loads in MS4 discharges.
- Identify sources of pollutants in MS4 discharges.
- Measure and improve the effectiveness of pollutant controls implemented under the new MS4 permits.

Preparation of a CIMP is intended to allow for development and utilization of alternative approaches as well as providing for coordination of monitoring activities to more cost effectively address the primary objectives listed above. The CIMP proposed for the LSGR Watershed uses an adaptive strategy.

This document provides a brief discussion of the types and locations of monitoring sites, constituents to be monitored at each site, the process of phasing in monitoring sites, and monitoring frequencies. The appendices provide detailed information regarding equipment cleaning and blanking protocol as well as sampling methods and quality control requirements that will be necessary to assure that the monitoring data are valid and suitable for use in making critical decisions regarding program effectiveness and assessment of the effectiveness of control measures.

1.1 Monitoring Objectives

The major elements of the CIMP and primary objectives of each element of the Monitoring Plan include:

- **Receiving Water Monitoring (Wet and Dry Weather)**
  - Are receiving water limitations being met?
  - Are there trends in pollutant concentrations over time or during specified conditions?
  - Are designated beneficial uses fully supported as determined by water chemistry, aquatic toxicity, and bioassessment monitoring?
- **Stormwater Outfall Monitoring**
  - How does the quality of the permittees' discharges compare to Municipal Action Limits?
  - Are the permittees' discharges in compliance with applicable stormwater WQBELs derived from TMDL WLAs?
  - Do the permittees' discharges cause or contribute to an exceedance of the receiving water limitations?

- **Non-Stormwater Outfall Based Monitoring**
    - Are the permittees' discharges in compliance with non-stormwater WQBELs derived from TMDL WLAs.
    - How does the quality of the permittees' discharges compare to Non-Stormwater Action Levels?
    - Do the permittees' discharges cause or contribute to an exceedance of the receiving water limitations?
    - Do the permittees comply with the requirements of the Illicit Connection and Illegal Discharge Program?
- **New Development/Re-development Effectiveness Tracking**
    - Are the conditions established in building permits issued by the Permittees being met?
    - Are stormwater volumes associated with the design storm effectively retained on-site?
- **Regional Studies**
    - How do the permittees plan to participate in efforts to characterize the impact of the MS4 on receiving waters? Include participation in regional studies with the Southern California Stormwater Monitoring Coalition (SMC) and any special studies specified in TMDLs.

2 Water Body-Pollutant Classification

The LSGR Watershed is subject to two TMDLs. The San Gabriel River Metals TMDL was established by USEPA that includes Waste Load Application (WLAs) for MS4 and other dischargers to the San Gabriel River and Coyote Creek. This TMDL includes a dry weather WLA for selenium in San Jose Creek which includes a small portion of the LSGR Watershed. A second TMDL, the Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic TMDL addresses impairments in the sediments, water and biota of the Dominguez Channel, the Ports of Los Angeles and Long Beach and East San Pedro Bay. All jurisdictions subject to the San Gabriel River and Los Angeles River metals TMDLs are required to assess loads of DDTs, PCBs, PAHs and metals associated with sediment discharged from these two watersheds. Although these constituents have not been detected in routine stormwater monitoring, concerns remain that significant loads of toxic chemicals such as DDTs and PCBs may still be transported from urban environments. The stormwater pathway from former manufacturing facilities to the Dominguez Channel and the Harbor waters remains the most probable source of these toxics, but the relative magnitude of contributions from historical use in the urban environment and the importance of these contributions has not been established. Although receiving waters within the LSGR WG are not listed as impaired by these constituents, the LSGR WG is required to assess loads originating from the watershed and implement control measures to address them.

Development of a WMP requires Permittees to develop water quality priorities within each WMA [Section C.5.a (page 58) of the Permit] that will be used to assist in directing implementation of control measures and monitoring to address constituents of concern. These classifications are presented and discussed in Section 2 of the WMP and briefly summarized in this section of the CIMP.

The CIMP was developed to focus on existing water quality conditions. Based on than 10 years of monitoring, data from 2002 to 2012 in Coyote Creek and in upper portions of the San Gabriel River (LACFCD mass emission sites S13 and S14) most of the constituents listed in Table E-2 of the MRP have never been detected and many more have been detected, but have not been found to exceed RWLs. This new program is designed to target constituents that have been identified as constituents of concern in the receiving waters. Available data from historical monitoring were used to classify segments of the LSGR Watershed and establish water body-pollutant combinations into one of the following three categories:

- **Category 1 (Highest Priority): ** Water body-pollutant combinations for which water quality-based effluent limitations and/or RWLs are established in Part VI.E and Attachments L through R of the Order.
- **Category 2 (High Priority)**: Pollutants for which data indicate water quality impairment in the receiving water according to the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment.
- **Category 3 (Medium Priority)**: Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable RWLs contained in the Order and for which MS4 discharges may be causing or contributing to exceedances.

Five water bodies were considered while reviewing data potential impairment of the receiving waters (Table 2-1, Table 2-2). These included the San Gabriel River Reaches 1 and 2 (SG1 and SG2), San Jose Creek Reach 1 (SJC1), Coyote Creek (CC) and the North Fork of Coyote Creek (NFC).

Table 2-1. Summary of Wet Weather Water Body/Pollutant Categories for the Lower San Gabriel River Watershed.

WET WEATHER WATER BODY/POLLUTANT CATEGORIES

CATEGORY	ANALYTE	CLASS	SG1	SG2	SJC1	CC	NFC
1-WET	Copper	Metal				X	X
	Lead	Metal		X	X	X	X
	Zinc	Metal				X	X
2-WET	Ammonia	Nutrient			X	X	
	Cyanide	General		X		X	
	Copper	Metal		X	X		
	Mercury	Metal					X
	Zinc	Metal		X	X		
	Selenium	Metal					X
	PAH	SVOA		X	X		
	Diazinon	OP Pest				X	
	E. coli	Micro	X	X	X	X	X
	pH	General	X		X	X	
	Toxicity				X	X	
3-WET	Cyanide	General			X		X
	Lindane	OC Pest		X			
	Selenium	Metal	X				
	Dissolved Oxygen	General		X	X	X	
	MBAS	General		X		X	

SAN GABRIEL/SAN JOSE CR.
SG1= San Gabriel River
SG2= San Gabriel River Reach 2
SJC1= San Jose Creek Reach 1

COYOTE CREEK
NFC= North Fork Coyote Creek
CC= Coyote Creek

Shading differentiates water bodies within the San Gabriel River and Coyote Creek Branches of the watershed.

POLLUTANT CLASSES
Nutrients= nitrogen and phosphorus compounds
OC Pest = organochlorine pesticides
OP Pest = organophosphorus pesticides
Micro = microbiological (fecal indicator bacteria)
SVOA = semivolatile organic compounds (acid, base & neutral)

Table 2-2. Summary of Dry Weather Water Body/Pollutant Categories for the Lower San Gabriel River Watershed.

DRY WEATHER WATER BODY/POLLUTANT CATEGORIES

CATEGORY	ANALYTE	CLASS	SG1	SG2	SJC1	CC	NFC
1-DRY	Copper	Metal	X			X	
	Selenium	Metal			X		
2-DRY	Ammonia	Nutrient			X	X	
	Copper	Metal		X	X		
	Lead	Metal				X	
	Mercury	Metal					X
	Nickel	Metal				X	
	Selenium	Metal					X
	Zinc	Metal		X	X	X	
	PAH	SVOC		X	X		
	Diazinon	OP pest				X	
	E. coli	Micro	X	X	X	X	X
	Cyanide	General		X		X	
	Chloride	General			X		
	pH	General	X		X	X	
	TDS	General			X		
	Toxicity				X	X	
3-DRY	Cyanide	General					X
	Copper	Metal					X
	Mercury	Metal					X
	Selenium	Metal	X				
	Zinc	Metal					X
	Chloride	General		X	X	X	
	Sulfate	General		X	X		
	Alpha-endosulfan	OC Pest				X	
	Lindane	OC Pest		X			
	pH	General					X
	Diss. Oxygen	General	X	X	X		
	TDS	General		X			

SAN GABRIEL/SAN JOSE CR.
SG1= San Gabriel River
SG2= San Gabriel River Reach 2
SJC1= San Jose Creek Reach 1

COYOTE CREEK
NFC= North Fork Coyote Creek
CC= Coyote Creek

Shading differentiates water bodies within the San Gabriel River and Coyote Creek Branches of the watershed.

POLLUTANT CLASSES
Nutrients= nitrogen and phosphorus compounds
OC Pest = organochlorine pesticides
OP Pest = organophosphorus pesticides
Micro = microbiological (fecal indicator bacteria)
SVOA = semivolatile organic compounds (acid, base & neutral

3 Monitoring Sites and Approach

The approach presented in this CIMP incorporates all objectives of the MRP and provides a customized approach to address the objectives identified in the MRP for Stormwater Outfall Monitoring based upon the unique characteristics of the Lower San Gabriel River (LSGR) watershed.

During dry weather conditions, the LSGR Watershed is effectively separated from the Upper San Gabriel River Watershed as dry weather flows are typically infiltrated. Dry weather flow in Reach 1 is primarily from two Publicly Owned Treatment Works (POTW), the San Jose and Los Coyotes WRPs.

Unique conditions also exist in Coyote Creek since flows (both dry and wet weather) originate from both Los Angeles County and Orange County. The main branch of Coyote Creek approximates the boundary between Los Angeles County and Orange County thus the source of pollutants measured at the S13 Mass Emission can be difficult to evaluate. With the exception of a County "island" located within this drainage area, the North Fork of Coyote Creek is entirely within the bounds of the LSGR Watershed which provides better opportunities for evaluation of long-term performance and the ability to implement control measures as necessary to meet water quality objectives.

An existing monitoring site in the North Fork of Coyote Creek (NFC1) will be used to monitor trends in trace metals subject to the TMDL and responses to implementation of control measures. This monitoring site was proactively installed in the North Fork of Coyote Creek as part of an early action measure designed to obtain initial data specifically to address the San Gabriel River Metals TMDL.

This CIMP addresses monitoring activities required by the MRP - No. CI-6948 for Order R4-2012-0175, NPDES Permit No. CAS004001 for the LSGR Watershed Group. Development of this CIMP focuses on improving the overall effectiveness of the monitoring program by directing resources to address areas with known problems and increasing the cost effectiveness of the program by coordination of sampling efforts.

Final approval of the CIMP is expected late 2014 or early 2015. Monitoring at the existing S13 Mass Emission Site and North Fork of Coyote Creek will continue.

For planning purposes, the new monitoring described in this CIMP and modifications of existing monitoring are intended to commence on July 1, 2015 or 90 days after the approval of the CIMP, whichever is later. Some elements of the CIMP have already been initiated in order to meet schedules established in the Order. Non-stormwater (NSW) outfall screening efforts are underway in order to identify sites with significant flow that require completions of source identification surveys. A majority of the new monitoring program will start in the summer of 2015 and the following wet weather season, and the entire program will be phased in over a three-year period. The CIMP intends to complete source identification surveys for at least 25% of all major outfalls found to convey significant non-stormwater discharges by December 28, 2015.

The approach presented in this CIMP is designed to address objectives of the MRP by incorporating TMDL monitoring requirements and aligning field efforts to increase cost effectiveness. The following sections provide a broad overview of the monitoring program. A comprehensive list of monitoring sites (Table 3-1) and the locations of these sites within the LSGR Watershed (Figure 3-1) are provided to illustrate the coverage provided for each major element. Later sections will provide detailed monitoring requirements for individual elements of the CIMP.

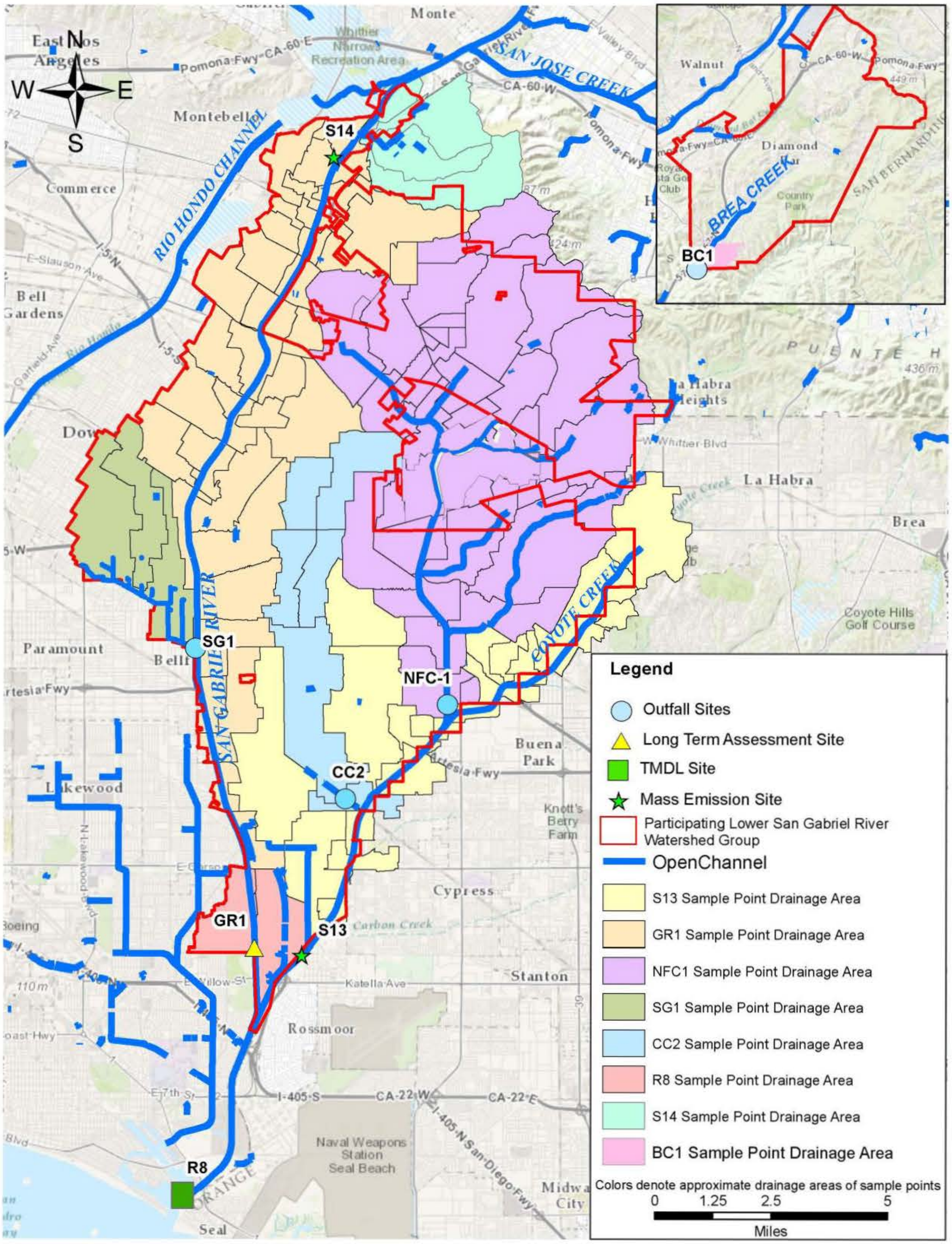

Figure 3-1. Locations of Monitoring Sites in the Lower San Gabriel Watershed.

Table 3-1. Monitoring Site Designation and Monitoring Function.

Site Name	Site Description	Datum NAD83		Type of Site				
				Receiving Water				Stormwater Outfall
		Latitude (N)	Longitude (W)	LTA Mass Emission	LTA	Metals TMDL	Harbor Toxics TMDL	
S13	Coyote Creek at Spring St. (Existing LACFCD Mass Emission)	33.80983	118.07675	X		X	X	
S14[1]	San Gabriel River Reach 3 (Existing LACFCD Mass Emission)	34.01114	118.06758	X		X		
GR1	San Gabriel River above Spring St. (F42B-R)	33.81167	118.09107		X	X	X	
GR2[2]	San Gabriel River @ Firestone	33.92774	118.10881		X	X		
NFC1	N. Fork Coyote Cr.	33.87307	118.03927			X		
CC2	Artesia/Norwalk Drain @ Bloomfield in Cerritos	33.84925	118.06369					X
SG1	Maplewood Channel @ Alondra Blvd.	33.88717	118.10914					X
BC1	Diamond Bar	33.96061	117.85281					X
R8[3]	Mouth of San Gabriel River (Existing LACSD Site)	33.74701	118.11323			X	X	

1. S14 will be monitored by LACFCD and USGR EWMP Group will coordinate with LACFCD for the monitoring Sites in light grey represent potential or alternative sampling locations.
2. GR2 receives no dry-weather runoff and is an alternative LTA and TMDL site that will be activated if Reach 2 wet weather exceedances are detected at GR1 as discussed in Section 3.1.1 (p. 12).
3. The San Gabriel River Estuary is being separately addressed in the Draft Long Beach IWMP anticipated to be submitted to the Regional Board no later than March 28, 2015. R8 is an existing Sanitation District dry-weather monitoring station and data will be incorporated into this CIMP as part of the overall Toxics monitoring regimen.

3.1 Receiving Water Monitoring

The MRP (Part II.E.1) specifies that receiving water monitoring is to be performed at previously designated mass emission stations, additional receiving water sites as necessary, and TMDL receiving water compliance points, as designated in approved TMDL Monitoring Plans. The objectives of the receiving water monitoring include the following:

- Determine whether the receiving water limitations are being achieved,
- Assess trends in pollutant concentrations over time, or during specified conditions,
- Determine whether the designated beneficial uses are fully supported as determined by water chemistry, as well as aquatic toxicity and bioassessment monitoring.

In order to achieve these requirements, two types of receiving water monitoring sites are included in the CIMP. These include:

- **Long-Term Assessment (LTA) Monitoring Sites-** These sites will serve to provide a long-term measure of compliance with receiving water quality criteria and allow for assessment of trends in pollutant concentrations. The LTA sites receive a significant amount of comingled runoff from essentially the entire San Gabriel River Watershed. The LTA sites will serve as a general indicator of the health of the Lower San Gabriel River. The LTA sites will also serve as TMDL monitoring sites.
- **TMDL Receiving Water (TMDL) Monitoring Sites** – These sites are intended to evaluate compliance or progress towards attainment of allocations for TMDLs and ultimately provide data to evaluate when objectives are met and determine when sufficient data exist to reevaluate the 303(d) listing.

3.1.1 Long-Term Assessment (LTA) Sites

The existing Coyote Creek Mass Emission (ME) monitoring station (S13) will continue to serve as a LTA monitoring station for the LSGR WG. This site is located is located adjacent to an existing gauging station in Coyote Creek (Stream Gauge F354-R) below Spring Street. This site has been monitored by the Los Angeles County Flood Control District (LACFCD) since 1997 and will continue to be monitored by the LACFCD. The LSGR WG will coordinate with LACFCD for any TMDL monitoring that is beyond LACFCD's existing monitoring program.

Monitoring will also be continued at the San Gabriel River (S14) ME site. This site also has been monitored by the LACFCD since 1997 and will continue to be monitored by the LACFCD. The Upper San Gabriel River Enhanced Watershed Management Program Group (USGR EWMP Group) will coordinate with LACFCD for monitoring at the S14 ME site. Data will be shared to allow evaluation of long-term trends and to evaluate potential additional sampling requirements at sites downstream of S14.

A new LTA monitoring site (GR1) will be established adjacent to the LACFCD gauging station (F42-BR) located at the bottom of Reach 1 in the San Gabriel River. This site was previously used by the Southern California Coastal Water Research Program to collect stormwater runoff samples as part of special studies. This site will utilize automated stormwater sampling as described in Appendix A for all wet weather monitoring. Cleaning protocol and QA/QC measures listed in Appendices B and C will also apply to collection of stormwater runoff samples. Collection of dry weather water quality samples will be based on grab samples with water being collected directly into the laboratory sample containers which will eliminate any potential contamination from the sampling hoses and composite containers. This will also be consistent with sampling methods used for any required monitoring of non-stormwater discharges. This monitoring station will be used to collect both stormwater and dry weather runoff but it is recognized that dry weather flow in San Gabriel River Reach 1 is dominated by discharges from two Wastewater Treatment Plants (WTPs). Urban sources are not expected to be discernable during the dry season (Figure 3-1).

A third LTA monitoring site (GR2) will be considered for potential installation and monitoring starting in the third year of the program. This site is located in the main channel of the San Gabriel River at Firestone Blvd which marks the division between Reach 1 and Reach 2 of the San Gabriel River downstream of the Montebello Forebay groundwater recharge facility. Installation of a monitoring station at this location will be considered if data from the first two years of monitoring at the GR1 LTA site indicates that RWL are exceeded in at least 2/3 of the wet weather surveys. Monitoring data from the S14 ME, located at the upstream extent of San Gabriel River Reach 2, will also be considered to further assess the potential benefits of installing another receiving water quality monitoring station. If after completing an assessment of data from GR1 located downstream of the site and S14 located upstream of the site, it is determined that additional data from GR2 would help to further address the goals of the program, equipment would be installed and monitoring would start the next storm season.

3.1.2 Total Maximum Daily Load (TMDL) Monitoring Sites

The LSGR WG will conduct monitoring necessary to meet objectives of the Los Angeles County NPDES MS4 permit and incorporate monitoring requirements associated with the two TMDLs. Compliance with the Metals TMDL will be evaluated by the three receiving water monitoring sites. These include the existing ME site in Coyote Creek (S13), the new LTA site being installed at GR1 at the base of the San Gabriel River Reach 1, an existing TMDL site installed in North Coyote Creek (NFC1) in 2013. The NFC1 site has been monitored for the past year to provide additional data for trace metal and sediment loads from a segment of the watershed that is fully within the LSGR WG boundaries and includes significant industrial land use.

The Harbor Toxics TMDL requires monitoring of water and sediments at the mouth of the San Gabriel River during both wet and dry weather conditions. Since flow monitoring and collection of composite samples is not feasible at the mouth of the San Gabriel River, monitoring during wet weather conditions will be accomplished by collection of water and suspended sediments from both the main stem of the San Gabriel River and Coyote Creek. Sampling at both these locations allows quantification of loads from the entire watershed as is intended by the TMDL. Water and suspended sediments will be collected at S13 and GR1 to quantify loads of DDTs, PCBs, and PAHs from the watershed. Monitoring at S13 for this TMDL will be coordinated between the LACFCD and LSGR WG, and monitoring at GR1 will be monitored conducted by the LSGR WG. In general, the LSGR WG will coordinate with LACFCD staff for any TMDL monitoring at S13 that is beyond LACFCD's existing monitoring program. Analytical methods and detection limits used by the County's Ag Laboratory for analysis of stormwater and dry weather discharges at the S13 ME site are listed in Appendix E. Detection limits are consistent with the MRLs listed in Table E-2 of the MRP.

Collection of dry weather water and sediment for the Harbor Toxics TMDL will be conducted by Los Angeles County Sanitation District (LACSD) staff. Dry weather water and bed sediment will be collected from their existing site, R8, located where the Marina Bridge crosses at the mouth of the San Gabriel River. Sampling and analytical methods will be consistent with those specified in the Harbor Toxics TMDL. Analytical methods and data quality objectives are listed in Appendix F.

3.2 Stormwater Outfall Monitoring

Three stormwater outfall monitoring sites will be included in the monitoring program. These will include CC2, SG1 and BC1. CC2 collects runoff from the large Artesia-Norwalk Drain and discharges to Coyote Creek. SG1 is located near Maplewood and discharges to Reach 1 of the San Gabriel River. This site was monitored for historically by the LACFCD as part of a special study. The third will be located in Diamond Bar (BC1) in a storm drain that discharges to Brea Creek.

Stormwater outfall sites are intended to ensure representative data by monitoring at least one outfall per major subwatershed (HUC 12) drainage area and assuring that drainage areas for each selected outfall are representative of the land uses within the Permitee's jurisdiction. The drainage areas of the outfall monitoring sites are representative of a wide variety of land uses within the LLSG including residential, commercial and industrial. In addition, the selected outfalls have appropriate configurations to facilitate accurate flow measurements and provide conditions necessary for the safety of monitoring personnel. The land use for sites used as outfall monitoring stations are shown in Table 3-2. The land uses of the four sites shown in Table 3-2 closely matches the land use throughout the LSGR watershed. The overall land use for the LSGR can be seen in Figure 3-2.

There are two major HUC 12 equivalent units in the LSGR, the Coyote Creek – San Gabriel River and Brea Creek - Coyote Creek units. Two stormwater outfall monitoring sites, SG1 and CC2, are located in the Coyote Creek- San Gabriel. The BC1 stormwater outfall monitoring site is located in the Brea Creek- Coyote Creek. The Brea Creek-Coyote Creek HUC 12 equivalent unit has a majority of its area located in Orange County and a lesser area in San Bernardino County. The outfall monitoring site(s) selected only collects drainage from the LSGR areas.

Table 3-2. Land Use for Sites Used as Outfall Monitoring Stations

Outfalls	Land Use %					
	Residential	Commercial	Industrial	Mixed Use	Open Space	Other
NFC1	65.10%	4.28%	14.06%	2.80%	9.55%	3.91%
CC2	65.52%	9.89%	11.44%	1.02%	4.02%	8.10%
SG1	44.13%	16.41%	17.62%	13.53%	1.99%	6.31%
BC1	80.10%	5.13%	0.00%	0.00%	0.00%	14.76%
LSGR Watershed	74.41%	4.82%	7.04%	3.35%	6.11%	4.19%
Average of 4 outfalls	63.71%	8.93%	10.78%	4.34%	3.89%	8.27%

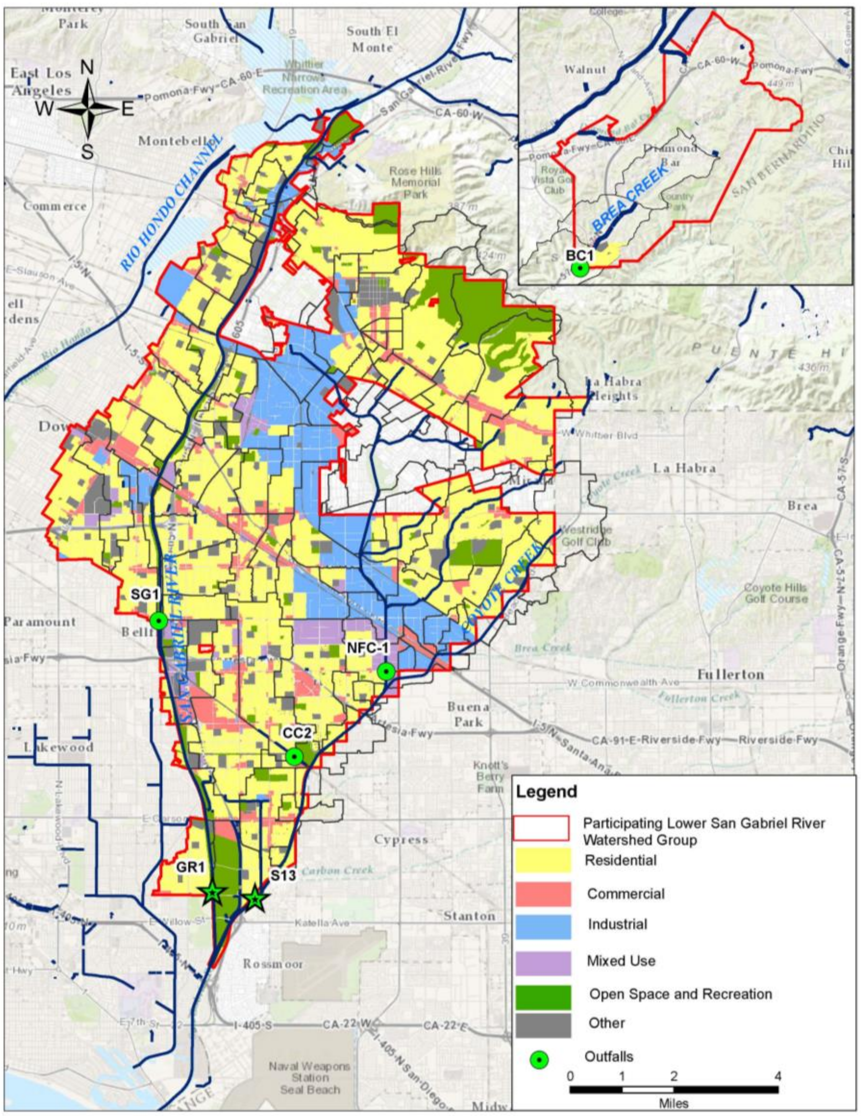

Figure 3-2. Overall Land Use for the Lower San Gabriel River

Recognizing a need for sampling data, the La Mirada Creek HUC 12 equivalent is already being monitored by the early-action monitoring site, NFC1. This site was installed in the North Fork of Coyote Creek in 2013 in anticipation of this CIMP. Upper San Gabriel River Watershed Group is separately proposing an outfall monitoring site at a centrally located site within the NFC subwatershed as shown on Figure 3-3. Outfall parameters will not be added at NFC1 since it is a TMDL site. The LSGR Watershed Group has not independently reviewed the land use of that outfall's drainage area, nonetheless the LSGR Watershed Group will review data from the County's outfall site upstream of NFC1 and add an outfall site during Adaptive Management.

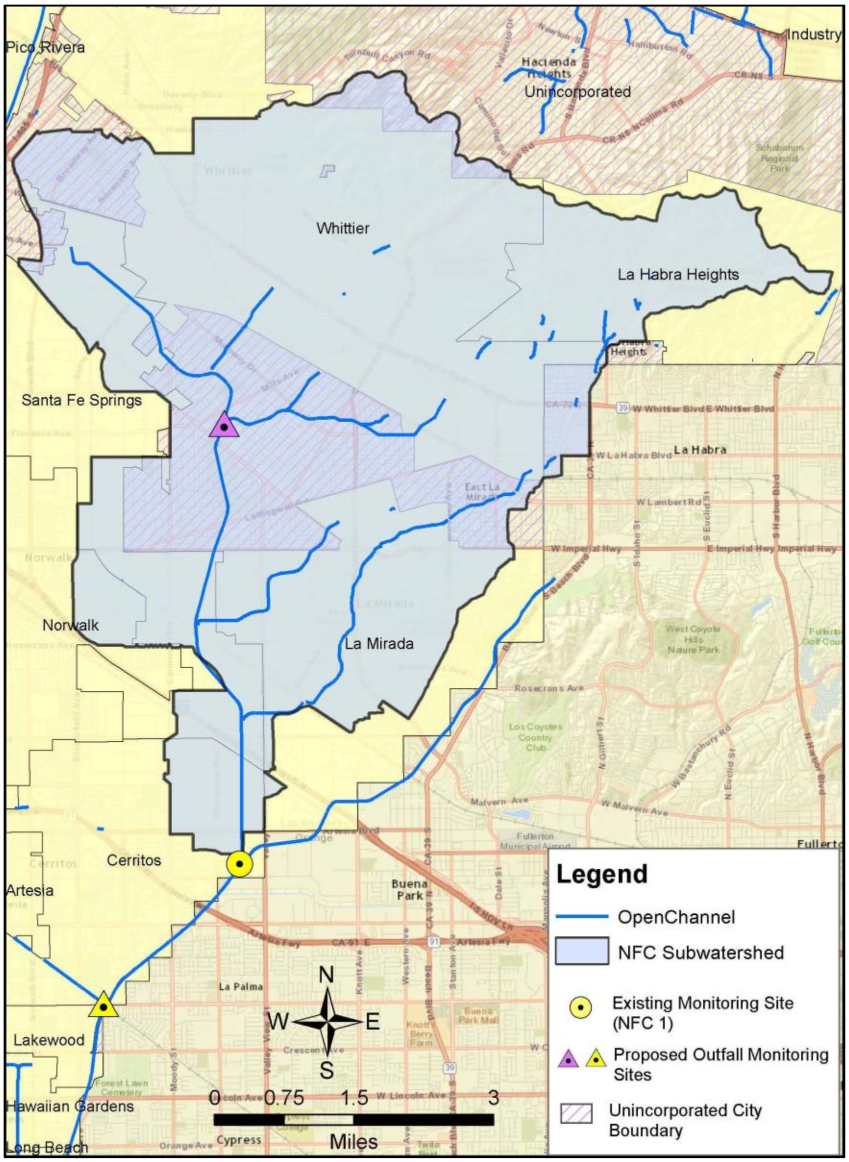

Figure 3-3. Proposed outfall monitoring site within the NFC subwatershed

There are two HUC 12 equivalents with significant land area within the LSGR as compared to the other three HUC Units, Upper and Lower San Jose Creek. These only receive runoff from a portion of City of Diamond Bar and a very small area of Whittier primarily consisting of restored native habitat. These areas have similar land use and soil types as the southern portion of Diamond Bar which is located within the Brea –Coyote Creek HUC.

Diamond Bar Creek originates in the city of Diamond Bar, then flows through a heavily industrialized portion of the City of Industry, then again into the City of Diamond Bar before flowing once again into the City of Industry prior to discharging into San Jose Creek. The comingled discharged is not deemed representative of the city of Diamond Bar. The upstream areas of Diamond Bar Creek could be isolated, but are primarily vacant and natural areas and are not representative of land uses (Figures 3-4 and 3-5).

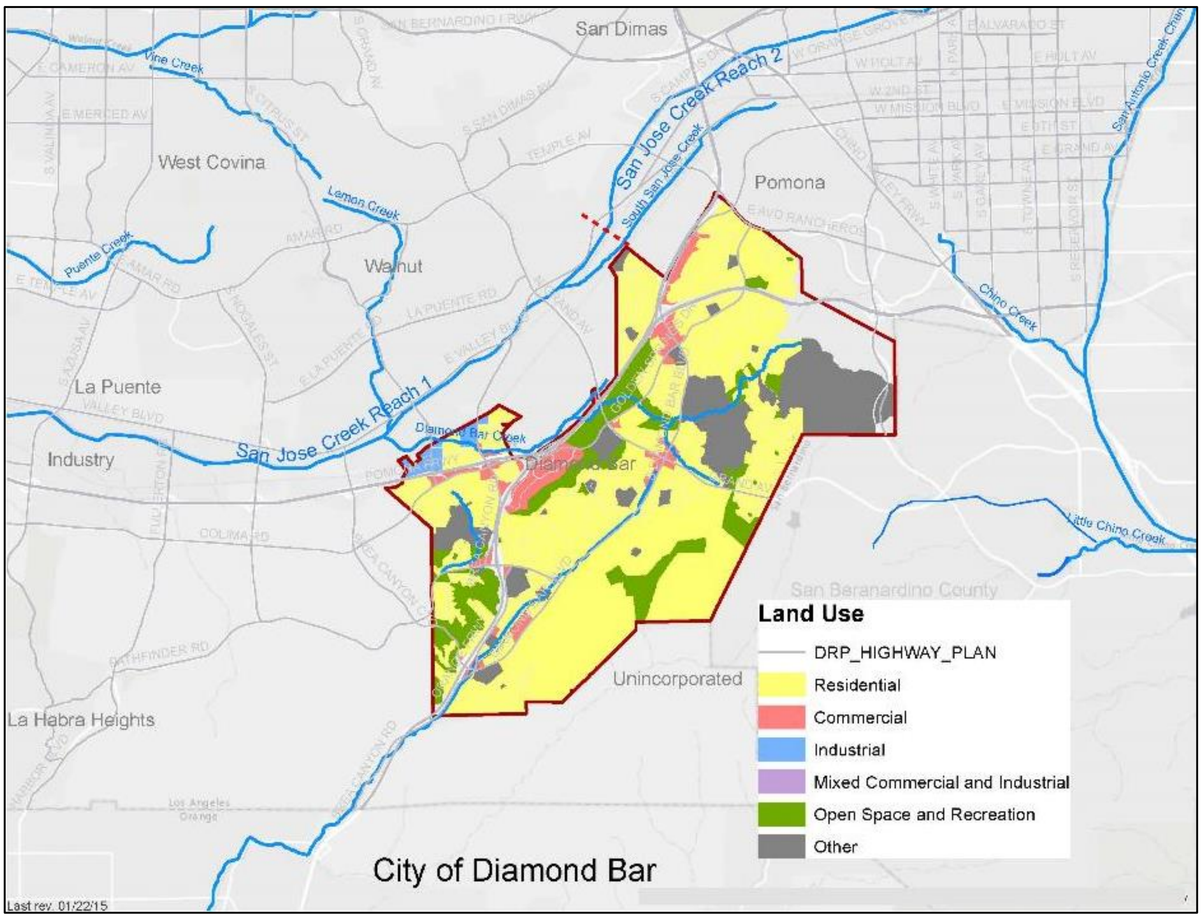

Figure 3-4. City of Diamond Bar Land Use

In addition, this portion of San Jose Creek is already well represented by monitoring points as shown in Figure 3-5, which is a compilation based on the Draft CIMPs submitted by multiple watershed groups in areas upstream of the LSGR. The LSGR will commit to reviewing the data reported form these stations and incorporate the findings into the adaptive management process which could include modifications to sampling parameters and locations.

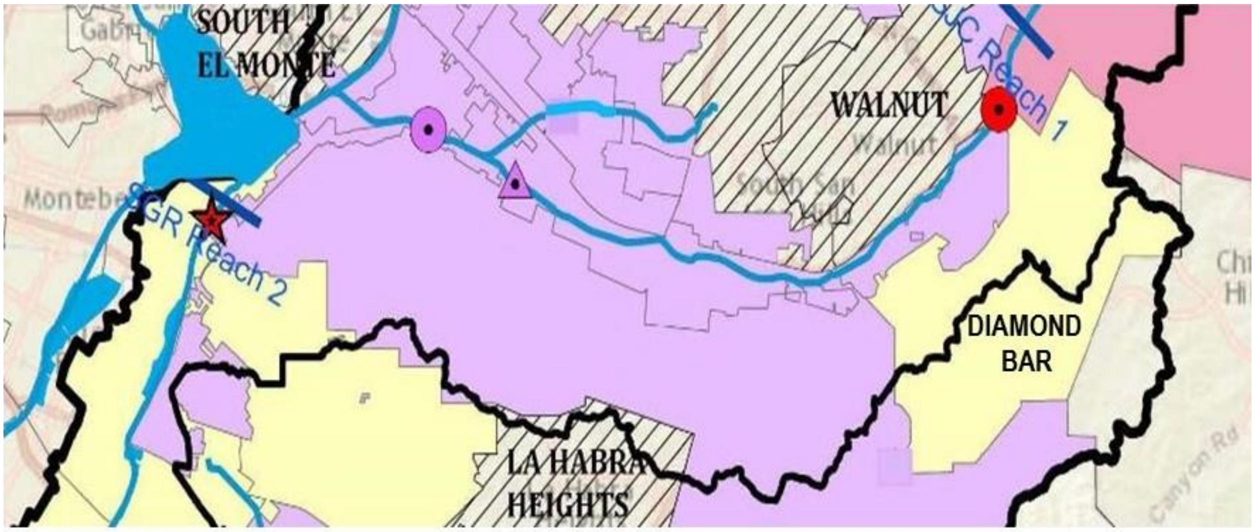

Figure 3-5. Existing Monitoring Points in San Jose Creek

Therefore site BC1 was deemed more representative for the land us areas of Diamond Bar. The analysis of the runoff collected at the BC1 site will be reviewed and evaluated as equivalent to the runoff to San Jose Creek Reach 1 being monitored by the USGR WG and the S14 ME site in the San Gabriel River. Selenium and Total Dissolved Solids (TDS), constituents of special concern levels will be reviewed in comparison to runoff from the BC1 site will be re tributaries. Collecting samples from these areas is a low priority.

The proposed monitoring sites in this CIMP are considered to provide representative samples for the entire LSGR Watershed. Outfall monitor is part of an ongoing process which started with the aforementioned already installed early-action site NFC1 and will continue on schedule as described in Table 4-1.

3.3 Non-Stormwater Outfall Monitoring

NSW outfall based monitoring will be conducted for outfalls discharging to receiving waters of the LSGR Watershed. This program is intended to focus on major outfalls defined as those that are greater than 36 inches in diameter and those between 12 and 36 inches that are near areas with industrial land uses. Initially, all pipes greater than 12 inches in diameter will be inventoried. Appendix H provides maps of all outfalls to the LSGR Watershed that are 12-inches or greater in diameter. The database from the first survey will be refined to determine which of the 12-inch to 36-inch pipes are near areas with industrial land uses. Discharge pipes less than 36 inches in diameter and determined not to incorporate runoff from industrial land use areas will be excluded from further surveys. Two additional surveys will be conducted to collect outfall characteristics that may be used to determine outfalls with persistent and significant non-stormwater flows. Once outfalls with significant flows have been identified, the source identification may utilize a combination of field tests and limited laboratory testing to assist in determining whether flows are the result of illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt non-stormwater flows, natural flows or unknown.

If monitoring of NSW discharges is necessary, samples will be collected twice a year in conjunction with dry weather monitoring at receiving water monitoring sites. In addition, samples would be collected using grab sampling methods consistent with dry weather sampling at the receiving water quality sites.

3.4 New Development/Re-Development Effectiveness Tracking

The MRP requires that Permittees develop a New Development/Re-Development Effectiveness tracking program. Participating agencies have developed mechanisms for tracking information related to new and redevelopment projects that are subject to post-construction best management practice requirements in Part VI.D.7 of the MS4 Permit.

3.5 Regional Studies

The MRP requires participation in regional studies, including participation in the Southern California Monitoring Coalition (SMC) Regional Watershed Monitoring Program (bioassessment) and special studies as specified in approved TMDLs.

The LACFCD currently participates in the SMC Monitoring Program. The LACFCD, on behalf of the LSGR WG, will continue to participate in the Regional Watershed Monitoring Program (Bioassessment Program) being managed by the Southern California Stormwater Monitoring Coalition (SMC). The LACFCD will also continue to coordinate and assist in implementing the bioassessment monitoring requirement of the MS4 permit on behalf of the permittees in Los Angeles County. Initiated in 2008, the SMC's Regional Bioassessment Program is designed to run over a five-year cycle. Monitoring under the first cycle concluded in 2013, with reporting of findings and additional special studies planned to occur in 2014. The SMC Joint Executive Workgroup is currently working on designing the bioassessment monitoring program for the next five-year cycle, which is scheduled to run from 2015 to 2019.

4 Summary of Sampling Frequencies for each CIMP Element

It is proposed that the CIMP will be implemented in a phased process (Table 4-1). Three receiving water stations are proposed for monitoring starting July 1, 2015 or 90 days after the CIMP approval, whichever is later. The existing ME site located at S13 (Coyote Creek) will continue to be operated by the LACFD, and modifications to the existing program will commence on July 1, 2015 or 90 days after the CIMP approval, whichever is later. The LSGR WG will coordinate with LACFCD staff for any TMDL monitoring this that is beyond LACFCD's existing monitoring program. A second receiving water site, GR1, will be installed in the San Gabriel River near Spring Street in 2015-16. The third site, NFC1, was installed in the North Fork of Coyote Creek in 2013 as part of an early action effort to develop contemporary data for this watershed.

Starting July 1, 2015 or 90 days after the CIMP approval, whichever is later, two water quality testing surveys, one wet and one dry, will be conducted at all LTA sites to incorporate the comprehensive list of water quality parameters listed in Table E-2 of the Attachment E of Regional Board Orders No. R4-2012-0175 (NPDES NO. CAS004001) and R-4-2014-0024 (NPDES No. CAS004003) in the first year of monitoring. This full set of analytes will be analyzed in water collected during the first major storm event of the year and during a dry season survey in July when flows are considered to be at historical seasonal lows. The remaining two wet weather events and one dry event will monitor only the prioritized water body-pollutant combinations discussed in Section 1.2 above. If Table E-2 parameters are not detected at the specified Method Detection Limit (MDL) for their respective test method or if the result is below the lowest applicable water quality objective, and is not otherwise identified as a prioritized water body-pollutant combination, the analyte will not be further analyzed. Parameters exceeding the lowest applicable water quality objective will continue to be analyzed beginning year 2 for the remainder of the Order at the receiving water monitoring station where it was detected. The Receiving Water Monitoring Program will also include Aquatic Toxicity Monitoring. Existing data (refer to Aquatic Toxicity section) indicates that bioassay tests using *Ceriodaphnia dubia* are the most appropriate for testing toxicity.

NFC1 was installed in 2013 as part of an early action effort to start collecting data to support the objectives of the San Gabriel River Metals TMDL. This site will continue to be monitored as a TMDL site with four wet weather events and two dry weather monitoring events.

Sampling for the Harbor Toxics TMDL will be initiated during the 2015-16 wet season at both S13 and GR1. Harbor Toxics TMDL dry weather water quality sampling will be conducted by LACSD at R8 and modifications to their existing monitoring program will commence in summer of 2015. Sediment sampling for the Harbor Toxics TMDL will not commence until in the summer of 2016 in order to synchronize with sediment monitoring being conducted by the Harbor Toxics RMP.

The R8 monitoring site proposed for the dry weather monitoring requirement is located at the mouth of the San Gabriel River at the Marina Bridge. This site has been historically monitored by LACSD for water quality, bedded sediment chemistry, benthic community analysis and for sediment toxicity consistent with methods required to assess Part One Sediment Quality Objectives.

Three stormwater outfall monitoring sites will be monitored in the LSGR Watershed. The first two stormwater outfall monitoring sites will be installed and monitored starting in the 2016-17 wet season assuming the CIMP is approved. These will include CC2 (Artesia/Norwalk Drain) and SG1 (Maplewood @ Alondra). CC2 is a large storm drain that discharges to Coyote Creek. SG1 is a site draining to Reach 1 of the San Gabriel River. This site was previously monitored as part of a special study conducted by the Los Angeles County MS4 monitoring program. One additional stormwater outfall monitoring site will be added for the 2017-18 wet season. This stormwater outfall site, BC1, is located in Diamond Bar. The monitoring site will be located at an outfall from a 30" RCP owned by the LACFCD. This site will be sampled either with portable autosampler set to collect time-based samples or by taking manual grab samples.

Table 4-1. Schedule for Implementation of Water Quality Monitoring Activities in the Lower San Gabriel River Watershed.

Task	2014-15	2015-16	2016-17	2017-18
S13 (Coyote Cr. at Spring) Receiving Water/TMDL/ME	Existing Monitoring	X	X	X
GR1 (San Gabriel R. @ Spring) Receiving Water/TMDL/LTA		X	X	X
GR2 (San Gabriel R. @ Firestone) Receiving Water/TMDL				X
NFC1 (N. Fork Coyote Creek) Receiving Water/TMDL	Existing Monitoring	X	X	X
R8 (Mouth of SGR Estuary) Receiving Water/TMDL	Existing Monitoring	X	X	X
Stormwater Outfalls				
CC2 (Artesia/Norwalk)			X	X
SG1 (Maplewood @ Alondra)			X	X
BC1 (Diamond Bar)				X
Non-Stormwater Outfall				
Inventory & Assess[1]	X			
Source ID[2]		X		
Monitoring[3]			X	X

Grey text for tasks and schedules indicate situations that remain uncertain and require further consideration based upon initial monitoring data.

1. Initial Inventory and Screening will be completed in three surveys before the end of 2014. One re-assessment of the Non-Stormwater Outfall Monitoring Program will be conducted prior to December 2017.
2. Investigations designed to track and classify discharges will start during the 2015 dry season. Source tracking and classification work will depend upon the number of sites categorized as having significant flow.
3. Monitoring will be implemented if significant dry weather flows are identified at discharge points that are cannot be identified, are non-essential exempt flows, or identified as illicit flows that are not yet controlled. These sites will be initially monitored twice a year in conjunction with dry weather monitoring of the receiving water site.

5 Chemical/Physical Parameters

This section provides a summary of chemical parameters required to be analyzed at the receiving water monitoring stations a minimum of two dry weather events and four stormwater events each year. The Watershed Group will use wet-weather monitoring results from the first year to consider requesting a reduction in frequency to three wet-weather events in the future. The fourth storm event is only for the purpose of fulfilling the TMDL requirements. Only copper, lead, zinc, total suspended solids (TSS), suspended sediment concentration (SSC), and hardness will be analyzed. The full set of Table E-2 constituents are intended to be analyzed once during the first major storm event of the season at LTA monitoring sites. The full set of Table E-2 constituents will also be analyzed at these sites in July during the critical dry weather period. Nevertheless, dry weather discharges to the San Gabriel River from the MS4 are known to be less than 1-2% of the flow in Reach 1 of San Gabriel River. The San Gabriel River Metals TMDL indicated that median flow measurements at the Los Angeles County Department of Public Works gauging station F42B-R, located just above Spring Street, were 114 cfs. The sum of median flows from the two WRPs totaled 115 cfs, slightly higher than the median flow measured at the downstream gaging station. Contributions of urban flows during dry weather simply are not discernable from discharges from the two WRPs. As a result, it is expected that monitoring of dry weather flows at GR1 will be more reflective of discharges from the WRPs.

Results of initial wet weather and dry weather monitoring of Table E-2 constituents at LTA sites will be used to determine if constituents should be added to the list of constituents monitored at each LTA site in the following year. If these constituents continue to exceed RWLs at an LTA site they will be further considered for inclusion at upstream stormwater outfall sites (Table 5-1). The full set of analytical requirements discussed below is based upon Table E-2 of the Monitoring and Reporting Program and summarized in Table 5-3 through Table 5-9 below.

Analytical requirements for the program are broken out by analytical test requirements since many are associated with an analytical test suite. This is most evident with the semivolatile organic compounds analyzed by EPA Method 625. Although this section identifies recommended methods for each analyte, many of the target constituents can be addressed by alternative methods. Selection of analytical methods is intended to be performance-based to allow laboratories flexibility to utilize methods that meet or exceed MLs listed in the MRP.

The lists of Table E-2 constituents only show Minimum Levels (MLs) required for each analyte under the monitoring program since Method Detection Limits (MDLs) will vary among laboratories. Reporting limits are required to meet the established MLs unless matrix or other interferences are encountered that cannot be eliminated by additional cleanup procedures.

The critical dry weather event is defined as the period when historical in-stream flow records are lowest or during the historically driest month. An analysis of long-term flow records at the F354 gauging station in Coyote Creek (same location as the LACFCD's S13 Mass Emission) found flows to typically reach the most critical condition in July.

Comprehensive monitoring of priority pollutants in the receiving waters at the LTA sites will be conducted during the first year and is intended to assure that all constituents with potential to impact water quality are incorporated into the monitoring program. In addition, any additional constituents found to commonly exceed receiving water limitations at the LTA site will also be incorporated into stormwater outfall monitoring program in order to help identify watershed sources of the pollutants.

Table 5-1. Summary of Wet Weather Water Quality Constituents and Frequency at Mass Emission, LTA and TMDL Monitoring Sites.

CLASS OF MEASUREMENTS	RECEIVING WATERS			
	ME Coyote Creek	LTA San Gabriel River	TMDL	
	S13	GR1	NFC1	GR2[1]
Flow	4	4	4	3
Field Measurements DO, pH, Temp, and Spec. Cond.	4	4	4	3
MRP Table E-2 Constituents[2] (other than those listed below)	1	1	1	1
Aquatic Toxicity[3]	2	2	2	2
Conventionals[4] (Table 5-3) All <u>except</u> total phenols, turbidity, BOD_5, MTBE, and perchlorate, and fluoride.	4	4	4	4
Microbiological Constituents (Table 5-4) *E. coli*	3	3	3	3
Nutrients (Table 5-5) Ammonia	3	3	3	3
OC Pesticides and PCBs (Table 5-6) Lindane	3	3	3	3
Metals[4] (Table 5-7)				
Copper	4	4	4	4
Lead	4	4	4	4
Mercury	4	4	4	4
Selenium	4	4	4	4
Zinc	4	4	4	4
OP Pesticides (Table 5-8) Diazinon	3			
PAHs (Table 5-8)	3			

1. GR2 is a tentative TMDL site located between San Gabriel River Reach 1 and 2. This site will only be considered for monitoring if monitoring at S14 and GR1 provide evidence of increasing concentrations between these two sites.
2. All Table E-2 constituents will be measured during the first major storm event of the season and the critical, low flow dry weather event during July of the first year of the CIMP. Constituents that are detected above the lowest applicable WQOs during the first year of monitoring, will be analyzed for the remainder of the Order at the receiving water monitoring station where it was detected.
3. Aquatic toxicity may be triggered by results at site S13. Aquatic toxicity at NFC1 will only be run if detected at the downstream receiving water station.
4. The fourth storm event is only for the purpose of fulfilling the TMDL requirements. Only metals, TSS, SSC, and hardness will be analyzed.

Table 5-2. Summary of Dry Weather Water Quality Constituents and Frequency at Mass Emission, LTA and TMDL Monitoring Sites.

CLASS OF MEASUREMENTS	RECEIVING WATERS			
	ME Coyote Creek	LTA San Gabriel River	TMDL	
	S13	GR1	NFC1	GR2[1]
Flow	2	2	2	2
Field Measurements DO, pH, Temp, and Spec. Cond.	2	2	2	2
MRP Table E-2 Constituents[2] (other than those listed below)	1	1	1	1
Aquatic Toxicity[3]	1	1		
Conventionals (Table 5-3) All <u>except</u> total phenols, turbidity, BOD_5, MTBE, and perchlorate, and fluoride.	2	2	2	2
Microbiological Constituents (Table 5-4)				
E. coli	2	2	2	2
Nutrients (Table 5-5)				
Ammonia	2	2	2	2
OC Pesticides and PCBs (Table 5-6)				
Alpha-Endosulfan	1			
Lindane				2
Metals (Table 5-7)				
Copper	2	2	2	2
Lead	2		2	
Mercury	2		2	
Selenium	2	2	2	2
Zinc	2		2	2
OP Pesticides (Table 5-8)				
Diazinon	2			
PAHs (Table 5-8)	2			

1. GR2 is a tentative site expected to be dry during the summer. Constituents are listed are based upon S14 which includes input from a very small segment of the LSGR watershed.
2. All Table E-2 constituents will be measured during the first major storm event of the season and the critical, low flow dry weather event during July of the first year of the CIMP. Constituents that are detected above the lowest applicable WQOs during the first year of monitoring, will be analyzed for the remainder of the Order at the receiving water monitoring station where it was detected.
3. Aquatic toxicity may be triggered by results at site S13. Aquatic toxicity at NFC1 will only be run if detected at the downstream receiving water station.

5.1 General and Conventional Pollutants

Six of the conventional pollutants listed in Table 5-3 will continue to be analyzed as part of the base monitoring requirements. These include cyanide, TSS, TDS, Total Hardness, MBAS, and chloride. Specific conductance will be analyzed with along field measurements for dissolved oxygen, pH, and temperature. Additional constituents identified as constituents of concern during the first monitored storm event of the season and/or in association with monitoring conducted during the critical low flow event may also be considered for addition to the analytical suite after the first year. In addition, consideration will be given towards incorporation of other general and conventional constituents in this table that may be useful as indicators of contamination or that help interpret and evaluate sources of contaminants.

Table 5-3. Conventional Constituents, Analytical Methods and Quantitation Limits.

CONSTITUENTS CONVENTIONAL POLLUTANTS	METHOD	Target Reporting Limits mg/L
Oil and Grease	EPA1664	5
Total Petroleum Hydrocarbon	EPA 418.1	5
Total Phenols	EPA 420.1	0.1
Cyanide	EPA 335.2,SM 4500-CNE	0.003
Turbidity	EPA 180.1, SM2130B	1
Total Suspended Solids	EPA 160.2, SM2540D	1
Total Dissolved Solids	EPA 160.1, SM2540C	1
Volatile Suspended Solids	EPA 160.4, SM2540E	1
Total Organic Carbon	EPA 415.1 SM 5310B	1
Biochemical Oxygen Demand	EPA 405.1, SM 5210B	3
Chemical Oxygen Demand	EPA 410.1, SM5220D	4
Alkalinity	EPA 310.1, SM2320B	5
Specific Conductance	EPA 120.1, SM2510 B	1
Total Hardness	EPA 130.2, SM2340C	1
MBAS	EPA 425.1, SM5540-C	0.02
Chloride	EPA300.0, SM4110B	2
Fluoride	EPA300.0, SM4110B	0.1
Perchlorate	EPA314.0	4 ug/L
Volatile Organics	**METHOD**	**mg/L**
Methyl tertiary butyl ether (MTBE)	EPA624	1
Field Measurements	**METHOD**	**mg/L**
pH-field instrumentation	EPA 150.1	0 – 14
Temperature-field	In-situ	N/A
Dissolved Oxygen- field [1]	In-situ, SM4500 (OG)	Sensitivity to 5 mg/L

[1]Dissolved Oxygen will only be measured during dry weather surveys.

5.2 Microbiological Constituents

Table E-2 list four microbiological constituents that are used as fecal indicator bacteria (FIB). Since bacteria are not 303(d) listed for the downstream waters of the San Gabriel River Estuary, FIBs used to assess marine waters will not be included in any testing. Only *Escherichia coli* will be monitored at receiving water sites, TMDL sites and stormwater outfall sites.

Table 5-4 provides both upper and lower quantification limits for *E. coli* as well as other FIBs limited to marine waters. Upper quantification limits are provided to assure that measurements result in quantitative values rather than values that are qualified as greater than a fixed value. The intent is to assure that adequate dilutions are used to assure that quantifiable results are obtained.

Table 5-4. Microbiological Constituents, Analytical Methods and Quantitation Limits.

BACTERIA[1]	Method	Lower Limits MPN/100ml	Upper Limits MPN/100ml
Total coliform (marine waters)	SM 9221B	<20	>2,400,000
Fecal coliform (marine waters)	SM 9221B	<20	>2,400,000
Enterococcus (marine waters)	SM 9230C	<20	>2,400,000
E. coli (fresh waters)	SM 9223 COLt	<10	>2,400,000

[1]Microbiological constituents will vary based upon sampling point. Total & fecal coliform and enterococcus will only be measured in marine waters or at locations where either the discharge point or receiving water body will directly impact marine waters. *E. coli* will be analyzed at sites within the freshwater portion of the watershed.

5.3 Nutrients

Nutrients include both nitrogen and phosphorus compounds listed in Table 5-5. Ammonia is the only nutrient that has been 303(d) listed or that has been found to exceed any RWLs in the LSGR region. All nutrients will be analyzed at the three mass emission sites during the first major storm event and the July critical dry weather event. Phosphorus compounds have not been identified as constituents of concern in the watershed and will likely only be analyzed during the first year when sampling includes all Table E-2 constituents.

Table 5-5. Nutrients, Analytical Methods, and Quantitation limits

CONSTITUENT	METHOD	REPORTING LIMIT (mg/L)
Total Kjeldahl Nitrogen (TKN)[1]	EPA 351.1	0.50
Nitrate as Nitrogen (NO3-N)[1,2]	EPA 300.0	0.10
Nitrite as Nitrogen (NO2-N)[1,2]	EPA 300.0	0.05
Total Nitrogen[1]	calculation	NA
Ammonia as Nitrogen (NH3-N)	EPA 350.1	0.10
Total Phosphorus	SM 4500-P E or F	0.1
Dissolved Phosphorus	SM 4500-P E or F	0.1

1. Total Nitrogen is the sum of TKN, nitrate, and nitrite.
2. Nitrate –N and Nitrite-N may be analyzed together using EPA 300

5.4 Organochlorine Pesticides and PCBs

Organochlorine pesticides (OC pesticides) and PCBs have been analyzed in both stormwater and dry weather water samples collected at S13 between 2006 and 2013. Endosulfan I was the only OC pesticide detected. This pesticide was measured at a concentration of 26 ug/L at S13 during a dry weather sampling event. OC pesticides and PCBs are rarely detected in stormwater or dry weather discharges since they are so strongly associated with particulates. Monitoring for PCBs will be reported as the summation of aroclors and a minimum of 50 congeners and will be analyzed using EPA Method 8270, without the use of High Resolution Mass Spectrometry for routine monitoring.

The Harbor Toxics TMDL required testing to be conducted by analyzing these compounds on suspended sediment transported during storm events. A special monitoring program has been proposed to allow better assessment of these compounds while also providing data to support the Harbor Toxics TMDL. Monitoring for these constituents will be conducted at S13 and GR1 to allow quantification of loads from both major branches of the San Gabriel River Watershed.

The Harbor Toxics TMDL requires monitoring of these analytes during two storm events and one dry weather event. Monitoring during the two storm events will use specialized sampling and analytical methods detailed in Section 8.1.2. During dry weather sampling events, suspended sediment concentrations will be too low to allow for direct assessment of chlorinated pesticides and PCBs in the suspended particulate fraction. Monitoring conducted for characterization of dry weather conditions will utilize the same conventional methods (Table 5-6) being used in the receiving waters of the Harbor. Detailed information (reporting limits and data quality objectives) on the dry weather testing program are provided in Appendix E.

Dry weather sampling at the mouth of the San Gabriel River will be conducted by the LACSD, and modification to the existing monitoring program will commence in 2015. Data collected by LACSD will be shared with and analyzed by LSGR WG every other year consistent with the monitoring frequency recommended in the Harbor Toxics TMDL, beginning in 2016 when the Harbor Toxics Regional Monitoring Program is scheduled to conduct the first sediment survey.

Table 5-6. Chlorinated Pesticides and PCB analytical methods, and quantitation limits

CHLORINATED PESTICIDES	METHOD	Reporting Limit ug/*L*
Aldrin	EPA 608	0.005
alpha-BHC	EPA 608	0.01
beta-BHC	EPA 608	0.005
delta-BHC	EPA 608	0.005
gamma-BHC (lindane)	EPA 608	0.02
alpha-chlordane	EPA 608	0.1
gamma-chlordane	EPA 608	0.1
4,4'-DDD	EPA 608	0.05
4,4'-DDE	EPA 608	0.05
4,4'-DDT	EPA 608	0.01
Dieldrin	EPA 608	0.01
alpha-Endosulfan	EPA 608	0.02
beta-Endosulfan	EPA 608	0.01
Endosulfan sulfate	EPA 608	0.05
Endrin	EPA 608	0.01
Endrin aldehyde	EPA 608	0.01
Heptachlor	EPA 608	0.01

Heptachlor Epoxide	EPA 608	0.01
Toxaphene	EPA 608	0.5
POLYCHLORINATED BIPHENYLS		
PCBs[1] (Reported as the summation)	EPA 8270	0.005
Aroclor-1248	EPA 608	0.5
Aroclor-1254	EPA 608	0.5
Aroclor-1260	EPA 608	0.5

1. Monitoring for PCBs will be reported as the summation of aroclors and a minimum of 50 congeners for routine monitoring. 54 PCB congeners include: 8, 18, 28, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138, 141, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 174, 177, 180, 183, 187, 189, 194, 195, 201, 203, 206, and 209. These include all 41 congeners analyzed in the SCCWRP Bight Program and dominant congeners used to identify the aroclors. List of aroclors and congeners were obtained from Table C8 in the State's Surface Water Ambient Monitoring Program's Quality Assurance Program Plan.

5.5 Total and Dissolved Trace Metals

A total of 16 trace metals are listed in Table E-2 of the MRP. Analytical methods and reporting limits for these elements are summarized in Table 5-7. Most metals will be analyzed by EPA Method 200.8 using ICP-MS to provide appropriate detection limits. Hexavalent chromium and mercury both require alternative methods.

Hexavalent chromium has been analyzed at TMDL compliance monitoring sites in both the Los Angeles River (S10) and the San Gabriel River (S14) for the past eight to ten years. Analytical methods and detection limits used for the monitoring have been consistent with those required in Table E-2 of the MRP. Hexavalent chromium will be analyzed with all Table E-2 constituents but this trace metal has never been detected a levels greater than the reporting limit so it will not likely be monitored on a regular basis.

Mercury is not commonly detected at either S13 or S14 but is periodically detected once in Coyote Creek at 0.13 ug/L and four times at the S14 in the San Gabriel River. The highest concentration was 0.43 ug/L at S14 but most concentrations reported in both locations have been near the reporting limit of 0.1 ug/L. Total mercury will be analyzed at both S13 and GR1. Grab samples will be taken for analysis of mercury in order to augment composite samples, which will be analyzed by EPA method 245.1. Grab samples will be analyzed by Method 1631E since this method is less subject to interferences and will be collected at the same time that monitoring crews pull other grab samples required by the monitoring program. Additional QAQC will be employed to support the extremely low detection limits required by the program.

Table 5-7. Metals Analytical Methods, and Quantitation Limits.

METALS (Dissolved & Total)	METHOD	Reporting Limit *ug/L*
Aluminum	EPA200.8	100
Antimony	EPA200.8	0.5
Arsenic	EPA200.8	0.5
Beryllium	EPA200.8	0.5
Cadmium	EPA200.8	0.25
Chromium (total)	EPA200.8	0.5
Chromium (Hexavalent)[1]	EPA218.6	5
Copper	EPA200.8	0.5
Iron	EPA200.8	25
Lead	EPA200.8	0.5
Mercury[1]	EPA245.1	0.2
Mercury (low level)	EPA1631E	0.0005
Nickel	EPA200.8	1
Selenium	EPA200.8	1
Silver	EPA200.8	0.25
Thallium	EPA200.8	0.5
Zinc	EPA200.8	1

1. Only total hexavalent chromium and mercury will be analyzed during the initial wet and dry weather screening of Table E-2 constituents.

5.6 Organophosphate Pesticides and Herbicides

Organophosphate pesticides, triamine pesticides and herbicides list in Table E-2 of the MRP are summarized in Table 5-8. Due to the fact that diazinon and chlorpyrifos are no longer available for residential use, these constituents are now rarely detected. Despite the fact that diazinon has not been detected at either S13 or S14 since 2006, diazinon remains on the 303(d) list and will be included in the list of constituents to be analyzed at the mass emission sites.

Although this analyte remains on the list to be analyzed at the ME station, we will recommend reevaluation after the first two years of monitoring. If concentrations remain below the updated California Department of Fish and Game criteria, we will propose to remove this analyte from the monitoring list for the ME site.

Table 5-8. **Organophosphate pesticides and herbicides analytical methods, and quantitation limits**

ORGANOPHOSPHATE PESTICIDES	METHOD	Reporting Limit ug/L
Atrazine	EPA507,8141A	1
Chlorpyrifos	EPA8141A	0.05
Cyanazine	EPA8141A	1
Diazinon	EPA8141A	0.01
Malathion	EPA8141A	1
Prometryn	EPA8141A	1
Simazine	EPA8141A	1
HERBICIDES		
Glyphosate	EPA547	5
2,4-D	EPA515.3	0.02
2,4,5-TP-SILVEX	EPA515.3	0.2

5.7 Semivolatile Organic Compounds (Acid, Base/Neutral)

Semivolatile organic compounds from Table E-2 of the MRP are listed in Table 5-9 below. Acids consist mostly of phenolic compounds which are uncommon in stormwater samples. Base/neutrals include polynuclear aromatic hydrocarbons (PAHs) which are the only semivolatile organic compounds considered to be constituents of concern. PAHs are included as part of the Harbor Toxics TMDL and will be analyzed at R8 as part of the Harbor Toxics TMDL monitoring requirements.

PAHs will also be analyzed in association with two storm events at the S13 and GR1 using specialized analytical test procedures to allow for the resolution necessary to quantify total loads of PAHs. The methods are discussed in Section 8.1.2.

Table 5-9. **Semivolatile organic compounds analytical methods, and quantitation limits.**

SEMIVOLATILE ORGANIC COMPOUNDS	METHOD	Reporting Limit
ACIDS		**ug/L**
2-Chlorophenol	EPA625	2
4-Chloro-3-methylphenol	EPA625	1
2,4-Dichlorophenol	EPA625	1
2,4-Dimethylphenol	EPA625	2
2,4-Dinitrophenol	EPA625	5
2-Nitrophenol	EPA625	10
4-Nitrophenol	EPA625	5
Pentachlorophenol	EPA625	2
Phenol	EPA625	1
2,4,6-Trichlorophenol	EPA625	10
BASE/NEUTRAL		**ug/L**
Acenaphthene	EPA625	1
Acenaphthylene	EPA625	2
Anthracene	EPA625	2
Benzidine	EPA625	5
1,2 Benzanthracene	EPA625	5
Benzo(a)pyrene	EPA625	2
Benzo(g,h,i)perylene	EPA625	5
3,4 Benzofluoranthene	EPA625	10
Benzo(k)fluoranthene	EPA625	2
Bis(2-Chloroethoxy) methane	EPA625	5
Bis(2-Chloroisopropyl) ether	EPA625	2
Bis(2-Chloroethyl) ether	EPA625	1
Bis(2-Ethylhexl) phthalate	EPA625	5
4-Bromophenyl phenyl ether	EPA625	5
Butyl benzyl phthalate	EPA625	10
2-Chloroethyl vinyl ether	EPA625	1
2-Chloronaphthalene	EPA625	10
4-Chlorophenyl phenyl ether	EPA625	5
Chrysene	EPA625	5
Dibenzo(a,h)anthracene	EPA625	0.1
1,3-Dichlorobenzene	EPA625	1
1,4-Dichlorobenzene	EPA625	1
1,2-Dichlorobenzene	EPA625	1
3,3-Dichlorobenzidine	EPA625	5
Diethyl phthalate	EPA625	2
Dimethyl phthalate	EPA625	2
di-n-Butyl phthalate	EPA625	10
2,4-Dinitrotoluene	EPA625	5
2,6-Dinitrotoluene	EPA625	5
4,6 Dinitro-2-methylphenol	EPA625	5
1,2-Diphenylhydrazine	EPA625	1
di-n-Octyl phthalate	EPA625	10
Fluoranthene	EPA625	0.05
Fluorene	EPA625	0.1

SEMIVOLATILE ORGANIC COMPOUNDS	METHOD	Reporting Limit
Hexachlorobenzene	EPA625	1
Hexachlorobutadiene	EPA625	1
Hexachloro-cyclopentadiene	EPA625	5
Hexachloroethane	EPA625	1
Indeno(1,2,3-cd)pyrene	EPA625	0.05
Isophorone	EPA625	1
Naphthalene	EPA625	0.2
Nitrobenzene	EPA625	1
N-Nitroso-dimethyl amine	EPA625	5
N-Nitroso-diphenyl amine	EPA625	1
N-Nitroso-di-n-propyl amine	EPA625	5
Phenanthrene	EPA625	0.05
Pyrene	EPA625	0.05
1,2,4-Trichlorobenzene	EPA625	1

6 Adaptive Management

The CIMP will be reviewed on an annual basis to make any necessary adjustments to the monitoring sites, constituents, frequency of sampling or sampling procedures. The CIMP is intended to require modifications based upon annual monitoring results. Annual changes may include expanded toxicity testing, the addition of constituents monitored at LTA sites, addition of new constituents to stormwater outfall sites, addition or relocation of monitoring sites as well as a range of other program adjustments necessary to improve the ability of the program to monitor water quality improvements and identify major sources of contaminants in needed of targeted control measures.

Water body / pollutant categories and the frequency of exceedance of available RWLs are central to the monitoring approach. Pre-determined triggers will be used to determine if new constituents should be incorporated into the program or if monitoring of a constituent should be discontinued. Monitoring constituents will be adjusted based upon the following guidelines:

- Any constituent exceeding the minimum, appropriate water quality criteria listed in Appendix G during the wet and dry weather screening of E-2 constituents will be added to the monitoring list for the subject receiving water site and season.
- If an E-2 constituent exceeds receiving water criteria in two consecutive surveys, the constituent will be added to the monitoring list at the closest upstream stormwater outfall monitoring site.
- If sampling of an E-2 constituent is added to a stormwater outfall monitoring and the constituent is not detected in excess of the lowest applicable water quality criterion for two consecutive years, monitoring of the constituent at the stormwater outfall site will be discontinued.
- If data indicates that the Water body/ category 2 pollutant meets delisting criteria, it will be proposed to the Regional Water Board to be downgraded and would be subject to Executive Officer approval.

- Pollutants in water body/classification 3 may be removed from the list of monitored constituents at a site if they are not detected at levels that exceed the minimum, appropriate water quality criteria for a period of two consecutive years. The Watershed Group will submit a request to remove the constituent from future sampling to the Regional Water Board and would be subject to Executive Officer approval. This does not include constituents which are basic monitoring requirements.

Monitoring data will be evaluated each year to determine if any modifications are necessary. This will include an assessment of additional monitoring that may be necessary to identify sources of TMDL constituents.

7 Aquatic Toxicity Testing and Toxicity Identification Evaluations

Aquatic toxicity testing supports the identification of best management practices (BMPs) to address sources of toxicity in urban runoff. Monitoring begins in the receiving water and the information gained is used to identify constituents for monitoring at outfalls to support the identification of pollutants that need to be addressed in the WMP. The sub-sections below describe the detailed process for conducting aquatic toxicity monitoring, evaluating results, and the technical and logistical rationale. Control measures and management actions to address confirmed toxicity caused by urban runoff are addressed by the WMP, either via currently identified management actions or those that are identified via adaptive management of the WMP.

7.1 Sensitive Species Selection

The Permit Monitoring and Reporting Program (MRP) (page E-32) states that sensitivity screening to select the most sensitive test species should be conducted unless "a sensitive test species has already been determined, or if there is prior knowledge of potential toxicant(s) and a test species is sensitive to such toxicant(s), then monitoring shall be conducted using only that test species." Previous relevant studies conducted in the watershed should be considered. Such studies may have been completed via previous MS4 sampling, wastewater NPDES sampling, or special studies conducted within the watershed.

As described in the MRP (page E-31), if samples are collected in receiving waters with salinity less than 1 part per thousand (ppt), or from outfalls discharging to receiving waters with salinity less than 1 ppt, toxicity tests should be conducted on the most sensitive test species in accordance with species and short-term test methods in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002; Table IA, 40 CFR Part 136). Salinities of both dry and wet weather discharges from the Lower San Gabriel River are considered to meet the freshwater criteria. The freshwater test species identified in the MRP are:

- A static renewal toxicity test with the fathead minnow, *Pimephales promelas* (Larval Survival and Growth Test Method 1000.04).
- A static renewal toxicity test with the daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.05).
- A static non-renewal toxicity test with the green alga, *Selenastrum capricornutum* (also named *Raphidocelis subcapitata*) (Growth Test Method 1003.0).

The three test species were evaluated to determine if either a sensitive test species had already been determined, or if there is prior knowledge of potential toxicant(s) and a test species is sensitive to such toxicant(s). In reviewing the available data in the Los Angeles River, Los Cerritos Channel, and the San Gabriel River watersheds, organophosphate pesticides and/or metals have been identified as problematic and are generally considered the primary aquatic life toxicants of concern found in urban runoff. Pyrethroid pesticides are known to be present in urban runoff and potentially contribute to toxicity in these waters. Tests specific to pyrethroid pesticides are simply less common.

Given the knowledge of the presence of these potential toxicants in the watershed, the sensitivities of each of the three species were considered to evaluate which is the most sensitive to the potential toxicants in the watersheds.

Ceriodaphnia dubia has been reported as a sensitive test species for historical and current use of pesticides and metals, and studies indicate that it is more sensitive to the toxicants of concern than *P. promelas* or *S. capricornutum*. In its aquatic life copper criteria document, the USEPA reports greater sensitivity of *C. dubia* to copper (species mean acute value of 5.93 µg/l) compared to *Pimephales promelas* (species mean acute value of 69.93 µg/l; EPA, 2007). *C. dubia's* relatively higher sensitive to metals is common across multiple metals. Researchers at the University of California, Davis also reviewed available species sensitivity values in developing pesticide criteria for the Central Valley Regional Water Quality Control Board. The UC Davis researchers reported higher sensitivity of *C. dubia* to diazinon and bifenthrin (species mean acute value of 0.34 µg/l and 0.105 µg/l) compared to *P. promelas* (species mean acute value of 7804 µg/l and 0.405 µg/l; Palumbo et al., 2010a, b). Additionally, a study of the City of Stockton urban stormwater runoff found acute and chronic toxicity to *C. dubia*, with no toxicity to *S. capricornutum* or *P. promelas* (Lee and Lee, 2001). The toxicity was attributed to organophosphate pesticides, indicating a higher sensitivity of *C. dubia* compared to *S. capricornutum* or *P. promelas*. *P. promelas* is generally less sensitive to metals and pesticides but has been found to be more sensitive to ammonia than *C. dubia*. However, as ammonia is not typically a constituent of concern for urban runoff and ammonia is not consistently observed above the toxic thresholds in the watershed, *P. promelas* is not considered a particularly sensitive species for evaluating the impacts of urban runoff in receiving waters in the watershed.

Selenastrum capricornutum is a species that is sensitive to herbicides; however, while sometimes present in urban runoff, measured concentrations are typically very low. Herbicides have not been identified as a potential toxicant in the watershed. *S. capricornutum* is also not considered the most sensitive species as it is not sensitive to either pyrethroids or organophosphate pesticides and is not as sensitive to metals as *C. dubia*. The *S. capricornutum* growth test can also be affected by high concentrations of suspended and dissolved solids, color and pH extremes, which can interfere with the determination of sample toxicity. As a result, it is common to manipulate the sample by centrifugation and filtration to remove solids in order to conduct the test. This process may affect the toxicity of the sample. In a study of urban highway stormwater runoff (Kayhanian et. al, 2008), the green alga response to the stormwater samples was more variable than both the *C. dubia* and the *P. promelas* and in some cases the alga growth was considered to be potentially enhanced due to the presence of stimulatory nutrients.

As *C. dubia* is identified as the most sensitive to known potential toxicant(s) typically found in receiving waters and urban runoff in the freshwater potions of the watershed and has demonstrated toxicity in programs within the watershed (CWH and ABC Laboratories, 2013), *C. dubia* is selected as the most sensitive species. The species also has the advantage of being easily maintained in in-house mass cultures. The simplicity of the test, the ease of interpreting results, and the smaller volume necessary to run the test, make the test a valuable screening tool. The ease of sample collection and higher sensitivity will support assessing the presence of ambient receiving water toxicity or long term effects of toxic stormwater over time. As such, toxicity testing will be conducted using *C. dubia*.

An alternative species of water fleas, *Daphnia magna*, may be used if the water being tested has elevated hardness. *C. dubia* test organisms are typically cultured in moderately hard waters (80-100 mg/L CaCO3) and can have increased sensitivity to elevated water hardness greater than 400 mg/L CaCO3), which is beyond their typical habitat range. Because of this, *Daphnia magna* may be substituted in instances where hardness in site waters exceeds 400 mg/L ($CaCO_3$). *Daphnia magna* is more tolerant to high hardness levels and is a suitable substitution for *C. dubia* in these instances (Cowgill and Milazzo, 1990).

7.2 Testing Period

The following describes the testing periods to assess toxicity in samples collected in the LSGR WMP area during dry and wet weather conditions. Short-term chronic tests will be used to assess both survival and reproductive/growth endpoints for *C. dubia* for both wet and dry weather sampling efforts. Although wet weather conditions in the region generally persist for less than the chronic testing periods (7 days), the *C. dubia* chronic test will be used for wet weather toxicity testing in accordance with *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA, 2002a). Utilization of standard chronic tests on wet weather samples are not expected to generate results representative of the typical conditions found in the receiving water intended to be simulated by toxicity testing.

7.3 Toxicity Endpoint Assessment and Toxicity Identification Evaluation Triggers

Per the MRP, toxicity test endpoints will be analyzed using the Test of Significant Toxicity (TST) t-test approach specified by the USEPA (USEPA, 2010). The Permit specifies that the chronic in-stream waste concentration (IWC) is set at 100% receiving water for receiving water samples and 100% effluent for outfall samples. Using the TST approach, a t-value is calculated for a test result and compared with a critical t-value from USEPA's TST Implementation Document (USEPA, 2010). Follow-up triggers are generally based on the Permit specified statistical assessment as described below.

For chronic *C. dubia* toxicity testing, if a ≥50% reduction in survival or reproduction is observed between the sample and laboratory control that is statistically significant, a toxicity identification evaluation (TIE) will be performed.

TIE procedures will be initiated as soon as possible after the toxicity trigger threshold is observed to reduce the potential for loss of toxicity due to extended sample storage. If the cause of toxicity is readily apparent or is caused by pathogen related mortality or epibiont interference with the test, the result will be rejected, if necessary, a modified testing procedure will be developed for future testing.

In cases where significant endpoint toxicity effects greater than 50% are observed in the original sample, but the follow-up TIE positive control "signal" is found to not be statistically significant, the cause of toxicity will be considered non-persistent. No immediate follow-up testing is required on the sample. However, future test results will be evaluated to determine if implementation of concurrent TIE treatments are needed to provide an opportunity to identify the cause of toxicity.

7.4 Toxicity Identification Evaluation Approach

The results of toxicity testing will be used to trigger further investigations to determine the cause of observed laboratory toxicity. The primary purpose of conducting TIEs is to support the identification of management actions that will result in the removal of pollutants causing toxicity in receiving waters. Successful TIEs will direct monitoring at outfall sampling sites to inform management actions. As such, the goal of conducting TIEs is to identify pollutant(s) that should be sampled during outfall monitoring so that management actions can be identified to address the pollutant(s).

The TIE approach as described in USEPA's 1991 Methods for Aquatic Toxicity Identification is divided into three phases although some elements of the first two phases are often combined. Each of the three phases is briefly summarized below:

- Phase I utilizes methods to characterize the physical/chemical nature of the constituents which cause toxicity. Such characteristics as solubility, volatility and filterability are determined without specifically identifying the toxicants. Phase I results are intended as a first step in specifically identifying the toxicants but the data generated can also be used to develop treatment methods to remove toxicity without specific identification of the toxicants.
- Phase II utilizes methods to specifically identify toxicants.
- Phase III utilizes methods to confirm the suspected toxicants.

A Phase I TIE will be conducted on samples that exceed a TIE trigger described in Section7.4. Water quality data will be reviewed to future support evaluation of potential toxicants. A range of sample manipulations may be conducted as part of the TIE process. The most common manipulations are described in Table 7-1. Information from previous chemical testing and/or TIE efforts will be used to determine which of these (or other) sample manipulations are most likely to provide useful information for identification of primary toxicants. TIE methods will generally adhere to USEPA procedures documented in conducting TIEs (USEPA, 1991, 1992, 1993a-b).

The LSGR WG will identify the cause(s) of toxicity using a selection of treatments in Table 7-1 and, if possible, using the results of water column chemistry analyses. After any initial assessments of the cause of toxicity, the information may be used during future events to modify the targeted treatments to more closely target the expected toxicant or class of toxicants. Moreover, if the toxicant or toxicant class is not initially identified, toxicity monitoring during subsequent events will confirm if the toxicant is persistent or a short-term episodic occurrence.

Table 7-1. Phase I and II Toxicity Identification Evaluation Sample Manipulations

TIE Sample Manipulation	Expected Response
pH Adjustment (pH 7 and 8.5)	Alters toxicity in pH sensitive compounds (i.e., ammonia and some trace metals)
Filtration or centrifugation*	Removes particulates and associated toxicants
Ethylenediamine-Tetraacetic Acid (EDTA) or Cation Exchange Column*	Chelates trace metals, particularly divalent cationic metals
Sodium thiosulfate (STS) addition	Reduces toxicants attributable to oxidants (i.e., chlorine) and some trace metals
Piperonyl Butoxide (PBO)*	Reduces toxicity from organophosphate pesticides such as diazinon, chlorpyrifos and malathion, and enhances pyrethroid toxicity
Carboxylesterase addition(1)	Hydrolyzes pyrethroids
Temperature adjustments(2)	Pyrethroids become more toxic when test temperatures are decreased
Solid Phase Extraction (SPE) with C18 column*	Removes non-polar organics (including pesticides) and some relatively non-polar metal chelates
Sequential Solvent Extraction of C18 column	Further resolution of SPE-extracted compounds for chemical analyses
No Manipulation*	Baseline test for comparing the relative effectiveness of other manipulations

* Denotes treatments that will be conducted during the initiation of toxicity monitoring, but may be revised as the program is implemented. These treatments were recommended for initial stormwater testing in Appendix E (Toxicity Testing Tool for Storm Water Discharges) of the State Water Resources Control Board's June 2012 Public Review Draft "Policy for Toxicity Assessment and Control".

1 Carboxylesterase addition has been used in recent studies to help identify pyrethroid-associated toxicity (Wheelock et al., 2004; Weston and Amweg, 2007). However, this treatment is experimental in nature and should be used along with other pyrethroid-targeted TIE treatments (e.g., PBO addition).

2 Temperature adjustments are another recent manipulation used to evaluate pyrethroid-associated toxicity. Lower temperatures increase the lethality of pyrethroid pesticides. (Harwood, You and Lydy, 2009)

As the primary goals of conducting TIEs is to identify pollutants for incorporation into outfall monitoring, narrowing the list of toxicants following Phase I TIEs via Phase II/III TIEs is not necessary if the toxicant class determined during the Phase I TIE is sufficient for 1) identifying additional pollutants for outfall monitoring and/or 2) identifying control measures. Thus, if the specific pollutant(s) or classes of pollutants (e.g., metals that are analyzed via EPA Method 200.8) are identified then sufficient information is available to incorporate the additional pollutants into outfall monitoring and to start implementation of control measures to target the additional pollutants.

Phase II TIEs may be utilized to identify specific constituents causing toxicity in a given sample if the results of Phase I TIE testing and a review of available chemistry data fails to provide information necessary to identify constituents that warrant additional monitoring activities or management actions to identify likely sources of the toxicants and lead to elimination of the sources of these contaminants. Phase III TIEs will be conducted following any Phase II TIEs.

For the purposes of determining whether a TIE is inconclusive, TIEs will be considered inconclusive if:

- The toxicity is persistent (i.e., observed in the baseline), and
- The cause of toxicity cannot be attributed to a class of constituents (e.g., insecticides, metals, etc.) that can be targeted for monitoring.

If (1) a combination of causes that act in a synergistic or additive manner are identified; (2) the toxicity can be removed with a treatment or via a combination of the TIE treatments; or (3) the analysis of water quality data collected during the same event identify the pollutant or analytical class of pollutants, the result of a TIE is considered conclusive.

Note that the MRP (page E-33) allows a TIE Prioritization Metric (as described in Appendix E of the Stormwater Monitoring Coalition's Model Monitoring Program) for use in ranking sites for TIEs. However, as the extent to which TIEs will be conducted is unknown, prioritization cannot be conducted at this time. However, prioritization may be utilized in the future based on the results of toxicity monitoring and an approach to prioritization will be developed through the CIMP adaptive management process and will be described in future versions of the CIMP.

7.5 Follow Up on Toxicity Testing Results

Per Parts VIII.B.c.vi and XI.G.1.d of the MRP, if the results of two TIEs on separate receiving samples collected during the same conditions (i.e., wet or dry weather) are inconclusive, a toxicity test conducted during the same conditions (i.e., wet or dry weather), using the same test species, will be conducted at applicable upstream outfalls as soon as feasible (i.e., the next monitoring event that is at least 45 days following the toxicity laboratory's report transmitting the results of an inconclusive TIE). The same TIE evaluation triggers and TIE approach presented in Section 7.3 and 7.4, respectively will be followed based on the results of the outfall sample.

The MRP (page E-33) indicates the following actions should be taken when a toxicant or class of toxicants is identified through a TIE:

1. Group Members shall analyze for the toxicant(s) during the next scheduled sampling event in the discharge from the outfall(s) upstream of the receiving water location.
2. If the toxicant is present in the discharge from the outfall at levels above the applicable receiving water limitation, a toxicity reduction evaluation (TRE) will be performed for that toxicant.

The list of constituents monitored at outfalls identified in the CIMP will be modified based on the results of the TIEs. Similarly, upon completion of a successful dry weather TIE, additional constituents identified in the TIE will be added to monitoring requirements at outfalls with significant non-stormwater flows. Monitoring for those constituents will occur as soon as feasible following the completion of a successful TIE (i.e., the next monitoring event that is at least 45 days following the toxicity laboratory's report transmitting the results of a successful TIE).

The requirements of the TREs will be met as part of the adaptive management process in the WMPs rather than the CIMP. The identification and implementation of control measures to address the causes of toxicity are tied to management of the stormwater program, not the CIMP. It is expected that the requirements of TREs will only be conducted for toxicants that are not already addressed by an existing Permit requirement (i.e., TMDLs) or existing or planned management actions.

The Water Boards' TMDL Roundtable is currently evaluating options to streamline and consistently respond to urban-use pesticide impairment listings throughout the State including a statewide urban-use pesticide TMDL modeled after the San Francisco Bay Area Urban Creeks Pesticides TMDL. In Addition to toxicity testing, statewide efforts will be monitored to study these pesticides being discussed by the California Stormwater Quality Association (CASQA) Pesticides sub-committee and other Regional Water Boards.

7.6 Summary of Aquatic Toxicity Monitoring

The approach to conducting aquatic toxicity monitoring as described in the previous sections is summarized in detail in

Figure 7-1.. The intent of the approach is to identify the cause of toxicity observed in receiving water to the extent possible with the toxicity testing tools available, thereby directing outfall monitoring for the pollutants causing toxicity with the ultimate goal of supporting the development and implementation of management actions. The toxicity approach is subject to modifications based on discussions with the Regional Board.

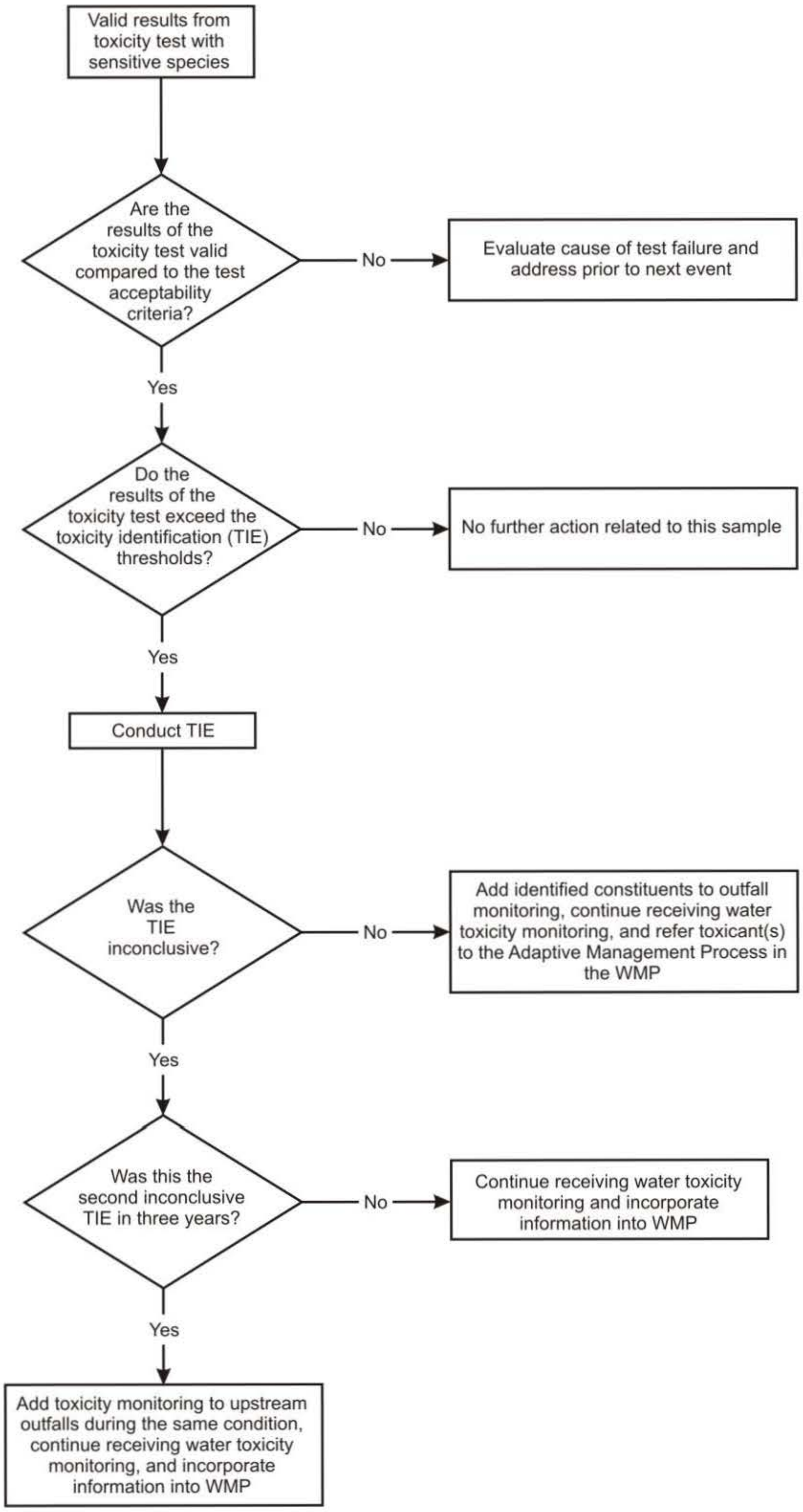

Figure 7-1. Detailed Aquatic Toxicity Assessment Process

8 Receiving Water Monitoring

Two long-term receiving water monitoring sites will be monitoring in the LSGR WG. Receiving water quality monitoring at the Coyote Creek ME site, S13, (Figure 3-1) will continue to be conducted by the LACFCD. The LSGR WG will coordinate with the LACFCD for additional TMDL monitoring to also to be conducted at S13. Additional monitoring will be conducted by the LSGR WG at both the San Gabriel River LTA site, GR1. Flow-weighted composite samples will be collected during each monitoring event and will be analyzed for constituents listed in Table 5-1.

Flow-rated composite samples will be collected and analyzed at each of the receiving water quality monitoring sites three times a year during the wet season and two times a year during dry weather conditions. Dry weather flows at GR1 are heavily dominated by discharges from the two WRPs. Discharges of tertiary treated effluent from the WRPs accounts for more than 98% of the flow measured in Reach 1 of the San Gabriel River during the summer. As part of their NPDES monitoring requirements, LACSD staff collect and monitor water from four sites within Reach 1 to characterize conditions in the watershed. The same sites are monitored.

Screening for Table E-2 constituents listed in the MRP will be conducted during the first significant storm of the year at both sites and during a critically dry weather period at S13. Larger sampling volumes are required to incorporate all analytical tests and associated QA/QC needed for Table E-2 constituents, bioassay tests and to provide sufficient volumes should TIEs be required.

Monitoring at receiving water quality sites will require specific conditions be met in order to be considered a valid stormwater monitoring event.The wet season is defined as ranging from October 1 through April 15. Storm events are further defined in the MRP as:

- Wet Season defined as October 1 through April 15,
- Events preceded by less than 0.1 inches of rainfall within the watershed over a three day period, and
- Rainfall of at least 0.25 inches.

The San Gabriel River Metals TMDL further differentiates dry weather and wet weather flow by the 90th percentile flow condition. Separate flow limits are established for the San Gabriel River and Coyote Creek watersheds.

- San Gabriel River - Maximum flow rates greater than 260 cfs measured at the USGS gauging station 11085000.
- Coyote Creek - Maximum daily flow rates of 156 cfs at the LACFCD flow gauging station F354-R.

Due to the size of the watershed, it is possible that conditions for wet weather flow monitoring could be met in one of the two targeted segments of the LSGR WG but not the other. When possible, monitoring will target events where appropriate sampling conditions are expected to be met in bot segments of the watershed. Professional judgment will be used to determine if conditions are likely to be achieved in both segments.

The MRP defines dry weather (for rivers, streams or creeks) as periods when flow is no more than 20% greater than base flow conditions. In the case of the Estuary, dry weather conditions are further defined by rainfall being less than 0.1 inches of rain on the day of the sampling and having experienced no less than three days of dry weather after a rain event of 0.1 inches or greater within the watershed, as measured from at least 50 percent of Los Angeles County controlled rain gauges within the watershed.

As noted in the previous section, it has been determined that adequate data exist to determine which of the three freshwater species are considered to be most sensitive during both storm events and dry weather periods. Available literature and local data indicate that the most sensitive bioassay test species is *Ceriodaphnia dubia*. The prior section on Aquatic Toxicity Testing and TIEs goes into detail as to species selection and the overall approach recommended for measuring toxicity in the receiving waters and strategies to eliminate any sources of toxicity. During wet weather conditions, bioassay tests will be performed based upon exposure to 100 percent test waters over a 48-hour time period since this time exposure is deemed to be more consistent with the duration of typical storm events. Since exposure times during the dry season are much long, dry weather testing will utilize 7-day chronic toxicity tests that assess both survival and reproductive endpoints for *C. dubia*. Chronic testing will also be conducted on 100 percent undiluted samples.

Table 8-1 provides sample volumes necessary for toxicity tests (both wet and dry weather) as well as minimum volumes necessary to fulfill Phase I TIE testing if necessary. As detailed in the previous section, the sublethal endpoints will be assessed using EPA's TST procedure to determine if there is a statistically significant 50% difference between sample controls and the test waters and ultimately determine if further testing should be is necessary.

Table 8-1. Toxicity Test Volume Requirements for Aquatic Toxicity Testing as part of the Lower San Gabriel River Coordinated Integrated Monitoring Program.

Test Organism	Toxicity Test Type	Test Concentration	Volume Required for Initial Screen (L)	Minimum Volume Required for TIE (L)[1]
Freshwater Tests for Samples with Salinity < 1.0 ppt				
Daphnid Water Flea *(Ceriodaphnia dubia*)	48-Hour Acute Survival 7-day Chronic Survival and Reproduction	100% only	1.5	10
Sample Receipt Water Quality	--	--	1.0	--
Total volume required per event for samples with salinity < 1.0 ppt;			2.5	a

[1] Minimum volumes for TIE are for Phase 1 characterization testing only. The additional volume collected for potential TIE testing can be held in refrigeration (4°C in the dark, no head space) and shipped to the laboratory at a later date if needed.

Note: The NPDES permit targets a 36-hr holding time for initiation of testing but allows a maximum holding time of 72-hr if necessary.

8.1 Receiving Water TMDL Monitoring

The following sections provide a summary of TMDLs applicable to the LSGR, any interim or final Waste Load Allocations applicable to each TMDL, and monitoring requirements required to evaluate compliance with the two TMDLs that impact the LSGR WG. These include the San Gabriel River Metals TMDL and the Harbor Toxics TMDL.

8.1.1 Total Maximum Daily Loads for Metals and Selenium: San Gabriel River and Impaired Tributaries (Metals TMDL). Attachment A to Resolution No. R13-004

The Basin Plan Amendment for the San Gabriel River and Los Cerritos Channel Metals TMDLs established schedules for meeting established water quality goals in these watersheds. In addition, intermediate goals were established to demonstrate progress towards meeting the goals. Overall, monitoring is intended to achieve the following three objectives:

- Determine attainment of numeric targets;
- Determine compliance with the waste load and load allocations;
- Monitor the effect of implementation actions on water quality.

Monitoring was intended to be conducted in both the receiving waters and at outfalls. Use of existing Mass Emission sites was suggested for effective coordination with existing MS4 NPDES monitoring requirements and monitoring of stormwater outfalls was suggested as the most effective way to directly assess attainment of WLAs. NPDES monitoring support of the Los Angeles County MS4 permit and the five WTPs operated by the Los Angeles County Sanitation District (LACSD) have resulted in the majority of receiving water quality data in the San Gabriel River watershed. This monitoring has shown that most water quality exceedances occur during wet weather. Dry weather waste load allocations (WLAs) are limited to copper in Coyote Creek. WLAs were assigned to the San Gabriel River Reach 1 due to the Estuary. San Jose Creek Reach 1 was listed for selenium but that listing is considered to be in error due to an inadequate number of samples. Selenium is has also been identified as originating naturally from old marine sediments.

During wet weather, numeric targets have been established for three metals: lead, copper and zinc. Lead is the only metal with allocations established for both San Gabriel River Reach 2 and Coyote Creek (Table 8-3 and Table 8-4).

Table 8-2. Dry Weather Copper and Selenium Waste Load Allocations for San Jose Creek Reach 1, San Gabriel River Reach 1 and Coyote Creek.

	San Jose Creek Reach 1	San Gabriel River Reach 1	Coyote Creek
Copper	-	18 µg/l	0.941 kg/day
Selenium	5 µg/l	-	-

Table 8-3. Numeric Target (Total Recoverable) and Waste Load Allocations for San Gabriel River.

Condition	Total Lead –Total Allocations		Total Lead –MS4 WLAs[2]	
Wet Weather	166 µg/L*6.8x10^8 liters(1)	106.2 kg/day	0.49*166 µg/L*6.8x10^8 liters(2)	51.8 kg/day

1. The numeric target for total recoverable lead in San Gabriel River Reach 2 is 166 µg/L. TMDL limits are based upon daily storm volume. The total allocation is based upon a flow of 260 cfs (6.8x10^8 liters/day).
2. The MS4 system comprises 49% of the total watershed therefore 49% of the load is allocated to the MS4.

Table 8-4. Numeric Target (Total Recoverable) and Waste Load Allocations for Coyote Creek.

Condition	Total Copper[1]		Total Lead		Total Zinc	
Wet Weather[3]	27 µg/L	9.41 kg/day	106 µg/L	36.9 kg/day	158 µg/L	55.0 kg/day

1 Copper, lead, and zinc numeric targets (µg/L, total) are hardness dependent and were calculated based on a mean Total Hardness of 105 µg/L.
2 For dry weather allocation, EPA used median urban runoff of 19 cfs, as measured at LACDPW Station F354-R.
3 For wet weather, a flow rate of 156 cfs (3.8 x 10^8 liters/day) was applied. For mass-based allocations, the load was determined by the daily storm volume and the percentage of the watershed represented by the MS4 (91.5% of the Coyote Creek watershed).

All receiving water sites, ME, LTA, and TMDL will monitor for the Metals TMDL according to Table 5-1 and Table 5-2. These sites will be used to determine if RWLs are being met.

Additional monitoring has been initiated at NFC1 in Northern Coyote Creek to provide a better measure of sources of metals from the portion of the watershed located within Los Angeles County and the Lower San Gabriel River Watershed.

8.1.2 Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL (Harbor Toxics TMDL) Attachment A to Resolution No. R11-008

Basin Plan Amendment (Resolution No. R11-008) indicates that responsible parties identified in the existing metals TMDLs for San Gabriel River Watershed are responsible for conducting water and sediment monitoring at the mouth of the San Gabriel River Estuary to determine the Rivers' contribution to the impairments in the Greater Harbor waters.

- **Water Column Monitoring**

The Basin Plan Amendment indicates that water samples and total suspended solids samples are to be collected from at least one site during two wet weather events and one dry weather event each year. The first large storm event of the season is to be included as one of the wet weather monitoring events. Water samples and total suspended solid samples are to be analyzed for metals, DDT, PCBs, and PAHs. Sampling is intended to collect sufficient volumes of water to allow for filtration of suspended solids for analysis of the listed pollutants in the bulk sediment. General water chemistry (temperature, dissolved oxygen, pH, and electrical conductivity) and a flow measurement is also be required at each sampling event. General chemistry measurements may be taken in the laboratory immediately following sample collection if auto samplers are used for sample collection or if weather conditions are unsuitable for field measurements.

Quantification of loads from the San Gabriel River Watershed during wet weather requires sampling at two LTA monitoring sites, S13 and GR1 (Table 9-1). Sampling at both sites allows for quantitative assessment of flow, pollutant concentrations, and loads necessary to address the Harbor Toxics objectives. During dry weather, concentrations of these constituents will be measured at the mouth of the Estuary at R8 consistent with the TMDL requirements.

- **Sediment Monitoring**

The Basin Plan Amendment also requires collection of sediment samples from at least one site every two years for analysis of general sediment quality constituents and the full chemical suite as specified in SQO Part 1. Sediment monitoring will be performed at R8 using sampling and analytical methods specified in Appendix F. The sampling schedule will be coordinated with sampling conducted in the Harbor waters by the Harbor Toxics Regional Monitoring Program in order to provide complementary data.

8.1.2.1 Wet Weather Suspended Sediment Sampling Approach

A number of different approaches have been attempted to enable collection of stormwater samples based upon flow-weighted composites and then extract the suspended sediments for analysis. The various approaches have met with varied level of success and typically require extensive labor to extract the sediment for analysis. Regardless of the approach used, none are based upon standard methods.

We are recommending an alternative approach for assessing the loads of toxic contaminants being discharged to the Harbor environment. This approach will utilize High Resolution Mass Spectrometry (HRMS) to analyze for organochlorine pesticides (EPA1699), PCBs (EPA 1668) and PAHs (CARB429m). Test methods for these organic toxic compounds target the required analytes but also enable assessment of each compound included in the Part 1 Sediment Quality Objectives (SQOs). These compounds include chlordane which is 303(d) listed in both the Los Angeles River Estuary sediments and in San Pedro Bay sediments.

During the first three years of Harbor Toxics monitoring, analyses will be conducted on whole water samples. These test methods provide detection limits that are roughly 100 times more sensitive than conventional low resolution tests. In addition, these extremely low detection limits can be achieved with as little as 3-6 liters of stormwater from each monitoring location.

Use of this approach is expected to greatly enhance the ability to consistently obtain appropriate samples for measuring and comparing loads of toxic pollutants associated with each major stormwater discharge. This will assure that all key toxics can be quantified at levels suitable for estimation of mass loads to the Harbor waters. For purposes of load calculations, it would be assumed that 100% of these toxics were associated with suspended solids. Separate analyses of TSS/SSC would be used to normalize the data. After three years (six storm events) the data will be reevaluated to assess whether a modified or alternative approach is required.

Similar approaches have been used by the San Francisco Estuary Institute (SFEI) staff (Gilbreath, Pearce and McKee, 2012) to measure the performance of a rain garden. Autosamplers were used to collect stormwater influent and treated effluent to assess removal efficiency for pesticides, PCBs, mercury, and copper subject to TMDLs. HRMS was used to quantify PCB removal. HRMS methods are also being used in Virginia to assist in identification of sources of PCBs in MS4 and industrial stormwater discharges (Gilinsky, 2009).

8.1.2.2 Sampling and Analytical Procedures-Wet Weather

Stormwater samples for the Harbor Toxics Monitoring Program will be collected using automated stormwater sampling methods and equipment cleaning protocol specified in Appendices A and B. A separate autosampler and intake hose will be installed at each site. Existing flow metering equipment at each site will be used to pace the sampler to obtain a flow-weighted composite sample.

Based on TSS measurements at four mass emission sites in LA County (Table 8-6), use of a TSS concentration of 100 mg/L is expected to provide a conservative basis for estimating reporting limits for OC pesticides, PCBs, and PAHs in suspended sediments based upon 2-liter samples. However, an additional liter of stormwater will be provided for each organic analytical suite for a total of nine liters. An accurate measure of suspended sediments is critical to this sampling approach. TSS will be analyzed; however, SSC will be used as the standard for calculating the concentrations of target constituents in suspended sediments and total contaminant loads associated with those sediments. Each of the measures of suspended solids will require 1-liter samples. Any additional water (up to another six liters) will be provided to the laboratory in 2.5-L amber glass bottles.

This approach requires a maximum of 17 liters of stormwater for analysis of organic constituents and sediment tests required for the Harbor Toxics TMDL. Analyses could be performed on a minimum of eight liters of water but field duplicates would need to be provided from another site. The following configuration of sample containers and sample volumes will provide the laboratory with the maximum degree of flexibility to assure that detection limits are met and suitable water volumes are available to complete analysis of field duplicates for each analytical suite.

- Six 2.5-L amber glass containers (filled to two liters)
- Three 1-L amber glass containers
- Two 1-L HDPE containers for suspended sediment

Since detection limits will depend upon the concentration of suspended sediment in the sample, the laboratory analyzing the suspended sediment concentrations will be asked to provide a rush analysis to provide information that can be used to direct processing of the samples for the organic compounds. Processing of sample waters provided to the laboratory will depend upon the results of the SSC analysis.

- If Suspended Sediment Concentrations (SSC) are less than 150 mg/L, an additional liter of water will be extracted for each subsequent HRMS analysis. If TSS concentrations are between 150 and 200 mg/L, one of the additional liter samples may be used to increase the volume of sample water for just PAHs or the two additional liters may be used as a field duplicate for one of the analyses.

- If SSC concentrations are greater than 200 mg/L, two of the three additional liters may be used as a field duplicate for one analysis. If available, the additional water provided in 2.5 L containers will also be considered for use as field replicates.

- Attainment of PAH target detection limits will be the most impacted by insufficient sediment content in the samples. If the initial SSC sample indicates that sediment content is less than 50 mg/L, additional measures will be taken to improve PAH reporting limits with respect to suspended sediment loads. This would include use of extra sample water to bring up the total sample volume (up to a maximum of 4 liters) or reduction the final extract volume.

- Given adequate sample volumes and normal levels of suspended sediment, a field duplicate will be analyzed for each analysis. Field duplicates for the three HRMS analyses may come from different monitoring sites in the Los Angeles and San Gabriel River watersheds depending on available volumes. Parties conducting the testing at each site will coordinate testing to enhance the opportunity to incorporate at least one field duplicate sample for each test.

Target reporting limits (Table 8-8 and Table 8-9) were established based upon bed sediment reporting limits listed in the *Coordinated Compliance and Reporting Plan for the Greater Los Angeles and Long Beach Harbor Waters* (Anchor QEA, 2013).

Table 8-8 and Table 8-9 provide a summary of the detection limits attainable in water samples using HRMS analytical methods. Estimated detection limits are provided for concentrations of the target constituents in suspended sediments given the assumption that 2-liter sample volumes will be used for each test, suspended sediment content is 100 mg/L and that 100 percent of the target constituents are associated with the suspended sediment. This provides a conservative assumption with respect to evaluating the potential impacts of concentrations of OC pesticides, PCBs, and PAHs in suspended sediment on concentrations in bed sediment. Additionally, Table 8-8 and Table 8-9 present relevant TMDL targets and reporting limits suggested in the SWAMP QAPP (SWRCB, 2008) and the SQO Technical Support Manual (SCCWRP, 2009). The following is a comparison between the estimated detection limits for OC pesticides, PCBs, and PAHs in the suspended sediments. The approach used to assess concentrations of trace metals in suspended sediments is based upon use of the routine monitoring information. Table 8-10 examines the possible limitations of this approach if trace metal concentrations are extremely low, approaching detection limits.

For OC pesticides

- Table 8-8, estimated detection limits in the suspended sediment are comparable or lower than Harbor Toxics TMDL target limits for bed sediments.

For PCBs

- Table 8-8, estimated detection limits in the suspended sediment are below TMDL target limits for bed sediments. Additionally, estimated detection limits in the suspended sediment are at or below target bed sediment reporting limits for the Harbor Toxics sediment monitoring program and below target reporting limits presented in the SWAMP QAPP (SWRCB, 2008) and the SQO Technical Support Manual (SCCWRP, 2009).

- Table 8-8, estimated detection limits in the suspended sediment are below TMDL targets limits for bed sediments. Additionally, estimated detection limits in the suspended sediment are at or below target bed sediment reporting limits for the Harbor Toxics sediment monitoring program and below target reporting limits presented in the SWAMP QAPP (SWRCB, 2008) and the SQO Technical Support Manual (SCCWRP, 2009).

- Most PAH compounds (Table 8-9), are expected to be detectable in the suspended sediment at concentrations similar to target bed sediment reporting limits for the Harbor Toxics monitoring program, target reporting limits presented in the SWAMP QAPP (SWRCB, 2008), and maximum reporting limits cited in the SQO technical Support Manual (SCCWRP, 2009). Only two compounds, naphthalene and phenanthrene, are expected to have detection limits roughly three times the target bed sediment reporting limits for the Harbor Toxics TMDL. Both of these analytes are light weight PAHs that are not considered to be major analytes of concern in stormwater.

- Table 8-10 summarizes the reporting limits applicable to total recoverable metals. Estimated equivalent concentrations in suspended solids are very conservatively estimated based upon 100 percent of the metals being associated with suspended particulates as measured values approach project detection limits. In reality, this is not a likely condition. When concentrations of total recoverable metals approach the very low detection limits used in this program, sediment loads will also be extremely low and the concentrations of metals in the dissolved phase will become a more significant fraction of the total metals concentrations. If concentrations of total cadmium and mercury are extremely low, comparison with TMDL targets in bed sediments could be limited.

Initial monitoring results will be compared against interim sediment Waste Load Allocations (WLAs) established for the respective receiving waters (Table 8-11). For the Los Angeles River, interim WLAs for the Los Angeles River Estuary would apply and for the San Gabriel River watershed, interim allocations for the Nearshore Waters of San Pedro Bay will apply.

8.1.2.3 Water Sampling and Analytical Procedures-Dry Weather

Suspended sediment concentrations during periods of dry weather are extremely low and not suitable for use of methods intended to quantify the concentrations of toxics associated with particulates. Dry weather samples will be collected as grab samples using methods consistent with the procedures specified in the Harbor Toxics Monitoring and Reporting Plan (Anchor, QEA 2013).

Dry weather sampling will be scheduled to be conducted during a time period when flows are historically at the minimum levels.

Water samples will be collected by Los Angeles County Sanitation District (LACSD) personnel and submitted for the following parameters:

- Total Suspended Solids (TSS) and Suspended Sediment Concentrations (SSC)
- Dissolved and total metals
- Organochlorine pesticides (including DDT and its derivatives, chlordane compounds, dieldrin, and toxaphene)
- Polychlorinated biphenyl (PCB) congeners

Analytical methods for each of these constituents will be consistent with methods listed in Section 5 for Table E-2 constituents and methods specified in Appendix F. Appendix F specifies analytical methods and detection limits for analyses of both water and sediment. In addition, data quality objectives are specified for all analytical tests. Analytical methods will also be consistent with methods used in the Harbor waters with the exception of metals which require chelation/extraction methods in saline waters.

In situ measurements will include temperature, dissolved oxygen, pH and salinity. *In situ* measurements will be taken with a calibrated water quality sonde (Hach Quanta or equivalent).

8.1.2.4 Sediment Sampling and Analytical Procedures-Dry Weather

Compliance with the Harbor Toxics TMDL requires collection of sediments from the mouth of the San Gabriel River Estuary every two years for analysis of general sediment quality constituents and the full chemical suite as specified in Sediment Quality Objectives (SQO) Part 1. Sediment will be collected and analyzed for all constituents listed in Table 8-5 in order to calculate the chemical indices necessary for SQO calculations.

Table 8-5. Summary of Chemical Analyses Required for Calculation of Chemical Indices required for Phase I -Sediment Quality Objectives (SQOs).

Chemical Name	Chemical Group	Chemical Name	Chemical Group
Total Organic Carbon	General	Alpha Chlordane	Pesticide
Percent Fines	General	Gamma Chlordane	Pesticide
		Trans Nonachlor	Pesticide
Cadmium	Metal	Dieldrin	Pesticide
Copper	Metal	o,p'-DDE	Pesticide
Lead	Metal	o,p'-DDD	Pesticide
Mercury	Metal	o,p'-DDT	Pesticide
Zinc	Metal	p,p'-DDD	Pesticide
		p,p'-DDE	Pesticide
		p,p'-DDT	Pesticide
Acenaphthene	PAH	2,4'-Dichlorobiphenyl	PCB congener
Anthracene	PAH	2,2',5-Trichlorobiphenyl	PCB congener
Biphenyl	PAH	2,4,4'-Trichlorobiphenyl	PCB congener
Naphthalene	PAH	2,2',3,5'-Tetrachlorobiphenyl	PCB congener
2,6- dimethylnaphthalene			
Fluorene	PAH	2,3',4,4'-Tetrachlorobiphenyl	PCB congener
1-methylnaphthalene	PAH	2,2',4,5,5'-Pentachlorobiphenyl	PCB congener
2-methylnaphthalene	PAH	2,3,3',4,4'-Pentachlorobiphenyl	PCB congener
1-methylphenanthrene	PAH	2,3',4,4',5-Pentachlorobiphenyl	PCB congener
Phenanthrene	PAH	2,2',3,3',4,4'-Hexachlorobiphenyl	PCB congener
Benzo(a)anthracene	PAH	2,2',3,4,4',5'-Hexachlorobiphenyl	PCB congener
Benzo(a)pyrene	PAH	2,2',4,4',5,5'-Hexachlorobiphenyl	PCB congener
Benzo(e)pyrene	PAH	2,2',3,3',4,4',5-Heptachlorobiphenyl	PCB congener
Chrysene	PAH	2,2',3,4,4',5,5'-Heptachlorobiphenyl	PCB congener
Dibenz(a,h)anthracene	PAH	2,2',3,4',5,5',6-Heptachlorobiphenyl	PCB congener
Fluoranthene	PAH	2,2',3,3',4,4',5,6-Octachlorobiphenyl	PCB congener
Perylene	PAH	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	PCB congener
Pyrene	PAH	Decachlorobiphenyl	PCB congener

8.1.2.5 Quality Control Measures

Quality control measures for all HRMS analyses will include field equipment blanks to assess background contamination due to the field equipment and sample handling. One field equipment blank will be analyzed from one set of field equipment prior each monitoring event during the first year. Data will be evaluated at the end of the year to determine if field equipment blanks should be reduced to one per season. For the field blank, two liters of HPLC grade water provided by the laboratory will be pumped through the entire autosampler and intake hose for each analytical test (OC pesticides, PCBs and PAHs). The blank water will be pumped into precleaned sample containers and refrigerated until the stormwater sampling is completed. If the storm does not occur immediately after blanking, the equipment blank will be transmitted under Chain of Custody to the laboratory in order the meet the requirement for extraction of aqueous samples within 7 days of collection. Extracts will be held until stormwater samples are received unless storm does not develop within a period of 30 days after extraction (samples are required to be analyzed within 40 days of extraction). If a successful storm event is monitored immediately after the equipment blank is taken, the equipment blank and stormwater samples will be submitted to the laboratory together. Given adequate sample volumes, field duplicates will also be analyzed to assess variability associated with the sampling and subsampling processes.

Laboratory quality control measures will include analysis of method blanks, initial calibrations, analysis of Ongoing Precision and Recovery (OPR) samples and use of labeled compounds to assess recoveries and matrix interferences. Method blanks will be based upon processing of laboratory water volumes identical to those used for the field samples. Initial calibrations are run periodically but daily calibration checks are conducted to verify stability of the calibration. OPR tests will be conducted with each batch of samples. OPR samples are blanks spiked with labelled isotopes that are used to monitoring continued performance of the test. Labelled isotopes are added to each field sample and analyzed to measure recovery in the sample matrix. Estimated Detection Limits (EDLs) will be calculated for each analyte associated with each field sample. For each analyte 'x', the EDL is calculated by the following formula:

$$EDL_x = \frac{(Na)*(Qis)*(Rah)}{(Ais)*(RRF)*(wv)}$$

Where:

Na = Analyte peak to peak noise height.

Qis = Concentration of internal standard.

Rah = Area of Height Ratio

Ais = Area of internal standard

RRF = initial calibration average relative response factor for the congener of interest.

wv = sample weight/volume.

2.5 = Minimum signal to noise ratio.

Quality control measures for water samples taken during dry weather periods will be consistent with all measures applied for sampling suspended sediment, trace metals, organochlorine pesticides and PCBs as part of the Receiving Water Monitoring Program.

8.1.2.6 Summary

In summary, target reporting limits for all but one of the organic compounds of interest are below or comparable to relevant TMDL targets and the overwhelming majority are below bed sediment reporting limits identified in the Harbor Toxics Monitoring Program (Anchor, 2013), the SWAMP QAPP (SWRCB, 2008), the SQO Technical Support Manual (SCCWRP, 2009) and available Effects Range Low (ERL) values used to assess direct effects on Harbor sediments. . In the case of metals, some limitations may exist for two elements, cadmium and mercury, in extreme conditions.

However, neither sediment in both eastern San Pedro Bay nor the Los Angeles River Estuary are cited as being impaired by these two metals.

The sampling approach is based upon collection and analysis of whole water samples to estimate concentrations of target pollutants associated with suspended sediments in flow-rated composite samples of stormwater. Use of this approach is expected to result in very low detection limits that will allow for quantification of total contaminant loads for each constituent of concern. It will also allow for reasonable estimates of the concentrations of target compounds in the suspended sediment and provide for direct comparisons with targets established in the receiving waters for bed sediments. This approach meets the overall objectives of the program while also enhancing the chances of successfully monitoring multiple storm events in the targeted watersheds and providing data necessary to evaluate relative loads from each watershed during multiple storms each year. The proposed methods are also expected to allow incorporation of quality control measures necessary to evaluate potential sources of contamination and evaluate variability associated with both field sampling and analytical processes.

Sampling of dry weather discharges from the Los Angeles River and at the mouth of the Lower San Gabriel River Estuary will be based upon surface grab samples. Samples will be analyzed for suspended sediment, trace metals, organochlorine pesticides and PCBs as part of the Receiving Water Monitoring Program.

Table 8-6. Measurements of Suspended Sediments for Calculation of Harbor Toxics Pollutant Loads.

SAMPLE MEDIUM	CONSTITUENT	METHOD	TARGET REPORTING LIMIT
Water	Total Suspended Solids (TSS)	SM 2540D	1.0 mg/L
	Suspended Sediment Concentration (SSC)	ASTMD 3977, Method B	1.0 mg/L

Table 8-7. Summary of TSS Measurements (mg/L) at Four Mass Emission Monitoring Sites in Los Angeles County.

Site	Site ID	2nd Quartile	Median	3rd Quartile
Los Angeles River - Wardlow	S10	65	143	291
Coyote Creek	S13	33	55	117
Ballona Creek	S01	NA	158	NA
Los Cerritos Channel	LCC1	96	155	260

NA = not available

Table 8-8. Recommended Methods, Estimated Detection Limits, Target Reporting Limits, and Relevant TMDL Targets for Organochlorine Pesticides and Total PCBs

Constituent and Analytical Method	Water Detection Limit (1)	Equivalent Suspended Sediment Detection Limit (2)	Harbor Toxics Target Bed Sediment Reporting Limits	SWAMP QAPP (2008) Reporting Limit	SQO Technical Support Manual (2009) Reporting Limit	Harbors Toxics TMDL Sediment Target (Indirect Effects)	Harbors Toxics TMDL Sediment Target (Direct Effects)
	pg/L	ng/g – dry wt					
Chlordane Compounds (EPA 1699)							
alpha-Chlordane	40	0.2	2	1	0.5	1.3 (Total Chlordane)	0.5 (Total Chlordane)
gamma-Chlordane	40	0.2	2	1	0.54		
Oxychlordane	40	0.2	1	1	NA		
trans-Nonachlor	40	0.2	2	1	4.6		
cis-Nonachlor	40	0.2	1	2	NA		
Other OC Pesticides (EPA 1699)							
2,4'-DDD	40	0.2	2	2	0.5	1.3 (Total DDT)	1.58 Total DDT)
2,4'-DDE	80	0.4	2	2	0.5		
2,4'-DDT	80	0.4	3	3	0.5		
4,4'-DDD	40	0.2	2	2	0.5		
4,4'-DDE	80	0.4	2	2	0.5		
4,4'-DDT	80	0.4	5	5	0.5		
Total DDT	80	0.4	---	---	0.5		
Total PCBs (EPA 1668)	5-20	0.025-0.1	0.2[3]	0.2	3.0	3.2	22.7

1. Water EDLs based upon 2 liters of water.

2. Suspended Sediment detection limits based upon estimate of 100 mg/L suspended solids.

3. Harbor Toxics high resolution analytical methods include a target of 0.2 ng/g for all congeners except PCB-189 which has a target of 10 ng/g.

Table 8-9. Recommended Methods, Estimated Detection Limits, Target Reporting Limits, and Relevant TMDL Targets for PAHs

Constituent	Water Detection Limit (1)	Equivalent Suspended Sediment Detection Limit (2)	Harbor Toxics Target Bed Sediment Reporting Limits	SWAMP QAPP (2008) Reporting Limit	SQO Technical Support Manual (2009)Reporting Limit	Harbors Toxics TMDL Sediment Target (Direct Effects)
	pg/L	**ng/g – dry wt**				
Low Molecular Weight PAHs						
1-Methylnaphthalene	5	25	20	20	20	
1-Methylphenanthrene	5	25	20	20	20	
2-Methylnaphthalene	5	25	20	20	20	201
2,6-Dimethylnaphthalene	5	25	20	20	20	
Acenaphthene	5	25	20	20	20	
Anthracene	5	25	20	20	20	
Biphenyl	5	25	20	20	20	
Fluorene	5	25	20	20	20	
Phenanthrene	12.5	62.5	20	20	20	240
Naphthalene	12.5	62.5	20	20	20	
				LOW MOLECULAR WT PAHS		**552**
High Molecular Weight PAHs						
Benzo(a)anthracene	5	25	20	20	80	261
Benzo(a)pyrene	5	25	20	20	80	430
Benzo(e)pyrene	5	25	20	20	NA	
Chrysene	5	25	20	20	80	384
Dibenz(a,h)anthracene	5	25	20	20	80	260
Fluoranthene	5	25	20	20	80	
Perylene	5	25	20	20	80	
Pyrene	5	25	20	20	80	665
				HIGH MOLECULAR WT PAHS		**1700**
				TOTAL PAHs		**4700**

1. Water EDLs based upon 2 liter of water and CARB 429m. Detection limits are based upon a final extract of 500 µL. If the SSC is low, either an additional liter of water can be extracted to decrease the detection limit by 1/3 or the final extract volume can be reduced. Depending on sample characteristics, the extract volume can be reduced to as little as 50-100 µL which would drop EDLs by a factor of 0.1 to 0.2 times the listed EDLs.

2. Suspended Sediment detection limits based upon estimate of 100 mg/L suspended solids.

Table 8-10. Recommended Methods, Estimated Detection Limits, Target Reporting Limits, and Relevant TMDL Targets for Metals.

Constituent and Analytical Method	Water Detection Limit (ML)	Equivalent Suspended Sediment Detection Limit (1)	Harbor Toxics Target Bed Sediment Reporting Limits	SWAMP QAPP (2008) Reporting Limit	SQO Technical Support Manual (2009) Reporting Limit	Harbors Toxics TMDL Sediment Target (Direct Effects)
	ug/L	μg/g – dry wt				
Total Metals						
Cadmium	0.25	2.5	0.01	0.01	0.09	1.2
Copper	0.50	5.0	0.01	0.01	52.8	34
Lead	0.50	5.0	0.01	0.01	25.0	46.7
Mercury	0.20	2.0	0.03	0.03	0.09	0.15
Zinc	1	10	0.1	0.1	60	150

1. Suspended Sediment EDLs based upon estimate of 100 mg/L suspended solids.

Table 8-11. Interim Concentration-Based Sediment Waste Load Allocations

Waterbody	Pollutant (μg/g – dry wt)					
	Copper	Lead	Zinc	DDT	PAHs	PCBs
Los Angeles River Estuary	53.0	**46.7**	183.5	0.254	4.36	0.683
San Pedro Bay Near/Off Shore Zones	76.9	66.6	263.1	0.057	**4.022**	0.193

BOLDED values indicate cases where the interim allocations are equal to the final allocations

9 Stormwater Outfall Monitoring

Three outfall monitoring sites (Figure 9-1) have been assessed for potential monitoring. The first two sites, CC2 and SG1, are scheduled for installation and monitoring in year 2 of the monitoring program, 2016-17. Monitoring at the third site, BC1, in Diamond Bar will be sampled starting in year 3 of the program (2017-18). Complete stormwater monitoring stations (Appendix A) will be installed at both CC2 and SG1 to provide for automated collection of flow-weighted composite stormwater samples. These sites will also have rain gauges to augment rainfall information for the LSGR Watershed. Sampling at BC1 will be accomplished either by taking manual grab samples or by use of a portable autosampler configured to collect time-weighted composite samples. This location will be further evaluated during the first year of the program to determine the suitability of this site for the temporary installation of a small security enclosure for monitoring equipment.

These sites were selected to provide good spatial representation of the watershed in terms of HUC12 boundaries, jurisdictional boundaries and land uses within the LSGR WG. An assessment of the factors relative to site selection was addressed in Section 3.2. The schedule for installation and monitoring of each stormwater outfall is summarized in Table 4-1.

Constituents monitored at each stormwater outfall monitoring site are outlined in Table 9-1 and include water body/pollutant priorities under Categories 1, 2 and 3. These include all constituents with established TMDLs, that are 303(d) listed or that have been found to exceed receiving water limitations on at least one occasion. Constituents monitored at each stormwater outfall monitoring site in Coyote Creek will also include any Table E-2 analytes detected at S13. Similarly, Table E-2 constituents exceeding water quality criteria at GR1 will be incorporated into sampling requirements for SG1, the stormwater outfall sites in the San Gabriel River Reach 1. Aquatic Toxicity will be addressed in accordance with the process outlined in Section 7. Any constituents identified detected at levels of concern from Table E-2 will be considered for addition to monitoring requirements for the stormwater outfall sites in the following year after being detected twice during storm events monitored at S13 and GR1. Constituents exceeding RWLs in San Jose Creek Reach 1, which is a TMDL monitoring site that will be monitored by the USGR EWMP Group, will also be incorporated into stormwater outfall monitoring at BC1.

Justification for adding and deleting constituents from the stormwater outfall monitoring program will follow the process established in a Coordinated Monitoring Program (CMP) for a monitoring program in the adjacent Los Angeles River Watershed (Los Angeles River Metals CMP, March 2008). Any Table E-2 constituents incorporated into ongoing monitoring program at the receiving water monitoring site will be added to the upstream stormwater outfall monitoring requirements in the following year after two consecutive exceedances of wet weather receiving water quality limitations. Similarly, it is not intended that constituents continue to be monitored at stormwater outfall sites if they are not detected on a regular basis. Constituents will be removed from the list if they are not detected at levels of concern for two consecutive stormwater monitoring events.

Lower San Gabriel River Watershed

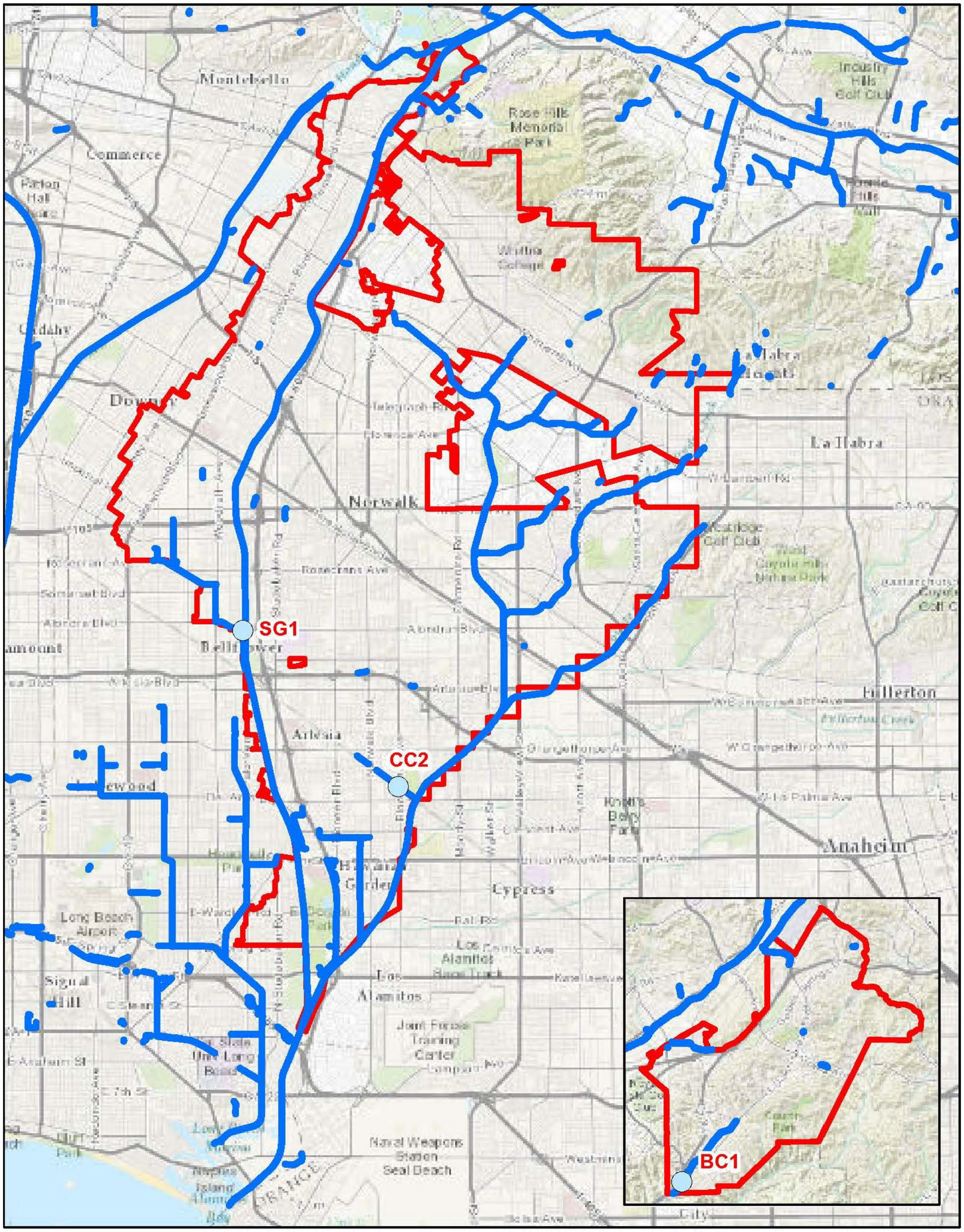

Figure 9-1. Locations of the Three Stormwater Outfall Monitoring Sites in the LSGR WG.

The sampling frequency and mobilization requirements for Stormwater Outfall Monitoring sites will be consistent with monitoring conducted at the S13 (Coyote Creek), GR1 (San Gabriel River Reach 1), and NFC1 (N. Fork Coyote Creek) Receiving Water Monitoring Sites during the wet season. A total of four events will be monitored at each outfall site once they are installed. Monitoring will be concurrent with receiving water monitoring in order to allow for comparison of pollutant loading rates associated with each segment relative to ultimate pollutant loads measured at the ME and LTA sites.

Stormwater monitoring at the stormwater outfall monitoring sites, GR1 (San Gabriel River Reach 1), and NFC1 (N. Fork Coyote Creek) will be conducted by LSGR staff while monitoring at S13 will be coordinated with LACFCD staff.

Monitoring at the outfalls will therefore be restricted to the same wet weather definitions as used for the S13, GR1, and NFC1 stations. These include:

- Wet Season defined as October 1 through April 15.
- Events preceded by less than 0.1 inches of rainfall within the watershed over a three day period.
- Rainfall of at least 0.25 inches.
- San Gabriel River - Maximum flow rates greater than 260 cfs measured at the USGS gauging station 11085000.
- Coyote Creek - Maximum daily flow rates of 156 cfs at the LACFCD flow gauging station F354-R.

Due to the size of the watershed, it is possible that conditions for wet weather flow monitoring could be met in just one of the two targeted segments of the LSGR WG.

Table 9-1. Summary of Water Quality Constituents to be Monitored at Stormwater Outfall Monitoring Sites.

CLASS OF MEASUREMENTS	STORMWATER OUTFALLS (Wet Weather Only)		
	San Gabriel River	Coyote Creek	San Jose Creek
	SG1	CC2	BC1
Flow	4	4	4
Field Measurements DO, pH, Temp, and Spec. Cond.	4	4	4
Conventionals[2] (Table 5-3) All except total phenols, turbidity, BOD_5, MTBE, and perchlorate, and fluoride.	4	4	4
Microbiological Constituents (Table 5-4)			
E. coli	3	3	3
Nutrients (Table 5-5)			
Ammonia	3	3	3
Metals[2] (Table 5-7)			Note 1
Cadmium			4
Copper	4	4	4
Lead	4	4	4
Total Mercury		4	
Total Selenium	4	4	4
Zinc	4	4	4
OP Pesticides (Table 5-8)			
Diazinon	3	3	3

1. Cadmium, copper and zinc will be monitored at BC1 based upon monitoring required in San Jose Creek Reach 1, which is a TMDL site that will be monitored by the USGR EWMP Group

2. The fourth storm event is only for the purpose of fulfilling the TMDL requirements. Only metals, TSS, SSC, and hardness will be analyzed.

10 Non-Stormwater (NSW) Outfall Monitoring

Ultimately, the NSW program is intended to establish a process for identifying outfalls that serve as potential sources of contaminants. Sites where initial screening indicates the potential for discharges of a magnitude considered to have the potential to cause or contribute to exceedances of receiving water limitations will require further efforts to classify the discharges and determine appropriate actions, if any.

Detailed objectives of the screening and monitoring process (Section IX.A, page E-23 of the MRP) include the following:

1. Develop criteria or other means to ensure that all outfalls with significant non-stormwater discharges are identified and assessed during the term of this Order.

2. For outfalls determined to have significant non-stormwater flow, determine whether flows are the result of illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt non-stormwater flows, natural flows, or from unknown sources.

3. Refer information related to identified IC/IDs to the IC/ID Elimination Program (Part VI.D.10 of the Order) for appropriate action.

4. Based on existing screening or monitoring data or other institutional knowledge, assess the impact of non-stormwater discharges (other than identified IC/IDs) on the receiving water.

5. Prioritize monitoring of outfalls considering the potential threat to the receiving water and applicable TMDL compliance schedules.

6. Conduct monitoring or other investigations to identify the source of pollutants in non-stormwater discharges.

7. Use results of the screening process to evaluate the conditionally exempt non-stormwater discharges identified in Parts III.A.2 and III.A.3 of the Order and take appropriate actions pursuant to Part III.A.4.d of the Order for those discharges that have been found to be a source of pollutants. Any future reclassification will occur per the conditions in Parts III.A.2 or III.A.6 of the Order.

8. Conduct monitoring or assess existing monitoring data to determine the impact of non-stormwater discharges on the receiving water.

9. Maximize the use of Permittee resources by integrating the screening and monitoring process into existing or planned CIMP efforts.

In cases where flow is determined to be significant, the program will take further action to determine if the flows are illicit, exempt, conditionally exempt essential, conditionally exempt non-essential, or if the source(s) of the discharge cannot be identified (unknown). Illicit discharges require immediate action and, if they cannot be eliminated, monitoring will be implemented until such time that the illicit discharge can be eliminated. Discharges classified as conditionally exempt non-essential or unknown also require ongoing monitoring.

The following sections summarize the elements of the program and processes to ultimately eliminate major sources of non-stormwater discharges.

10.1 Non-Stormwater Outfall Screening and Monitoring Program

The NSW Outfall Screening and Monitoring Program will begin with three screening surveys starting in the summer of 2014 to identify outfalls or other discharges that are considered to be significant and persistent sources of non-stormwater flow to receiving waters.

The initial survey will focus on completing an inventory of all outfalls to receiving waters. Outfalls greater than 12-inches in diameter (or equivalent) will be photographed and documented. The second and third surveys will include outfalls between 12 to 36 inches in diameter (or equivalent) near areas with industrial land uses and outfalls greater than 36 inches in diameter (or equivalent).

Information from all three screening surveys will be consolidated to assist in the identification and ranking of outfalls considered to have significant NSW discharges. Multiple lines of evidence will be considered when assessing the significance of a discharge. The relative magnitude of the discharges, persistence of the flow, visual and physical characteristics recorded at each site, and land uses associated with the drainage will be primary consideration for determination of significant flows.

Upon determination of significant NSW discharges, source identification will be initiated. A combination of field observations, flow measurements and field water quality measurements will be used to classify outfalls into one of the following three categories that will determine further actions (Figure 10-1):

1. **Suspect Discharge** – Outfalls with persistent high flows during at least two out of three visits and with high severity on one or more physical indicators (odors, oil deposits, etc.). Outfalls in this category require prioritization and further investigation.

2. **Potential Discharge** - Flowing or non-flowing outfalls with presence of two or more physical indicators. Outfalls in this category are considered to be low priority but will be continue to be monitored periodically to determine if the sites are subject to less frequent, discharges or determine if actions can be taken to reduce or eliminate the factors that lead to the site being considered a potential source of contaminants.

3**. Unlikely Discharge** - Non-flowing outfalls with no physical indicators of an illicit discharge. Outfalls within this classification would be not be subject to any further screening.

Subsequent source investigations conducted for discharges with significant flow may utilize field water quality instrumentation and/or simple field test kits to assist in further classifying discharges. Collection of water samples for limited laboratory testing may be incorporated into the program as requirements for more complex, accurate and scientifically supportable data become necessary to characterize non-stormwater discharges and provide scientifically supportable data to track the source of these discharges. The Center for Watershed Protection and Pitt (2004) provide an evaluation of twelve analytes for assistance in determining the source of NSW discharges (Table 10-2). Three of the analytes can be measured with *in-situ* instrumentation. Others can be analyzed relatively inexpensively by use of field test kits or can be analyzed in an ELAP-certified laboratory. In addition, three to five of the listed tests are often considered sufficient to screen for illicit discharges. Ammonia, MBAS, fluoride (assuming tap water is fluorinated), and potassium are considered to confidently differentiate between sewage, wash water, tap water and industrial wastes. Incorporation of *in-situ* measurement of temperature, pH, TDS/salinity, turbidity and dissolved oxygen can further assist in characterizing and tracking the source(s) of an NSW discharge.

Table 10-1. Outline of the NSW Outfall Screening and Monitoring Program.

Element	Description	Timing of Completion
1. Outfall Screening	The Permittees will implement a screening process to determine which outfalls exhibit significant NSW discharges and those that do not require further investigation. Data will be recorded on Outfall Reconnaissance Investigation (ORI) forms and in the associated database.	Commence in Summer 2014 and complete by end of 2014
2. Identification of outfalls with significant NSW discharge (Part IX.C of the MRP)	Data from the Outfall Screening process will be used to categorize MS4 outfalls on the basis of discharge flow rates, field water quality and physical observations.	Concurrent with Outfall Screening December 15, 2014 with Annual CIMP Report
3. Inventory of Outfalls with NSW discharge (Part IX.D of the MRP)	Develop an inventory of all major MS4 outfalls, identify outfalls with known NSW discharges and identify outfalls with no flow requiring no further assessment.	Concurrent with Outfall Screening December 15, 2014 with Annual CIMP Report
4. Prioritized source investigation (Part IX.E of the MRP)	Use the data collected during the Outfall Screening process to further prioritize outfalls for source investigations.	Prioritization for Source Investigation will be occur after completion of Outfall Screening
5. Identify sources of significant NSW discharges (Part IX.F of the MRP)	For outfalls exhibiting significant NSW discharges, Permittees will perform source investigations per the established prioritization.	Complete source investigations for 25% of the outfalls with significant NSW discharges by December 28, 2015 and 100% by December 28, 2017.
6. Monitoring NSW discharges exceeding criteria (Part IX.G of the MRP)	Monitor outfalls determined to convey significant NSW discharges comprised of either unknown or conditionally exempt non-essential discharges or illicit discharges that cannot be abated.	Monitoring will commence within 90 days of completing the source investigations or after the Executive Officer approves this CIMP, whichever is later. Commencement of outfall monitoring may be adjusted to allow sampling to be coordinated with dry weather receiving water quality monitoring.

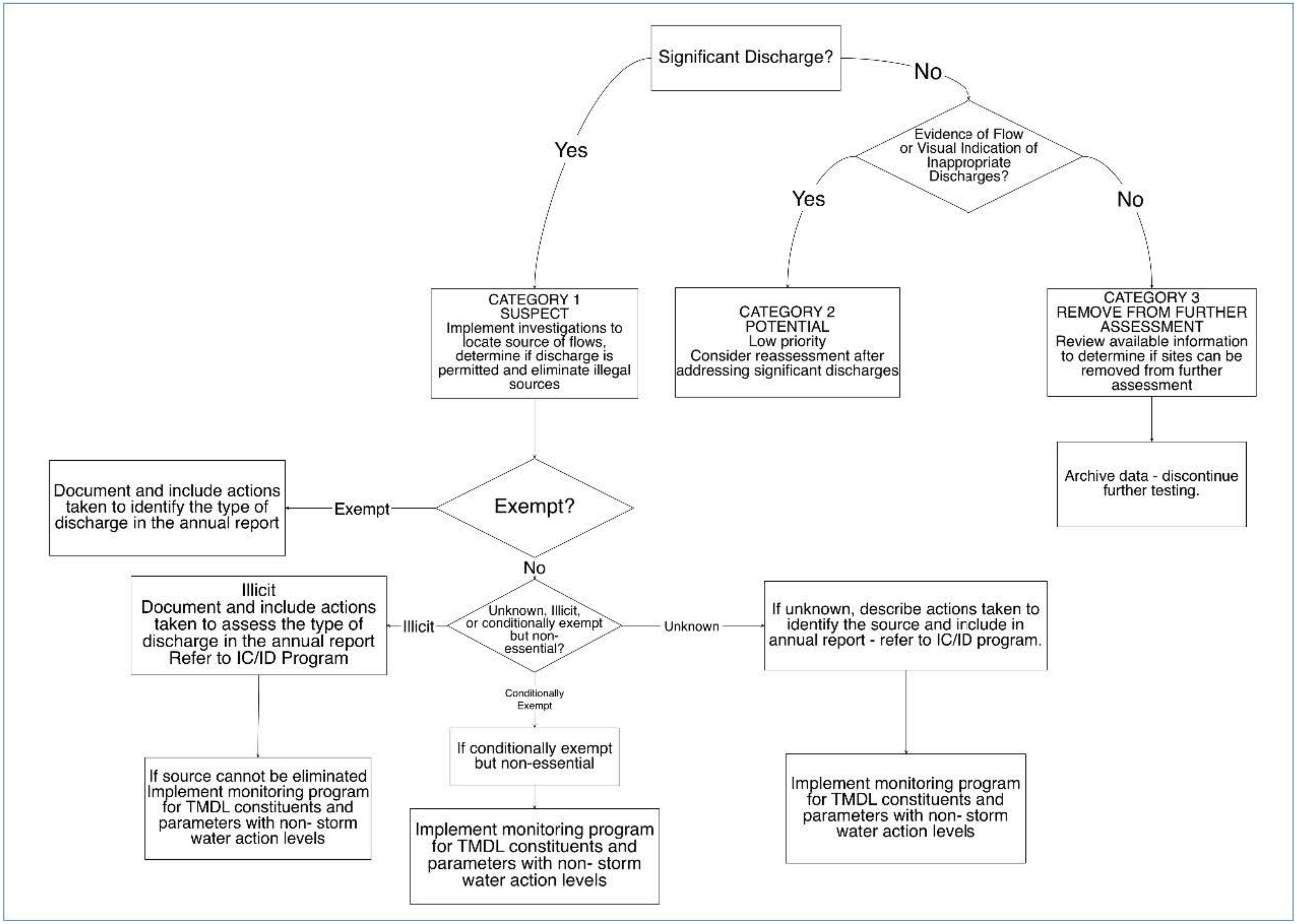

Figure 10-1. Flow Diagram of NSW Outfall Program after Classifying Outfalls during Initial Screening.

Table 10-2. Potential Indicator Parameters for Identification of Sources of NSW Discharges.

Indicator Parameters	
Ammonia	*E. coli*
Boron	Fluoride
Chlorine	Hardness
Color	pH - Field
Conductivity-Field	Potassium
Detergents – Surfactants (MBAS or fluorescence)	Turbidity

Based upon CWP and Pitt 2004. *Illicit Discharge Detection and Elimination A Guidance Manual for Program Development and Technical Assessments*

10.2 Identification of Outfalls with Significant Non-Stormwater Discharges

The screening program is necessary to collect information necessary to identify outfalls with potentially significant NSW discharges. The outfall screening includes collection of information necessary to provide an accurate inventory of the major outfalls, assess flow from each outfall and in the receiving waters, determine the general characteristics of the receiving waters (e.g. is flow present, does the flow from the outfall represent a large proportion of the flow, is it an earthen or lined channel), and record general observations indicative of possible illicit discharges. The initial screening survey(s) will also be used to refine the inventory information required in Section 10.3

The outfall screening process has already been initiated in order to meet the established schedule for completion of 25% of the source identification work. Once the screening process is completed Permittees are required to identify MS4 outfalls with "significant" NSW discharges. The MRP (Section IX.C.1) indicates that significant NSW discharges may be determined based upon one or more of the following characteristics:

a. Discharges from major outfalls subject to dry weather TMDLs.

b. Discharges for which existing monitoring data exceeds Non-Stormwater Action Levels (NALs) identified in Attachment G of the Order.

c. Non-stormwater discharges that have caused or have the potential to cause overtopping of downstream diversions.

d. Discharges exceeding a proposed threshold discharge rate as determined by the Permittee.

The relative magnitude of the discharges, persistence of the flow, visual and physical characteristics recorded at each site, and land uses associated with the drainage will be the primary factors used to determine if flows are significant. Characteristics of the receiving waters (flow, channel characteristics –hard or soft-bottom, etc.) at the discharge location will also be considered when determining the relative significance of NSW discharges. The most important consideration is whether the discharge has the potential to cause or contribute to exceedance of receiving water quality limitations. Factors that provide the best insight with respect to these impacts will receive the greatest weight when establishing the list of "significant" NSW discharges.

10.3 Inventory of MS4 Outfalls with Non-Stormwater Discharges

Part VII.A of the MRP requires that the CIMP plan(s) include a map(s) and/or database of the MS4 that includes the elements listed in Table 10-3. Most required elements are complete and being submitted with this CIMP. Elements requiring further development include the Effective Impervious Area, information on the length of open channels and underground pipes equal to or greater than 18 inches, and the drainage areas associated with each outfall. Subbasins used for the WMMS model are currently associated with each outfall within that subbasin. If an outfall is identified as a significant source of NSW discharges, drainage areas for each targeted outfall will be refined and updated in the database. Additional information such as documenting presence of significant NSW discharges, links to a database documenting water quality measurements at sites with significant NSW discharges will be updated annually and submitted with the CIMP annual report.

Table 10-3. Basic Database and Mapping Information for the Watershed.

Database Element	Status	
	Complete	Schedule
1. Surface water bodies within the Permittee(s) jurisdiction	X	
2. Sub-watershed (HUC 12) boundaries	X	
3. Land use overlay	X	
4. Effective Impervious Area (EIA) overlay (if available)		Will provide if available
5. Jurisdictional boundaries	X	
6. The location and length of all open channel and underground pipes 18 inches in diameter or greater (with the exception of catch basin connector pipes)	X[1]	
7. The location of all dry weather diversions	X	
8. The location of all major MS4 outfalls within the Permittee's jurisdictional boundary. Each major outfall shall be assigned an alphanumeric identifier, which must be noted on the map	X[2]	
9. Notation of outfalls with significant non-stormwater discharges (to be updated annually)	X	ongoing
10. Storm drain outfall catchment areas for each major outfall within the Permittee(s) jurisdiction	X[3]	ongoing
11. Each mapped MS4 outfall shall be linked to a database containing descriptive and monitoring data associated with the outfall. The data shall include:[4]		
a. Ownership		ongoing
b. Coordinates	X	
c. Physical description	X	
d. Photographs of the outfall, where possible to provide baseline information to track operation and maintenance needs over time	X	
e. Determination of whether the outfall conveys significant non-stormwater discharges		ongoing
f. Stormwater and non-stormwater monitoring data		ongoing

1. Locations are identified but the length of all open channel and underground pipes are not fully documented.
2. Attributes in the shapefile contain a Unique ID for all outfalls greater than 12" in diameter.
3. Catchments for each outfall are included as the area of the subbasins associated with each outfall. Several outfalls may drain these subbasins. Data will be developed as needed to resolve the drainage areas specific to each outfall.
4. Efforts are ongoing to define ownership and maintenance responsibility. As data become available, information regarding the conveyance of NSW and associated water quality data will be added to the database. Information will be updated based upon the three screening surveys. Mapping drainage areas and other information from section VII.A of the MRP is ongoing and will be addressed in the 2015-2016 sampling season.

As a component of the inventory and screening process, Permittees are required to document the physical attributes of MS4 outfalls determined to have significant non-stormwater discharges. Table 10-4 summarizes the minimum physical attributes required to be recorded and linked to the outfall database. These data will be maintained using the Outfall Reconnaissance Inventory (ORI) field form and associated database developed by CWP and Pitt (2004). Data entry can be accomplished by completing the ORI form while conducting the screening survey. Current forms are shown in the Appendix D but may be modified as the parameters and database are modified to provide different information more relevant to the NSW program.

Table 10-4. Minimum Physical Attributes Recorded during the Outfall Screening Process.

	Database Element
a.	Date and time of last visual observation or inspection
b.	Outfall alpha-numeric identifier
c.	Description of outfall structure including size (e.g., diameter and shape)
d.	Description of receiving water at the point of discharge (e.g., natural, soft-bottom with armored sides, trapezoidal, concrete channel)
e.	Latitude/longitude coordinates
f.	Nearest street address
g.	Parking, access, and safety considerations
h.	Photographs of outfall condition
i.	Photographs of significant non-stormwater discharge (or indicators of discharge) unless safety considerations preclude obtaining photographs
j.	Estimation of discharge rate
k.	All diversions either upstream or downstream of the outfall
l.	Observations regarding discharge characteristics such as turbidity, odor, color, presence of debris, floatables, or characteristics that could aid in pollutant source identification
m.	Observations regarding the receiving water such as flow, channel type, hard/soft bottom. (added minimum attribute.

10.4 Prioritized Source Identification

After completion of the initial reconnaissance survey and the two additional screening surveys, sites will be ranked based upon both initial flow observations from the reconnaissance inventory and the classifications assigned during each of the screening surveys. Source investigations will be scheduled to be conducted at sites categorized as Suspected Illicit discharges.

The MRP (IX.E.1) states that prioritization of source investigations should be based upon the following items in order of importance.

a. Outfalls discharging directly to receiving waters with WQBELs or receiving water limitations in the TMDL provisions for which final compliance deadlines have passed.

b. All major outfalls and other outfalls that discharge to a receiving water subject to a TMDL shall be prioritized according to TMDL compliance schedules.

c. Outfalls for which monitoring data exist and indicate recurring exceedances of one or more of the Action Levels identified in Attachment G of this Order.

d. All other major outfalls identified to have significant non-stormwater discharges.

Additional information from the screening process will be used to refine priorities. Sites with evidence of higher, more frequent flow, presence of odors or stains will be assigned higher priorities for source investigations.

10.5 Identify Source(s) of Significant Non-Stormwater Discharges

The screening and source identification component of the program is intended to identify the source or sources of contaminants contributing to an NSW discharge. The prioritized list of major outfalls with significant NSW discharges will be used to direct investigations starting with outfalls deemed to present the greatest risk to the receiving water body.

The Order requires the WMG to develop a source identification schedule based on the prioritized list of outfalls exhibiting significant NSW discharges. Source investigations will be conducted for no less than 25% of the outfalls in the inventory by December 2015 and 100% of the outfalls in the inventory by December 2017.

Part IX.A.2 of the MRP requires Permittees to classify the source investigation results into one of four endpoints: illicit connections/illicit discharges (IC/IDs), authorized or conditionally exempt non-stormwater flows, natural flows, or from unknown sources. If source investigations indicate the source is illicit or unknown, the Permittee will document actions to eliminate the discharge and implement monitoring if the discharge cannot be eliminated.

If the source of a discharge is found to be attributable to natural flows or authorized conditionally exempt NSW discharge, the Permittee must identify the basis for the determination (natural flows) and identify the NPDES permitted discharger. If the source is found to be a conditionally exempt but non-essential discharge, monitoring is required to determine whether the discharge should remain conditionally exempt or be prohibited.

Source investigations will be conducted using a variety of different approaches depending upon the initial screening results, land use within the area drained by the discharge point, and the availability of drainage maps. Any additional water quality sampling may be conducted as necessary.

- Tracking of dry weather flows from the location where they are first observed in an upstream direction along the conveyance system.
- Collection of additional water samples for analysis of NWS indicators for assistance in differentiating major categories of discharges such as tap water, groundwater, wash waters and industrial wastewaters.
- Compiling and reviewing available resources including past monitoring and investigation data, land use/MS4 maps, aerial photography, existing NPDES discharge permits and property ownership information.

If source tracking efforts indicate that the discharge originates from a jurisdiction upstream of the boundaries of the LSGR WG, the appropriate jurisdiction and the Regional Board will be notified in writing of the discharge within 30 days of the determination. All existing information regarding documentation and characterization of the data, contribution determination efforts, and efforts taken to identify its source will be included.

Investigations will be concluded if authorized, natural, or essential conditionally exempt flows are found to be the source of the discharge. If the discharge is determined to be due to non-essential conditionally exempt, illicit, or unknown discharges, further investigations will be considered to assess whether the discharge can be eliminated. Alternatively, if the discharges are either non-essential conditionally exempt or of an unknown source, additional investigations may be conducted to demonstrate that it is not causing or contributing to receiving water impairments.

10.6 Monitor Non-Stormwater Discharges Exceeding Criteria

As required in the MRP (Part II.3.3), outfalls with significant NSW discharges that remain unaddressed after source identification will be monitored. The objectives of the non-stormwater outfall based monitoring program include the following:

a. Determine whether a Permittee's discharge is in compliance with applicable NSW WQBELs derived from TMDL WLAs,

b. Determine whether a Permittee's discharge exceeds NSW action levels, as described in Attachment G of the Order,

c. Determine whether a Permittee's discharge contributes to or causes an exceedance of receiving water limitations

d. Assist a Permittee in identifying illicit discharges as described in Part VI.D.10 of the Order.

After completion of source investigations, outfalls found to convey NSW discharges that could not be abated and were identified as illicit, conditionally exempt but non-essential or unknown will be monitored. Monitoring will be initiated within 90 days of completing the source investigations or as soon as the first scheduled dry weather survey. Conducting NSW monitoring at the same time as receiving water dry weather monitoring will be more cost effective and allow evaluation of whether the NSW discharges are causing or contributing to any observed exceedances of water quality objectives in the receiving water.

Monitoring of NSW discharges is expected to undergo substantial changes from year to year as the result of ongoing actions taken to control or eliminate these discharges. As NSW discharges are addressed, monitoring of the discharges will no longer be required. In addition, if monitoring demonstrates that discharges do not exceed any WQBELs, non-stormwater action levels, or water quality standards for pollutants identified on the 303(d) list after the first year, monitoring of the pollutants meeting all receiving water limitations will be no longer be necessary. Due to potential frequent adjustments in the number and location of outfalls requiring monitoring and pollutants requiring monitoring, the annual CIMP report is expected to communicate adjustments in the number and locations of monitored discharges, pollutants being monitored and justifications for any adjustments.

10.7 Monitoring Parameters and Frequency

The MRP (Section IX.G.1) specifies the minimum parameters for monitoring of NSW discharges. Determination of monitoring parameters at each site requires consideration of a number of factors applicable to each site. Monitoring parameters will include:

- Flow,
- Pollutants assigned a WQBEL or receiving water limitation to implement TMDL Provisions for the respective receiving water, as identified in Attachments L - R of the Order,
- Other pollutants identified on the CWA section 303(d) List for the receiving water or downstream receiving waters,
- Pollutants identified in a TIE conducted in response to observed aquatic toxicity during dry weather at the nearest downstream receiving water monitoring station (S13 or GR1) during the last sample event or, where the TIE conducted on the receiving water sample was inconclusive, aquatic toxicity. If the discharge exhibits aquatic toxicity, then a TIE shall be conducted.
- Other parameters in Table E-2 identified as exceeding the lowest applicable water quality objective at LCC1 (the nearest downstream receiving water station) per Part VI.D.1.d.

The MRP (Part IX.G.2-4) specifies the following monitoring frequency for NSW outfall monitoring:

- For outfalls subject to a dry weather TMDL, the monitoring frequency shall be per the approved TMDL monitoring plan or as otherwise specified in the TMDL or as specified in an approved CIMP.

- For outfalls not subject to dry weather TMDLs, approximately quarterly for first year.

- Monitoring can be eliminated or reduced to twice per year, beginning in the second year of monitoring if pollutant concentrations measured during the first year do not exceed WQBELs, NALs or water quality standards for pollutants identified on the 303(d) List.

While a monitoring frequency of four times per year is specified in the Permit, it is inconsistent with the dry weather receiving water monitoring requirements. The receiving water monitoring requires two dry weather monitoring events per year. Additionally, during the term of the current Permit, outfalls are required to be screened at least once and those with significant NSW discharges will be subject to a source investigation. As a result, the LSGR WG recommends that NSW outfall monitoring events be conducted twice per year. The NSW outfall monitoring events will be coordinated with the dry weather receiving water monitoring events to provide better opportunities to determine if the NSW discharges are causing or contributing to any observed exceedances of water quality objectives in the receiving water.

Any monitoring required will be performed using grab samples (refer to Appendix A for field sampling procedures) rather than automated samplers. Bacteria, which are expected to be the limiting factor at many sites during dry weather, require collection by grab methods and delivery to the laboratory within 6 hours. Based upon the much reduced variability experienced in measurements of dry weather flows associated with ongoing monitoring programs, measured concentrations of other analytes are not expected to vary significantly over a 24-hour period.

11 New Development/Re-Development Effectiveness Tracking

Each permittee will maintain an electronic database to track qualifying new development and redevelopment projects which are subject to the Planning and Land Development Program of the Permit (Section VI.D.7.d.iv). The electronic database contains the information listed in Table 11-1, which includes details about the project and the design of onsite and offsite best management practices (BMPs). Table 11-1 also provides a description of the required information.

Table 11-1. Information Required in the New Development/Redevelopment Tracking Database.

	Required Information	Description
General Site Information	Project Name and Developer Name	Brief name of project and developer information (e.g. name, address, and phone number).
	Project Location and Map	Coordinates and map of the project location. The map should be linked to the GIS storm-drain map required in part VII.A of the Permit.
	Documentation of issuance of requirements to the developer	Date that the project developer was issued the Permit requirements for the project (e.g. conditions of approval).
	Date of Certificate of Occupancy	Date that the Certificate of Occupancy was issued.
On-site BMP Sizing Information	85^{th} percentile storm event (inches per 24 hours)	85^{th} percentile storm depth for the project location calculated using the *Analysis of 85^{th} Percentile 24-hour Rainfall Depths Within the County of Los Angeles.*
	95^{th} percentile storm event (inches per 24 hours)	95^{th} percentile storm depth for the project location calculated using the *Analysis of 85^{th} Percentile 24-hour Rainfall Depths Within the County of Los Angeles*. Only applies if the project drains directly to a natural drainage system[2] and is subject to hydromodification control measures.
	Project design storm (inches per 24 hours)	The design storm for each BMP as calculated using the *Analysis of 85^{th} Percentile 24-hour Rainfall Depths Within the County of Los Angeles*.
	Projects design volume (gallons or MGD)	The design storm volume (design storm multiplied by tributary area and runoff coefficient) for each BMP.
	Percent of design storm volume to be retained on site	The percentage of the design volume which on-site BMPs will retain.
	Other design criteria required to meet hydromodification requirements for projects that directly drain to natural water bodies	Information relevant to determine if the project meets hydromodification requirements as described in the Permit e.g., peak flow and velocity in natural water body, peak flow from project area in mitigated and unmitigated condition, etc.). Only applies if the project drains directly to a natural drainage system.
	One -year, one-hour storm intensity as depicted on the most recently issued isohyetal map published by the Los Angeles County Hydrologist for flow-through BMPs	If flow-through BMPs (e.g., sand filters, media filters) for water quality are used at the project, provide the one-year, one-hour storm intensity at the project site from the most recent isohyetal map issued by LA County.
Off-site BMP Information	Location and maps of off-site mitigation, groundwater replenishment, or retrofit sites	If any off-site mitigation is used, provide locations and maps linked to the GIS storm-drain map required in part VII.A of the Permit.
	Design volume for water quality mitigation treatment BMPs	The calculated design volume, If water quality mitigation is required.
	Percent of design storm volume to be infiltrated at an off-site mitigation or groundwater replenishment project site	The percentage of the design volume which off-site mitigation or groundwater replenishment will retain.
	Percent of design storm volume to be retained or treated with biofiltration at an off-site retrofit project	The percentage of the design volume which off-site biofiltration will retain or treat.

[2] A natural drainage system is defined as a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

12 Reporting

Reporting will normally consist of Annual CIMP Reports and semi-annual data reports. Discharge Assessment Plans will be only submitted if TIEs are found to produce inconsistent results during two consecutive tests. These include the following reports:

Annual CIMP Reports

Annual CIMP monitoring reports are required to be submitted to the Regional Water Board Executive Officer by December 15th of each year in the form of three compact disks (CD) The annual reporting process is intended to meet the following objectives.

Summary information allowing the Regional Board to assess:

a. Each Permittee's participation in one or more Watershed Management Programs.

b. The impact of each Permittee(s) stormwater and non-stormwater discharges on the receiving water.

c. Each Permittee's compliance with receiving water limitations, numeric water quality-based effluent limitations, and non-stormwater action levels.

d. The effectiveness of each Permittee(s) control measures in reducing discharges of pollutants from the MS4 to receiving waters.

e. Whether the quality of MS4 discharges and the health of receiving waters is improving, staying the same, or declining as a result watershed management program efforts, and/or TMDL implementation measures, or other Minimum Control Measures.

f. Whether changes in water quality can be attributed to pollutant controls imposed on new development, re-development, or retrofit projects.

Data Submittals

Analytical data reports are required to be submitted to the Regional Board on a semi-annual basis in accordance with the Southern California Municipal Storm Water Monitoring Coalition's Standardized Data Transfer Formats. These reports are required to be subject to verification and validation prior to submittal. They are to cover monitoring periods of July 1 through December 31 for the mid-year report and January 1- June 30 for the end of year report. These data reports should summarize:

- Exceedances of applicable WQBELs, receiving water limitations, or any available interim action levels or other aquatic toxicity thresholds.
- Basic information regarding sampling dates, locations, or other pertinent documentation.

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APPENDIX A

AUTOMATED STORMWATER MONITORING EQUIPMENT

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1 Automated Stormwater Monitoring Equipment

Monitoring of stormwater runoff at the Mass Emission (ME) sites and Stormwater Outfall Monitoring sites will require use of automated stormwater monitoring equipment. This section addressed equipment and sampling procedures that will be used for sites operated by the LSGR WG. Monitoring conducted at S13 by the Los Angeles County Flood Control District (LACFCD) will utilize similar procedures. Sampling conducted by the LACFCD will use equipment and procedures consistent with those used for monitoring over the past decade.

Sampling at mass emission monitoring sites for collection of stormwater samples will require collection of flow-weighted composite samples. Time-weighted will be considered for sampling at upstream, stormwater outfall monitoring sites. Similar equipment will be necessary regardless of the selected sampling approach. Time-weighted composite samples simply allow for more mobile installations that do not require flow meters, rain gauges, solar panels, or communication equipment. In lieu of communications equipment, such sites require added field personnel to monitor and track performance of the equipment along with added sensors to trigger the equipment to initiate the sampling.

For purposes of this CIMP, it is assumed that all sites requiring collection of flow-weighted composite samples will be established as “permanent” or “long-term” sites with appropriate security to protect the equipment and intake structures from debris coming down the stream or vandalism. As noted, collection of time-weighted samples will be utilize the same types of autosamplers and composite containers but will not include flow meters, rain gauges and telecommunication packages. Monitoring stations designed to take time-weighted composite samples will require sensors to detect initial flows and trigger the sampler. This will allow for use of smaller security enclosures that can temporally be secured at a site or, if necessary, equipment can be deployed in a manhole.

Fixed monitoring sites will utilize automated stormwater sampling stations that incorporate an autosampler (American Sigma or Isco), a datalogger/flow module to monitor flow and pace the autosampler, a rain gauge to monitor and record local rainfall, and telecommunications to allow for remote monitoring and control of each site. Sites without access to AC power will be powered by deep-cycle marine batteries. Sites without direct access to AC power will utilize solar panels to provide the energy needed to maintain the charge on two deep cycle batteries used to power the autosampler, flow meter and datalogger. Providing reliable telecommunications for real-time access to data and to provide command and control functionality has greatly improved efficiency and contributed to improved stormwater data.

Both types of automated stormwater monitoring systems considered for this monitoring program use peristaltic pumping systems. When appropriate measures are taken, it has been demonstrated that these types of systems are capable of collecting blanks that are uncontaminated and high quality, reproducible data using detection limits appropriate to water quality criteria. In order to accomplish this, extreme care must be taken to avoid introduction of contaminants.

Requirements include:

- Assuring that all materials coming into contact with the samples are intrinsically low in trace metals and do not adsorb/absorb metals or other target.
- Materials coming into contact with the sample water are subjected to intensive cleaning using standardized protocol and subjected to systematic blanking to demonstrate and document that blanking standards are met.
- All cleaned sampling equipment and bottles are appropriately tracked so that blanking data can be associated with all component deployed in the field.
- Samples are collected, processed and transported taking care to avoid contamination from field personnel or their gear, and
- Laboratory analysis is conducted in a filtered air environment using ultrapure reagents.

Table 2-1 of the USGS National Field Manual (http://pubs.water.usgs.gov/twri9A/) provides a summary of acceptable materials for use sampling organic and inorganic constituents. The stormwater monitoring stations will primarily utilize 20-L borosilicate glass media bottles for the composite samples, FEP tubing for the sample hose and either 316 SS or Teflon-coated intake strainers. Ten (10) liter borosilicate glass media bottles will be considered for sites where required sample volumes are low and lower sample volumes are acceptable. The peristaltic hose is a silicone-base material that is necessary for operation of the autosamplers. The peristaltic hose can be as source of silica which is not a target compound.

Although the technical limitations of autosamplers are often cited, they still provide the most practical method for collecting representative samples of stormwater runoff for characterization of water quality and have been heavily utilized for this purpose for the past 20 years. The alternative, manual sampling, is generally not practical for collection of flow-weighted composite samples from a large number of sites or for sampling events that occur over an extended period of time. Despite the known drawbacks, autosamplers combined with accurate flow metering remain the most common and appropriate tool for monitoring stormwater runoff.

1.1 Sampler Intake Strainer, Intake Tubing and Flexible Pump Tubing

Intake strainers will be used to prevent small rocks and debris from being drawn into the intake tubing and causing blockages or damage to the pump and peristaltic pump tubing. Strainers will be constructed of a combination of Teflon and 316 stainless or simply stainless steel. The low profile version is typically preferred to provide greater ability to sample shallow flows. Although high grade stainless steel intake strainers are not likely to impact trace metal measurements, it is preferable to use strainers coated with a fluoropolymer coating. If the stainless steel intake is not coated, the strainer will not be subjected to cleaning with acids. Cleaning will be limited to warm tap water, laboratory detergents and MilliQ water rinses.

Tubing comprised of 100% FEP (Fluorinated Ethylene Propylene) will be used for the intake tubing. Several alternative fluoropolymer products are available but 3/8" ID solid FEP tubing has the chemical characteristics suitable for sampling metals and organics at low levels and appropriate physical characteristics. The rigidity of FEP tubing provides resistance to collapse at high head differentials but still is manageable for tight configurations.

The peristaltic hose used in autosamplers is a medical-grade silicon product. The specifications for the peristaltic pump hoses used in these samplers are unique to the samplers. It is very important that hose specified and provided by the manufacturers of the autosamplers be used. Minor differences in the peristaltic hose can cause major deterioration in performance of the samplers. Use of generic peristaltic pump hose from other sources can lead to problems with the ability to calibrate the samplers and maintain intake velocities of greater than 2.5 feet per second with higher lift requirements.

The peristaltic hose is connected to the FEP tubing and fed through the pump head leaving the minimum amount necessary to feed the peristaltic pump hose into the top of the composite bottle. The composite container will always have a lid to prevent dust from settling in the container.

1.2 Composite Containers

The composite containers used for monitoring must be demonstrated to be free of contaminants of interest at the desired levels (USEPA 1996). Containers constructed of fluoropolymers (FEP, PTFE), conventional or linear polyethylene, polycarbonate, polysulfone, polypropylene, or ultrapure quartz are considered optimal for metals but borosilicate glass has been shown to be suitable for both trace metals and organics at limits appropriate to EPA water quality criteria. High capacity borosilicate media bottles (20-liters or ~5-gallons) are preferred for storm monitoring since they can be cleaned and suitably blanked for analysis of both metals and organic compounds. The transparency of the bottles is also a useful feature when subsampling and cleaning the containers for reuse.

Figure 1. Composite Bottle with Label and installed Tubing inside Brute® Container.

These large media bottles are designed for stoppers and thus do not come with lids. Suitable closure mechanisms must be fabricated for use during sampling, transport and storage of clean bottles. The preferred closure mechanism is a Teflon® stopper fitted with a Viton® O-ring (2 3/8" - I.D. x 23/4"- O.D.) that seals the lid against the media bottle. A polypropylene clamp (Figure 2) is used to seal the Teflon® stopper and O-ring to the rim of the composite sample bottle. Two polypropylene bolts with wing-nuts are used to maintain pressure on the seal or to assist in removal of the lid.

Every composite bottle requires one solid lid for use in protecting the bottle during storage and transport. A minimum of one Teflon® stopper should be available for each monitoring site during storm events. Each field sampling crew should have additional stoppers with holes ("sampling stopper") that would be available if a sampling stopper is accidentally contaminated during bottle changes or original installations.

Figure 2. Composite bottle showing bottle bag used for transport and lifting.

The holes in the sampling stoppers should be minimally larger than the external diameter of the peristaltic hose. If a tight fit exists, the pressure created when water is pumped into the bottle will cause the hose to be ejected and the sampling event will to be abandoned.

Transporting composite bottles is best accomplished by use of 10-gallon Brute® containers to both protect them from breakage and simplify handling. They also provide additional capacity for ice while transporting full bottles to the laboratory or subsampling site.

Bottle bags (Figure 2) are also useful in allowing full bottles to be handled easier and reduce the need to contact the bottles near the neck. They are important for both minimizing the need to handle the neck of the bottle and are also an important Health and Safety issue. The empty bottles weigh 15 pounds and they hold another 40 pounds of water when full. These can be very slippery and difficult to handle when removing them from the autosamplers. Bags can be easily fabricated out of square-mesh nylon netting with nylon straps for handles. Use of bottle bags allows two people to lift a full bottle out of the ice in the autosampler and place it in a Brute® container. Whether empty or full, suitable restraints should be provided whenever the 20-L composite bottles and Brute® containers are being transported.

1.3 Flow Monitoring

Retrieval of flow-weighted stormwater samplers requires the ability to accurately measure flow over the full range of conditions that occur at the monitoring site. The ability to accurately measure flow at an outfall site should be carefully considered during the initial site selection process. Hydraulic characteristics necessary to allow for accurate flow measurement include a relatively straight and uniform length of pipe or channel without major confluences or other features that would disrupt establishment of uniform flow conditions. The actual measurement site should be located sufficiently downstream from inflows to the drainage system to achieve well-mixed conditions across the channel. Ideally, the flow sensor and sample collection inlet should be placed a minimum of five pipe diameters upstream and ten pipe diameters downstream of any confluence to minimize turbulence and ensure well-mixed flow. The latest edition of the *Isco Open Channel Flow Measurement Handbook* (Walkowiak 2008) is an invaluable resource to assist in selection of the most appropriate approach for flow measurements and information on the constraints of each method.

The existing mass emission site has an established flow rating curve (Stage-Flow relationships) that only requires measurement of water level to estimate flow. Additional sites requiring flow monitoring are expected to utilize area-velocity sensors that use Doppler-based sensors to measure the velocity of water in the conveyance, a pressure sensor to measure water depth, and information regarding channel dimensions to allow for real-time flow measurements to pace the autosamplers.

1.4 Rainfall Gauges

Electronic tipping bucket rain gauges will be installed at each fixed monitoring location to provide improved assessment of rainfall in the smaller drainages. Use of a localized rain gauge provides better representation of conditions at the site. A variety of quality instruments are available but all require substantial maintenance to ensure maintenance of high data quality.

Tipping bucket rain gauges with standard 8-inch diameter cones will be used at each site. These provide 1 tip per 0.01" of rain and have an accuracy of ± 2% up to 2"/hr. The accuracy of tipping bucket rain gauges can be impacted by very intense rainfall events but errors are more commonly due to poor installation.

Continuous data records will be maintained throughout the wet season with data being output and recorded for each tip of the bucket. The rainfall data is downloaded at the same rate as the flow and stormwater monitoring events.

1.5 Power

Stormwater monitoring equipment can generally be powered by battery or standard 120VAC. If 120VAC power is unavailable, external, sealed deep-cycle marine batteries will be used to power the monitoring site. Even systems with access to 120VAC will be equipped with batteries that can provide backup power in case of power outages during an event. All batteries will be placed in plastic marine battery cases to isolate the terminals and wiring. A second battery will be provided at each site to support the telecommunication packages. Sites relying on battery power will also be equipped with a solar panel to assure that a full charge is available when needed for a storm event.

1.6 Telecommunication for System Command/Control and Data Access

The ability to remotely communicate with the monitoring equipment has been shown to provide efficient and representative sampling of stormwater runoff. Remote communication facilitates preparation of stations for storm events and making last minute adjustments to sampling criteria based upon the most recent forecasts. Communication with the sites also reduces the number of field visits by monitoring personnel. Remote two-way communication with monitoring sites allows the project manager (storm control) to make informed decisions during the storm as to the best allocations of human resources among sampling sites. By remotely monitoring the status of each monitoring site, the manager can more accurately estimate when composite bottles will fill and direct field crews to the site to avoid disruptions in the sampling. Real time access to flow, sampling and rainfall data also provides important information for determining when sampling should be terminated and crews directed to collect and process the samples. Increases in both efficiency and sample quality make two-way communication with monitoring stations a necessity for most monitoring programs.

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APPENDIX B

CLEANING AND BLANKING PROTOCOL

FOR

EQUIPMENT AND SUPPLIES USED IN COLLECTION OF FLOW OR TIME-WEIGHTED COMPOSITES

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CLEANING PROTOCOL FOR:

20-L Borosilicate Glass Composite Bottles (Media Bottles) and Closures

1.0 SCOPE

This Standard Operating Procedure (SOP) describes the procedures for the cleaning of 20-liter composite sample bottles and the related equipment necessary to complete the task. The purpose of these procedures is to ensure that the sample bottles are contaminant-free and to ensure the safety of the personnel performing this procedure.

2.0 APPLICATION

This SOP applies to all laboratory activities that comprise the cleaning of 20-liter composite sample bottles and stoppers.

3.0 HEALTH AND SAFETY CONSIDERATIONS

The cleaning of 20-liter composite-sample bottles and associated equipment involves hazardous materials. Skin contact with all materials and solutions should be minimized by wearing appropriate personal protective equipment (PPE) including: chemical-resistant gloves, laboratory coats, chemical-resistant aprons, and goggles. To ensure that you are aware of the hazards involved, the material safety data sheets (MSDSs) for nitric acid and laboratory detergents should be reviewed before beginning any of these procedures.

Note: Preparations should be made to contain and neutralize any spillage of acid. Be aware of the location of absorbent, neutralizing, and containment materials in the bottle cleaning area.

4.0 DEFINITIONS

4.1 **Composite sample bottle** - 20 liter borosilicate glass bottle that is used with autosamplers to collect a stormwater composite sample.

4.2 **Stopper** - a Teflon® cap used to seal the composite sample bottle (either solid, or drilled with holes for the silicon inlet tubing).

4.3 **O-Ring** - Viton O-ring 23/8"- I.D. x 23/4"- O.D. that is located around the base of stopper.

4.4 **Clamp** - Polypropylene clamp, 2 bolts, and wing nuts specifically designed to fasten the stopper and the O-ring to the rim of the composite sample bottle.

4.5 **De-ionized (DI) water -** commercial de-ionized water (12-13 Megohm/cm)

4.6 **Laboratory Detergent** - 2% solution of Contrad 70® or Micro-90® detergent

5.0 EQUIPMENT

5.1 Instrumentation:

1) Peristaltic pump with a protocol-cleaned sub-sampling hose setup

5.2 Reagents:

1) ACS Reagent Grade nitric acid in a 2 Normal solution (2N HNO_3)

2) Contrad 70® non-phosphate laboratory detergent

3) Contrad 70® anti-foaming agent

4) Micro-90® non-phosphate laboratory detergent

5) Baking soda or equivalent to neutralize acid

6) pH paper

5.3 Apparatus:

1) Bottle Rolling Rack
2) DI Rinse Rack
3) Yellow Neutralization Drip Bucket
4) Neutralization Tank

5.4 Documentation:

The status of each composite sample bottle must be tracked. Bottles should be washed in batches of 10, 20, or 30 and the status of each batch must be made apparent to all personnel by posting a large status label (including the start date) with each batch. This will ensure that all required soak times have been attained and that each bottle was subjected to the proper cleaning procedures. Information on each batch of bottles cleaned (including bottle number, QA batch, date cleaning started, date finished, date blanked, and cleaning technicians) should be entered in the **Bottle Cleaning Log Sheet**.

6.0 CLEANING PROCEDURES

Care must be taken to ensure that no contaminants are introduced at any point during this procedure. If the wash is not performed with this in mind, the possibility for the introduction of contaminants (i.e., from dust, dirty sub-sampling tubing tips, dirty fingers/gloves, automobile emissions, etc.) is increased significantly.

6.1 Teflon® Bottle Stoppers with Holes and Field Extras:

To be performed whenever required for field use.

1) Wash with laboratory detergent using a clean all-plastic brush.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N nitric acid squirt bottle.

5) Rinse thoroughly (minimum of three times) with DI water.

6) Allow to dry in a dust-free environment.

7) Store in two sealed clean Ziploc® bags.

6.2 NPS 20 liter composite sample bottle Cleaning:

6.2.1 Preliminary Bottle Cleaning:

Bottles should undergo a preliminary rinse with tap water as soon as possible after they are available. This includes dumping any remaining stormwater into a sanitary drain and rinsing the bottles and stoppers. This prevents material from adhering to the interior surface of the bottle.

6.2.2 **48 Hour Soak:** Place the bottle to be cleaned into a secondary containment bucket. Prepare a 2% solution of laboratory detergent with tap water directly in the bottle. Note: Since laboratory detergent is a foaming solution, add 3/4 of the tap water first, add the detergent, then add the rest of the water. Should excessive foam be generated, a few drops of Contrad 70® anti-foaming agent may be added. **Make sure that the bottle is filled to the rim and scrub the rim with an all-plastic scrub brush.** Scrub a Teflon® stopper with 2% solution of laboratory detergent and place stopper over the full bottle so overflowing happens. This will allow both the stopper and the bottle to soak for 48 hours. After the 48 hour soak, this solution may be may be retained for reuse (i.e., siphoned into other dirty bottles) or it can be poured off into a sanitary drain.

6.2.3 Teflon® Bottle Stopper and O-ring Cleaning:

This procedure should be performed prior to the bottle washing process so that the stopper can follow the bottle through the acid wash.

1) Rinse thoroughly (minimum of three times) with tap water.

2) Rinse thoroughly (minimum of three times) with DI water.

3) Store temporarily in a similarly cleaned

6.2.4 **Tap Water Rinse:** Tap water rinses detergent better than DI water. Flush upside down bottle with tap water for 20 sec. Rinse each bottle 3 times with tap water being careful not to contaminate the clean surfaces.

6.2.5 **DI Rinse:** Rinse the top and neck of the bottles with DI water using a squirt bottle and then rinse upside down for three minutes on the DI rinse rack for bottles. Make sure to tip bottles from side to side for a more thorough rinsing. Allow 1-2 minutes for the bottles to drain as much as possible. Rinse each stopper with DI water squirt bottle 3 times (being careful not to touch the clean surfaces).

6.2.6 **<u>Acid Wash:</u>** Note that it is important to Wash the bottle with 2N nitric acid according to the following procedure:

1) Place the empty bottle near the 2N nitric acid carboy and peristaltic pump. The location should be able to safely contain a spill if the 20L bottle breaks.

2) Pump acid into the bottle using the peristaltic pump fitted with a protocol-cleaned sub-sampling hose setup

3) Fill the bottle slightly more than half full.

4) Place a protocol-cleaned solid Teflon® stopper (with a properly seated O-ring) (Refer to Section 6.2.3 above) on the bottle and clamp it securely.

5) **Carefully** lift and place the bottle on the roller rack and check for leakage from the stopper. Neutralize any spillage. Often small leaks can be corrected by a slight tightening of the clamp. Roll the bottles for twenty minutes.

6) Pump the acid into another bottle for rolling or back into the 2N nitric acid carboy.

6.2.7 **<u>DI Rinse for Sub-sampling Hose</u>**: After use, the sub-sampling hose setup should be rinsed by pumping 1-2 gallons of DI water through the hoses and into a neutralization tank. Carefully rinse the outside of the hose to remove any acid that may be on the exterior of the hose. pH paper should be used to insure that the fluid in and on the hose is 6.8 or higher. Continue rinsing until your reach neutral pH. Store hose in a clean, large plastic bag between uses. Dispose of rinsate in accordance with all federal, state, and local regulations

6.2.8 **<u>DI Rinse for Bottles</u>**: Allow the bottles to drain into a yellow neutralization bucket for at least 1 minute. Place four bottles at a time on the DI rinse rack and rinse for 5 minutes. Move bottles around to ensure complete and thorough rinsing. Rinse the outside of the bottle with tap water. Allow bottles to drain for 2 minutes.

6.2.9 **<u>DI Rinse for Stoppers</u>**: Rinse caps thoroughly 3 times over neutralization tank. Place on a clean surface where the clean side of the stopper will not be contaminated.

6.3 **<u>Storage:</u>** Clamp a stopper (one that went through the entire cleaning procedure) on the bottle. Properly label the bottle as to the date cleaned and by whom and place on the bottle storage rack or in a secondary containment bucket in a safe area. Also, fill out the **Bottle Cleaning Log Sheet**.

7.0 QUALITY ASSURANCE REQUIREMENTS

7.1 The NPS 20 liter sample bottles must be evaluated ("blanked") for contaminants after they have completed the decontamination procedure. The analytical laboratory performing the evaluation should supply Milli-Q® water that is used as a blanking rinsate, and sample bottles for the appropriate constituents of concern. This evaluation will be accomplished by randomly blanking 10% of the washed bottles, or 1 bottle per batch (whichever is greater) and having the blanking rinsate analyzed by the laboratory for the appropriate constituents.

7.2 If any of the bottles fail the analyses (concentration of any analytes are at or above the limit of detection), all of the bottles from that batch must be decontaminated. Again, 10% of these bottles must be subjected to the blanking process as described-above.

7.3 If results of the evaluation process show that the bottles are not contaminant-free, the cleaning procedure must be re-evaluated. Consult with the Quality Assurance/Quality Control Officer to determine the source of contamination.

CLEANING PROTOCOL FOR:

Miscellaneous Laboratory Equipment used for Cleaning and Blanking

1.0 SCOPE

This Standard Operating Procedure describes the procedures for cleaning the miscellaneous items necessary to complete the tasks of cleaning 20- liter composite sample bottles and hoses. The purpose of these procedures is to ensure that the items are contaminant-free and to ensure the safety of the personnel performing this procedure.

2.0 APPLICATION

This SOP applies to all laboratory activities that comprise the cleaning of ancillary items necessary to complete the tasks of cleaning 20 liter composite sample bottles and NPS hoses.

3.0 HEALTH AND SAFETY CONSIDERATIONS

The cleaning of the following items may involve contact with hazardous materials. Skin contact with all materials and solutions should be minimized by wearing appropriate personal protective equipment (PPE) including: chemically-resistant protective gloves, laboratory coats, chemically-resistant aprons, and goggles. In addition, to ensure that you are aware of the hazards involved and of any new revisions to the procedure, the material safety data sheets (MSDSs) for nitric acid and the laboratory detergent should be reviewed before beginning any of these procedures.

4.0 DEFINITIONS

4.1 Polyethylene Squirt Bottles - ½ and 1 liter squirt bottles for washing and/or rinsing with DI water or nitric acid.

4.2 Polycarbonate and Polyethylene De-ionized Water Jugs - For holding DI water.

4.3 Polyethylene Bucket - For holding tap water, DI water or detergent solutions during hose washing procedures.

4.4 Four-inch Teflon® Connector - For connecting two lengths of silicon peristaltic tubing together.

4.5 Four-inch Silicon Connector - For connecting two lengths of Teflon® hose together.

4.6 Orange Polypropylene Hose Caps - For placing over the ends of clean Teflon® hose to prevent contamination.

4.7 De-ionized (DI) water - Commercial de-ionized water

4.8 Laboratory Detergent - 2% solution of Contrad 70® or Micro-90® detergent.

5.0 EQUIPMENT

5.1 Instrumentation: Not applicable.

5.2 Reagents:

1) ACS Reagent Grade nitric acid as a 2 Normal solution (2N HNO_3)

2) Micro-90® non-phosphate laboratory detergent

3) Contrad 70® non-phosphate laboratory detergent

4) Contrad 70® anti-foaming agent.

5) pH paper or pH meter

6) Baking soda ($NaHCO_3$) or equivalent to neutralize acid

5.3 Apparatus:

1) Clean polyethylene squirt bottles.

2) Clean polyethylene trays or 2000 ml glass beakers.

3) Neutralization Tank

5.4 Documentation:

Label each squirt bottle, DI jug, storage container holding clean items, etc. as to the date each was cleaned and the initials of the cleaning technician.

6.0 CLEANING PROCEDURES

Care must be taken to ensure that no contaminants are introduced at any point during these procedures. If the wash is not performed with this in mind, the possibility for the introduction of contaminants (i.e., from dirty sinks, dirty counter tops, dirty fingers/gloves, dirty hose ends, etc.) is increased significantly.

Rinsing properly is essential to ensure proper cleaning. This is done by squirting the liquid over the item to be cleaned in a top-down fashion, letting the water flow off completely **<u>before</u>** applying the next rinse. Rinse the item in this fashion **<u>a minimum</u>** of three times. **Numerous rinses of relatively small volumes are <u>much better</u> than one or two rinses of higher volume.** Be aware of handling: use clean gloves (it is best if they have gone through the same prior wash as the item to be rinsed) and rinse off the fingers prior to grasping the item to be cleaned. Try to grasp the item in a slightly different place between rinses so ones fingers do not cover a portion of the item throughout the rinses.

6.1 Polyethylene Squirt Bottles:

1) Soak in a 2% solution of laboratory detergent in a protocol-cleaned bucket for 48 hours.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N (10%) nitric acid.

5) Rinse thoroughly (minimum of three times) with DI water. Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations.

6.2 Polycarbonate and Polyethylene DI Water Jugs:

1) Fill to the rim with a 2% solution of laboratory detergent, cap the jug, and let soak for 48 hours. Wash cap with an all-plastic scrub brush after soak.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N (10%) nitric acid.

5) Rinse thoroughly (minimum of three times) with DI water. Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations.

6.3 Polyethylene Bucket:

1) Fill to the rim with a 2% solution of laboratory detergent and let soak for 48 hours.

2) Rinse thoroughly (minimum of three times) with tap water.

3) Rinse thoroughly (minimum of three times) with DI water.

4) Wash three times with 2N (10%) nitric acid squirt bottle.

5) Rinse thoroughly (minimum of three times) with DI water. Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations. **<u>Label as to the date cleaned and initial</u>**.

6.4 Four-inch Teflon® and Silicon Hose Connectors and Orange Polypropylene Hose Caps. The purpose of the four-inch sections of Teflon® and silicon hose is to connect longer lengths of each type of hose together during the hose cleaning procedures. The orange polypropylene hose caps are for the ends of cleaned FEP hoses to prevent contamination prior to use in the field or laboratory.

1) Using a 2% solution of laboratory detergent, soak the four-inch sections of FEP hose, silicon tubing, and orange caps for 48 hours.

2) Rinse thoroughly with tap water (minimum of three rinses).

3) Rinse thoroughly with DI water (minimum of three rinses).

4) Using a squirt bottle filled with 2N (10%) HNO_3, thoroughly rinse the interior and exterior of the connectors and caps thoroughly OR, roll/agitate them in a shallow layer of 2N (10%) HNO_3

in a laboratory detergent cleaned glass beaker or other appropriate, clean container for a more thorough washing.

5) Thoroughly rinse connectors and caps with DI water (minimum of three rinses). Neutralize and dispose of rinsate in accordance with all federal, state, and local regulations. Keep clean connectors and caps in a similarly cleaned (or certified clean) widemouth glass jar or detergent-cleaned resealable bag and **label as clean, date cleaned, and initial**.

NPS 20-Liter Bottle Subsampling Procedure

1.0 Scope

This Standard Operating Procedure (SOP) describes the procedures for the compositing and sub-sampling of non-point source (NPS) 20 liter sample bottles. The purpose of these procedures is to ensure that the sub-samples taken are representative of the entire water sample in the 20-L bottle (or bottles). In order to prevent confusion, it should be noted that in other KLI SOPs relating to 20-L bottles they are referred to as "composite" bottles because they are a composite of many small samples taken over the course of a storm; in this SOP the use of "compositing" generally refers to the calculated combining of more than one of these 20-L "composite" bottles.

2.0 Application

This SOP applies to all laboratory activities that comprise the compositing and sub-sampling of NPS 20 liter sample bottles.

3.0 Health and Safety Considerations

The compositing and sub-sampling of NPS 20 liter sample bottles may involve contact with contaminated water. Skin contact with sampled water should be minimized by wearing appropriate protective gloves, clothing, and safety glasses. Avoid hand-face contact during the compositing and sub-sampling procedures. Wash hands with soap and warm water after work is completed.

4.0 Definitions

4.1 **20 liter sample bottle:** 20 liter borosilicate glass bottle that is used to collect multiple samples over the course of a storm (a composite sample).

4.2 **Large-capacity stirrer**: Electric motorized "plate" that supports a 20 liter bottle and facilitates the mixing of sample water within the bottle by means of spinning a pre-cleaned magnetic stir-bar which is introduced into the bottle.

4.3 **Stir-bar**: Teflon-coated magnetic "bar" approximately 2-3 inches in length which is introduced into a 20 liter bottle and is spun by the stirrer, thereby creating a vortex in the bottle and mixing the sample. Pre-cleaned using cleaning protocols provided in KLI SOP for *Cleaning Procedures for Miscellaneous Items Related to NPS Sampling*.

4.4 **Sub-sampling hose**: Two ~3-foot lengths of Teflon tubing connected by a ~2-foot length of silicon tubing. Pre-cleaned using cleaning protocols provided in SOP for *Teflon Sample Hose and Silicon Peristaltic Tubing Cleaning Procedures*. Used with a peristaltic pump to transfer sample water from the 20-L sample bottle to sample analyte containers.

4.6 **Volume-to-Sample Ratio (VSR):** A number that represents the volume of water that will flow past the flow-meter before a sample is taken (usually in liters but can also be in kilo-cubic feet for river deployments). For example, if the VSR is 1000 it means that every time 1000 liters passes the flow-meter the sampler collects a sample (1000 liters of flow per 1 sample taken). Note: The VSR indicates when a sample should be taken and is NOT an indication of the sample size.

5.0 EQUIPMENT

5.1 Instrumentation: Not applicable

5.2 Reagents: Not applicable.

5.3 Apparatus

1) Large capacity stirrer.

2) Stir bar.

3) Sub-sampling hose.

4) Peristaltic pump.

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APPENDIX C

QUALITY ASSURANCE/QUALITY CONTROL

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1. Quality Assurance/Quality Control

Elements of a Quality Assurance and Quality Control (QA/QC) Plan have been incorporated into the CIMP in order to detail critical activities conducted to assure that both chemical and physical measurements meet the standard of quality needed to evaluate measurements at levels relevant to applicable water quality criteria. With many different monitoring programs being implemented within the region, comparability should remain of the primary goals of the QA/QC monitoring program. The Intergovernmental Task Force on Monitoring Water Quality (ITFM, 1995) defines comparability as the "characteristics that allow information from many sources to be of definable or equivalent quality so that it can be used to address program objectives not necessarily related to those for which the data were collected."

One important aspect of comparability is the use of analytical laboratories that are accredited under a program such as the National Environmental Laboratory Accreditation Program (NELAP), California's Environmental Laboratory Accreditation Program (ELAP) or a well-qualified research laboratory. In addition, the laboratory should be a participant in a laboratory proficiency and intercalibration program. Laboratories have not been selected for this program but participation in the Stormwater Monitoring Coalition's (SMC) intercalibration program will be a primary consideration. Unfortunately, the SMC has not fully completed implementation of a program the full range of analyses included in the MRP Table E-2 list.

Evaluation of data quality will be based upon protocols provided in the *National Functional Guidelines for Inorganic Superfund Data Review (USEPA540-R-10-011)* (USEPA 2010), *National Functional Guidelines for Superfund Organic Methods Data Review (EPA540/R-08-01),* and the *Guidance on the Documentation and Evaluation of Trace Metals Data Collected for Clean Water Act Compliance Monitoring (EPA/821/B/95/002)* (USEPA 1996).

The sections that follow address activities associated with both field sampling and laboratory analyses. Quality assurance activities start with procedures designed to assure that errors introduced in the field sampling and subsampling processes are minimized. Field QA/QC samples are collected and used to evaluate potential contamination and sampling error introduced into a sample prior to its submittal to the analytical laboratory. Laboratory QA/QC activities are used to provide information needed to assess potential laboratory contamination, analytical precision and accuracy, and representativeness.

1.1.1 Sample Handling, Containers and Holding Times.

Table **1** provides a summary of the types of sample volumes, container types, preservation and holding times for each analytical method. Analytical methods requiring the same preservation and container types may be transferred to the laboratory in one container in order to minimize handling prior to transfer to the laboratory.

Table 1. Constituents, Sample Container, Preservation and Holding Times.

Analyte	EPA Method Number	Holding Time	Container Size	Container Type	Preservation	Minimum Level/ Resolution	Units
Conventionals							
pH	150.1	15 minutes		glass or PE	none	+/- 0.1	std. units
Oil and Grease	1664A	28 days	1 L	Glass	HCl	5	mg/L
TPH	418.1	28 days	1 L	Glass	HCl	5	mg/L
Total Phenols	420.1	28 days	500mL-1 L	Glass	H_sSO_4	5	mg/L
Cyanide	SM4500-CN-E	14 days	500 mL	HDPE	NaOH	0.003	mg/L
Turbidity	SM2130B	48 hours	100-250mL	Glass	4-6°C	1	NTU
TSS	160.2	7 days	1 L	HDPE	4-6°C	4	mg/L
SSC[1]	ASTMD3977B	7 days	1 L	HDPE	4-6°C	4	mg/L
TDS	160.1	7 days	1 L	HDPE	4-6°C	1	mg/L
VSS	160.4	7 days	1 L	HDPE	4-6°C	1	mg/L
TOC; DOC	415.1	28 days	250 mL	glass	4°C and HCl or H_2SO_4 to pH<2	1	mg/L
BOD_5	SM5210B	48 hours	600mL-1L	HDPE	4-6°C	3	mg/L
COD	410.1	28 days	20-250 mL	Glass	H_sSO_4	4	mg/L
Alkalinity	SM 2320B	Filter ASAP, 14 days	100-250 mL	HDPE	4-6°C	1	mg/L
Conductivity	SM 2510	28 days	100-250 mL	HDPE	4°C; filter if hold time >24 hours	1	µmho/cm
Hardness	130.2	6 months	100-250 mL	HDPE	and HNO_3 or H_2SO_4 to pH<2	1	mg/L
MBAS	425.1	48 hours	250-500 mL	HDPE	4-6°C	0.02	mg/L
Chloride	300	28 days	250-500 mL	HDPE	4-6°C	2	mg/L
Fluoride	300	28 days	250-500 mL	HDPE	4-6°C	0.1	mg/L
Perchlorate	314.0	28 days	100-250 mL	HDPE	4-6°C	4	µg/L
Volatile Organics							
MTBE	624	14 days	3 40mL VOA	Glass	HCl	1	µg/L

Analyte	EPA Method Number	Holding Time	Container Size	Container Type	Preservation	Minimum Level/ Resolution	Units
Bacteria							
Total Coliform	SM9221B	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
Fecal Coliform	SM9221B	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
Enterococcus	SM9230B or C	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
E. coli	SM 9223 COLt	6 hr-8 hr	100 mL	Sterile HDPE	4-6°C	20-2,400,000	MPN/100mL
Nutrients							
TKN	351.1	28 days	500mL-1L	Amber glass	H_sSO_4	0.5	mg/L
Nitrate-N	300	48 hours	50-125mL	HDPE	4-6°C	0.1	mg/L
Nitrite-N	300	48 hours	50-125mL	HDPE	4-6°C	0.05	mg/L
Total Nitrogen	Calculation					NA	mg/L
Ammonia-N	350.1	28 days	500mL-1L	Amber glass	H_sSO_4	0.1	mg/L
Total Phosphorus	SM4500-P,EorF	28 days	100-250 mL	glass	H_sSO_4	0.1	mg/L
Dissolved Phosphorus	SM4500-P,EorF	28 days	100-250 mL	glass	4-6°C	0.1	mg/L
Organic Compounds (pesticides and herbicides)							
Organochlorine Pesticides & PCBs[1]	608 & 8270	7days:40days	1L	Amber glass	4-6°C	0.005-0.5	µg/L
Organophosphate Pesticides	507	14days	1L	Amber glass	$Na_sS_2O_3$ 4-6°C	0.01-1	µg/L
Glyphosate	547	14days	250mL	Amber glass	$Na_sS_2O_3$ 4-6°C	5	µg/L
Chlorinated Acids	515.3	14days	250mL	Amber glass	$Na_sS_2O_3$ 4-6°C		
2,4-D						0.02	µg/L
2,4,5-TP-Silvex						0.2	µg/L
Semivolatile Organic Compounds	625;8270D	7days;40days	1L	Amber glass	4-6°C	0.05-10	µg/L

1. Monitoring for PCBs will be reported as the summation of aroclors and a minimum of 50 congeners. 54 PCB congeners include: 8, 18, 28, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138, 141, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 174, 177, 180, 183, 187, 189, 194, 195, 201, 203, 206, and 209. These include all 41 congeners analyzed in the SCCWRP Bight Program and dominant congeners used to identify the aroclor.

Analyte	EPA Method Number	Holding Time	Container Size	Container Type	Preservation	Minimum Level/ Resolution	Units
Metals (Total and Dissolved)							
Aluminum	200.8	If practical, filter immediately after subsampling. Otherwise filter in laboratory for dissolved fraction and preserve not more than 24 hours after subsampling; 6 months to analysis	250 to500 mL	HDPE	4°C and HNO_3 to pH<2	100	µg/L
Antimony	200.8					0.5	µg/L
Arsenic	200.8					0.5	µg/L
Beryllium	200.8					0.5	µg/L
Cadmium	200.8					0.25	µg/L
Chromium (Total)	200.8					0.5	µg/L
Copper	200.8					0.5	µg/L
Iron	200.8					25	µg/L
Lead	200.8					0.5	µg/L
Nickel	200.8					1	µg/L
Selenium	200.8					1	µg/L
Silver	200.8					0.25	µg/L
Thallium	200.8					0.5	µg/L
Zinc	200.8					1	µg/L
Chromium (Hexavalent)	218.6	Filter as above 24 hours	250 ml	HDPE	4°C	5	µg/L
Mercury	245.1	Filter as above 28 days	250 ml	Glass or Teflon	4°C and HNO_3 to pH<2	0.2	µg/L
Mercury	1631E	Filter as above 28 days	250 ml	Glass or Teflon	4°C and HNO_3 to pH<2	0.0005	µg/L

Abbreviations

TSS=Total Suspended Solids
SSC=Suspended Sediment Concentration
TDS=Total Dissolved Solids

TPH=Total Petroleum Hydrocarbons
VSS=Volatile Suspended Solids
TOC=Total Organic Carbon

BOD_5=Five-day Biochemical Oxygen Demand
COD=Chemical Oxygen Demand
MBAS=Methylene Blue Active Substances

MTBE= Methyl Tertiary Butyl Ether
TKN=Total Kjeldahl Nitrogen
PCBs=Polychlorinated Biphenyls

1.1.2 Precision, Bias, Accuracy, Representativeness, Completeness, and Comparability

The overall quality of analytical measurements is assessed through evaluation of precision, accuracy/bias, representativeness, comparability and completeness. Precision and accuracy/bias are measured quantitatively. Representativeness and comparability are both assessed qualitatively. Completeness is assessed in both quantitative and qualitative terms. The following sections examine how these measures are typically applied.

1.1.2.1 Precision

Precision provides an assessment of mutual agreement between repeated measurements. These measurements apply to field duplicates, laboratory duplicates, matrix spike duplicates, and laboratory control sample duplicates. Monitoring of precision through the process allows for the evaluation of the consistency of field sampling and laboratory analyses.

The Relative Percent Difference (RPD) will be used to evaluate precision based upon duplicate samples. The RPD is calculated for each pair of data is calculated as:

$$RPD=[(x_1-x_2)*100]/[(x_1+x_2)/2]$$

Where:

x_1=concentration or value of sample 1 of the pair

x_2=concentration or value of sample 2 of the pair

In the case of matrix spike/spike duplicate, RPDs are compared with measurement quality objectives (MQOs) established for the program. MQOs will be established to be consistent with the most current SWAMP objectives in the SWAMP Quality Assurance Project Plan (2008) including the most recent updates as well as consultations with the laboratories performing the analyses. In the case of laboratory or field duplicates, values can often be near or below the established reporting limits. The most current SWAMP guidelines rely upon matrix spike/spike duplicate analyses for organic compounds instead of using laboratory duplicates since one or both values are often below detection limits or are near the detection limits. In such cases, RPDs do not provide useful information.

1.1.2.2 Bias

Bias is the systematic inherent in a method or caused by some artifact or idiosyncrasy of the measurement system. Bias may be either positive or negative and can emanate from a number of different points in the process. Although both positive and negative biases may exist concurrently in the same sample, the net bias is all that can be reasonably addressed in this project. Bias is preferably measured through analysis of spiked samples so that matrix effects are incorporated.

1.1.2.3 Accuracy

Accuracy is a measure of the closeness of a measurement or the average of a number of measurements to the true value. Accuracy includes of a combination of random error as measured by precision and systematic error as measured by bias. An assessment of the accuracy of measurements is based on determining the percent difference between measured values and known or "true" values applied to surrogates, Matrix Spikes (MS), Laboratory Control Samples (LCS) and Standard Reference Materials (SRM). Surrogates and matrix spikes evaluate matrix interferences on analytical performance, while laboratory control samples, standard reference materials and blank spikes (BS) evaluate analytical performance in the absence of matrix effects.

Assessment of the accuracy of measurements is based upon determining the difference between measured values and the true value. This is assessed primarily through analysis of spike recoveries or certified value ranges for SRMs. Spike recoveries are calculated as Percent Recovery according to the following formula:

$$\text{Percent Recovery} = [(t-x)/\alpha]*100\%$$

Where:

t=total concentration found in the spiked sample

x=original concentration in sample prior to spiking, and

α=actual spike concentration added to the sample

1.1.2.4 Representativeness, Comparability and Completeness

Representativeness is the degree to which data accurately and precisely represents the natural environment. For stormwater runoff, representativeness is first evaluated based upon the automated flow-composite sample and the associated hydrograph. To be considered as representative, the autosampler must have effectively triggered to capture initial runoff from the pavement and the composite sample should:

- be comprised of a minimum number of aliquots over the course of the storm event,
- effectively represent the period of peak flow,
- contain flow-weighted aliquots from over 80% of the total runoff volume, and
- demonstrate little or no evidence of "stacking".

Stacking occurs when the sampling volume is set too low and commands back up in the memory of an autosampler causing it to continuously cycle until it catches up with the accumulation of total flow measured by the stormwater monitoring station.

Representativeness is also assessed through the process of splitting or subsampling 20 L composite bottles into individual sample containers being sent to the laboratory. The first subsamples removed from the composite bottle should have the same composition as the last. Subsampling should be conducted in accordance with guidance in the subsampling SOP. This SOP is based upon use of large laboratory magnetic stir plate, an autosampler, and precleaned subsampling hoses to minimize variability. Sample splitting can introduce a substantial amount of error especially if significant quantities of coarse sediments (greater than 250 µm) represent as significant fraction of the suspended sediments. Use of a USGS Teflon churns or Decaport cone splitter may also be used but would require development of a separate SOP.

Comparability is the measure of confidence with which one dataset can be compared to another. The use of standardized methods of chemical analysis and field sampling and processing are ways of insuring comparability. Application of consistent sampling and processing procedures is necessary for assuring comparability among data sets. Thorough documentation of these procedures, quality assurance activities and a written assessment of data validation and quality are necessary to provide others with the basic elements to evaluate comparability.

Completeness is a measure of the percentage of the data judged valid after comparison with specific validation criteria. This includes data lost through accidental breakage of sample containers or other activities that result in irreparable loss of samples. Implementation of standardized Chain-of-Custody procedures which track samples as they are transferred between custodians is one method of maintaining a high level of completeness.

A high level of completeness is essential to all phases of this study due to the limited number of samples. Of course, the overall goal is to obtain completeness of 100%, however, a realistic data quality indicator of 95% insures an adequate level of data return.

1.1.3 Laboratory Quality Assurance/Quality Control

The quality of analytical data is dependent on the ways in which samples are collected, handled and analyzed. Data Quality Objectives provide the standards against which the data are compared to determine if they meet the quality necessary to be used to address program objectives. Data will be subjected to a thorough verification and validation process designed to evaluate project data quality and determine whether data require qualification.

The three major categories of QA/QC checks are accuracy, precision, and contamination were discussed in the previous section. As a minimum, the laboratory will incorporate analysis of method blanks, and matrix spike/spike duplicates with each analytical batch. Laboratory duplicates will be analyzed for analytical tests where matrix spike/spike duplicate are not analyzed. Use of Certified Reference Materials (CRM) or Standard Reference Materials (SRM) is also recommended as these allow assessment of long term performance of the analytical methods so that representativeness can be assessed. Laboratories often use an internal CRM that is analyzed with each batch to evaluate any potential long-term shift in performance of the analytical procedures. Recommended minimum quality control samples are provided in **Error! Reference source not found.**.

1.1.4 Field QA/QC

1.1.4.1 Blanks

A thorough system of blanking is an essential element of monitoring. Much of the blanking processes are performed well in advance of the actual monitoring in order to demonstrate that all equipment expected to contact water is free of contaminants at the detection limits established for the program. Equipment components are cleaned in batches. Subsamples from each cleaning batch are rinsed with Type 1 laboratory blank water and submitted to the laboratory for analysis. If hits are encountered in any cleaning batch, the entire batch is put back through the cleaning and blanking process until satisfactory results are obtained. If contaminants are measured in the blanks, it is often prudent to reexamine the cleaning processes and equipment or materials used in the cleaning process. Equipment requiring blanks and the frequency of blanks is summarized below and in Table 2.

Table 2. Summary of Blanking Requirements for Field Equipment.

System Component	Blanking Frequency
Intake Hose	One per batch
Peristaltic Pump Hose	One per batch[1] or 10% for batches greater than 10
Composite Bottles	One per batch or 10% for batches greater than 10
Subsampling Pump Hose	One per batch or 10% for batches greater than 10
Laboratory Sample Containers	2% of the lot[2] or batch, minimum of one
Capsule Filter Blank[3]	One per batch or 10% for batches greater than 10
Churn/Cone Splitter[4]	When field cleaning is performed, process one blank per session

[1] A batch is a group of samples that are cleaned at the same time and in the same manner.

[2] If decontaminated bottles are sent directly from the manufacturer, the batch would be the lot designated by the manufacturer in their testing of the bottles.

[3] If filtration is performed in the laboratory, the capsule filter blanks would be considered part of laboratory QA/QC.

[4] This is applicable to use of a churn or cone splitter to subsample flow-weighted composite samples into individual containers. Splitting may be performed by the sampling team in a protected, clean area or by the laboratory.

1.1.4.2 Field Duplicates

Composite subsampling duplicates associated with flow-weighted composite samples are often referred to as field duplicates but, in fact, they are subsampling replicates. These replicates help assess combined variability associated with subsampling from the composite container and variability associated with the analytical process. They are evaluated against the same criteria as used for laboratory duplicates.

1.1.5 Equipment Cleaning, Blanking and Tracking

Sample collection, handling, and processing materials can contribute and/or sorb trace elements within the time scales typical for collection, processing and analysis of runoff samples. Sampling artifacts are especially important when measured concentrations that are at or near analytical detection limits (Horowitz 1997). Therefore, great care is required to collect and process samples in a manner that will minimize potential contamination and variability in the sampling process (Breault and Granato 2000).

Sampling conducted to measure dissolved metals and other trace contaminants at levels relevant to EPA water quality criteria requires documentation that all sampling equipment is free of contamination and that the processes used to obtain and handle samples do not introduce contamination. This requires documentation that methods used to collect, process and analyze the samples do not introduce contamination. Documentation for the CIMP includes written procedures provided in Appendix B for cleaning all components of the sampling system, blanking processes necessary to verify that system components and sample handling are not introducing contamination, and a system of tracking deployment of protocol-cleaned equipment in the field as described in this section.

All composite containers and equipment used for sample collection in the field and/or sample storage in the laboratory will be decontaminated and cleaned prior to use. These include the FEP tubing, Teflon® lids, strainers and hoses/fittings that are used in the subsampling process (USGS 1993). Personnel assigned to clean and handle the equipment are thoroughly trained and familiar with the cleaning, blanking, and tracking procedures. In addition, all field sampling staff will be trained to be familiar with these processes so that they have a better understanding of the importance of using clean sampling procedures and the effort required to eliminate sources of contamination.

Sample contamination has long been considered one of the most significant problems associated with measurement of dissolved metals and may be accentuated with use of High Resolution Mass Spectroscopy (HRMS) methods for trace levels of organic constituents at levels three orders of magnitude lower than conventional GCMS methods. One of the major elements of QA/QC documentation is establishing that clean sampling procedures are used throughout the process and that all equipment used to collect and process the water samples are free of contamination.

Cleaning protocols are consistent with ASTM (2008) standard D5088 – 02 that covers cleaning of sampling equipment and sample bottles. The generalized cleaning process is based upon a series of washings that typically start with tap water with a phosphate-free detergent, a tap water rinse, soaking in a 10% solution of reagent grade nitric acid, and a final series of rinses with ASTM Type 1 water. Detailed procedures for decontamination of sampling equipment are provided in Appendix A. In addition, Appendix G of the most recent Caltrans Stormwater Monitoring Guidance Manual (Caltrans, 2013) provides alternative cleaning procedure that incorporate use of methylene chloride to remove potential organic contaminants. Experience indicates that this step can be eliminated and still result in blanking data suitable for most target organic contaminants. Addition of this cleaning step or a comparable step to address organic contaminants may be necessary if satisfactory equipment blanks cannot be attained. Significant issues exist with respect to use of methylene chloride. This chemical is highly toxic, must be handled and disposed as a hazardous waste and is difficult to fully remove from the 20-L media bottles used as composite containers.

In order to account for any contamination introduced by sampling containers, blanks must be collected for composite bottles and laboratory bottles used for sample storage for trace contaminants. A sampling container blank is prepared by filling a clean container with blank water and measuring the concentrations of selected constituents (typically metals and other trace contaminants for composite bottles and metals analysis only for metals storage bottles). Blanking of the 20-L composite bottles will be performed by using the minimum amount of blank water necessary for the selected analytical tests. This is typically requires one to two liters. The bottle is capped and then manipulated to assure that all surfaces up to the neck of the bottle are rinsed. The water is then be allowed to sit for a minimum of one hour before decanting the rinse water into sample containers. In order to provide adequate control, media bottles are labelled and tracked. All media bottles cleaned and blanked in one batch are tracked to allow for recall if laboratory analyses reveal any contamination. Further tracking is required in the field to document where bottles from each cleaning batch are used and to assist in tracking of any contamination that might be detected after bottles have been deployed since laboratory turnaround in the middle of the storm season may require use of decontaminated bottles prior to receiving the results of the blank analyses.

Selected constituents for blanking will be dependent upon the list of contaminants with reasonable potential to be present at levels that could impact sample results. Minimum parameters used for blank analyses will include total recoverable trace metals, TDS, TOC and nutrients. Analysis of total metals will allow for detection of any residual metal contamination which will be of concern for all sampling. Nutrients, particularly nitrogen compounds, will assure that residual nitrogen from acid cleaning has been fully removed. TDS and TOC are useful for accessing presence of any residual contaminants. Additional blanking may be added when sampling other constituents with ultra-low analytical methods. These blanks may be submitted "blind" to the laboratory by field personnel or prepared internally by the laboratory.

Certified pre-cleaned QC-grade laboratory containers can be used. These bottles are cleaned using acceptable protocol for the intended analysis and tracked by lots. They come with standard certification forms that document the concentration to which the bottles are considered "contaminant-free" but these concentrations are not typically suitable for program reporting limits required for measurement of dissolved metals. Manufacturers may provide an option of certification to specific limits required by a project but it is preferable to purchase the QC bottles that are tracked by lot and conduct internal blanking studies. Lots not meeting project requirements should be returned to the manufacturer and exchanged for containers from another lot. At least 2% of the bottles in any "lot" or "batch" should be blanked at the program detection limits with a minimum frequency of one bottle per batch. A batch is considered to be a group of samples that are cleaned at the same time and in the same manner; or, if decontaminated bottles are sent directly from the manufacturer, the batch would be the lot designated by the manufacturer in their testing of the bottles. Cleaned bottles are stored in a clean area with lids properly secured.

Subsampling hoses consist of a length of peristaltic hose with short lengths of FEP tubing attached to each end. These are required to be cleaned inside and out since the FEP tubing is immersed in the composite bottle during the subsampling process. Once cleaned, the ends of the subsampling hoses are bagged. All hoses associated with the batch are then stored in large zip-lock containers labeled to identify the cleaning batch. Blanking of subsampling hoses is conducted as part of the composite bottle blanking process. A clean subsampling hose is used to decant blank water from the 20-L composite bottles into clean laboratory containers. Detection of any contaminants in the bottle blanks therefore requires that the subsampling hoses also are subjected another decontamination process. After cleaning, the subsampling hoses should only be handled while wearing clean, powder-free nitrile gloves.

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APPENDIX D

NON-STORMWATER IC/ID AND OUTFALL SCREENING

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Non-Stormwater Outfall Screening **2014**
Lower San Gabriel River Watershed

During 2014, an outfall screening program was initiated and completed in accordance with Appendix E Part IX of the MS4 Permit. This screening program is to be concurrent with the development of the CIMP. To accomplish this, four outfall screening events were conducted during this period. This screening program exceeded the Permit specifications (that all storm drains 36 inches in diameter and those 12 inches in diameter draining industrial areas be screened) and instead screened outfalls 12 inches and larger regardless of tributary land uses.

1. April 10 to April 19 2014, the first outfall screening occurred. A total of 541 outfalls were visually inspected, flow/no flow observations record, photographed, latitude and longitude coordinates recorded. Subsequently, the Draft CIMP which was submitted to the Regional Board in June 2014 included additional guidance for screening.
2. October 1 to October 23, 2014, the second screening event took place (513 outfalls were screened, approximately 28 outfalls located in Orange county were removed from list). Observations included more descriptive quantitative flow evaluations and recorded on the newly available Draft CIMP "Outfall Reconnaissance Inventory Field Sheet".
3. October 17 to October 30, 2014 following the same outfall reconnaissance procedures, a total of 519 outfalls were screened.
4. Due to the April 2014, event occurring prior to the screening procedures developed in the Draft CIMP, a fourth event was conducted in October 31 to November 7, 2014 to verify, confirm and/or provide supplemental observations of 517 outfalls.

All data has been recorded on Excel Database. Photos of outfalls were recorded (see below)

The outfall screening is an ongoing process and will continue as part of illicit discharge programs, source control investigations and the adaptive management provisions of the WMP/CIMP.

Eckersall Data April 10-19, 2014	**Dry weather discharge***	**No flow**	**Total Outfalls**
San Garbriel River	42	147	189
Brea Canyon	14	18	32
Coyote Creek	24	156	180
La Mirada	1	56	57
Milan Creek	0	24	24
North Coyote Creek	3	56	59
Total	**84**	**457**	**541**

**cumulative totals for trickle, low, moderate and high flows.*

The outfalls with significant discharges are currenty being determined

JLHA October 1-23,2014	**Dry weather discharge**	**No flow**	**Total Outfalls**
San Garbriel River	49	152	201
Brea Canyon	13	21	34
Coyote Creek	44	89	133
La Mirada	10	49	59
Milan Creek	2	22	24
North Coyote Creek	19	43	62
Total	**137**	**376**	**513**

JLHA October 17-30,2014	**Dry weather discharge**	**No flow**	**Total Outfalls**
San Garbriel River	49	158	207
Brea Canyon	17	17	34
Coyote Creek	37	96	133
La Mirada	12	47	59
Milan Creek	1	23	24
North Coyote Creek	18	44	62
Total	**134**	**385**	**519**

JLHA October 31- November 7,2014	**Dry weather discharge**	**No flow**	**Total Outfalls**
San Garbriel River	36	169	205
Brea Canyon	15	19	34
Coyote Creek	32	99	131
La Mirada	6	54	60
Milan Creek	2	22	24
North Coyote Creek	14	49	63
Total	**105**	**412**	**517**

Operation Procedures	
Illicit Discharge Detection & Elimination: Initial Outfall Screening	
Purpose:	This provides a basic checklist for field crews conducting initial survey of storm drainage system outfalls for use in identification of illicit discharges

Reference: Brown et al., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments,* Center for Watershed Protection, Ellicott City, 2004.

Planning Considerations:

- ❑ Employees should have reviewed and understand the information presented in Chapter 11 of the reference manual
- ❑ Inspections are to occur during dry weather (no runoff producing precipitation in last 72 hours)
- ❑ Conduct inspections with at least two staff per crew
- ❑ Conduct inspections during low groundwater (if appropriate).
- ❑ Complete ***Site Info section on Outfall Reconnaissance Inventory Form*** before leaving the office. Additional forms should be available for undocumented outfalls

Field Methods:

- ❑ Ensure outfall is accessible.
- ❑ Inspect outfall only if safe to do so.
- ❑ Characterize the outfall by recording information on the ***LCC Outfall Reconnaissance Inventory Form.***
- ❑ Photograph the outfall with a digital camera (use dry erase board to identify outfall).
- ❑ Enter flow information on form if dry weather flow is present and ***easily*** obtained. If not, provide rough estimate of flow.
- ❑ Document clean, dry outfalls for potential elimination during future screening programs.
- ❑ Water samples will not be collected during the initial survey. In-situ measurements of temperature, conductivity, and pH should be taken if significant flow is present.
- ❑ Do not enter private property without permission.
- ❑ Photograph each site with the site identification written on the dry erase board.

Equipment List:

1. System map
2. Outfall Reconnaissance Inventory Forms
3. City identification or business cards
4. Digital camera (spare batteries)
5. Cell phone
6. GPS unit
7. Clip board and pencils
8. Dry erase board and pens
9. Hand Mirror
10. Flashlight (spare batteries)
11. Disposable gloves
12. Folding wood ruler or comparable
13. Temperature, Conductivity probe
14. pH probe/strips
15. ***Ammonia test strips***
16. ***Ten1-liter (polyethylene) sample bottles***
17. Watch with second hand
18. Calculator
19. Hand sanitizer
20. Safety vests
21. First aid kit
22. ***Cooler***
23. Permanent marker

Bolded, italicized items will only be needed for later surveys. No water quality samples will be taken for laboratory analysis during the first survey.

LOWER SAN GABRIEL R. OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subbasin:		Outfall ID:	
TODAY'S DATE:		**TIME (MILITARY):**	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial
☐ Ultra-Urban Residential
☐ Suburban Residential
☐ Commercial
☐ Open Space
☐ Institutional
Other: ____
Known Industries: ______________________________________

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: __________	☐ Circular ☐ Elliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: ______________________	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No ***If No, Skip to Section 5***				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	_____' _____"	Ft, In	Tape measure
	Measured length	_____' _____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Meter
pH			pH Units	Meter
Ammonia			mg/L	Test strip

Lower LA River Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1.	Sample for the lab?	☐ Yes	☐ No	
2.	If yes, collected from:	☐ Flow	☐ Pool	
3.	Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

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APPENDIX E

ANALYTICAL METHODS AND DETECTION LIMITS FOR THE LACFD AG LABORATORY

APPLICABLE TO S13 ME SITE

Table 3. Analytical Methods and Detection Limits of the Los Angeles County Flood Control Departments Ag Lab.

Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
	Conventional Pollutants				
EPA 1664A	Oil and Grease	5	mg/L	5	1.44
EPA 420.1	Total Phenols	0.1	mg/L	0.1	0.03
SM 4500-CN- E	Cyanide	0.005	mg/L	0.005	0.005
SM 4500-H+ B	pH	0 - 14	pH	0.1	0.1
SM 2550B	Temperature	N/A	C	0.01	0.01
SM 4500-O G	Dissolved Oxygen	Sensitivit y to 5	mg/L	1	1
	BACTERIA (single sample limits)				
SM9221B	Total coliform (marine waters)	10,000	MPN/100ml	20	20
SM 9230B	Enterococcus (marine waters)	104	MPN/100ml	20	20
SM 9221E	Fecal coliform (marine & fresh waters)	400	MPN/100ml	20	20
SM 9221E/ Colilert-QT	E. coli (fresh waters)	235	MPN/100ml	1	1
	GENERAL				
SM 4500-P E	Dissolved Phosphorus	0.05	mg/L	0.05	0.05
SM 4500-P E	Total Phosphorus	0.05	mg/L	0.05	0.05
SM 2130 B	Turbidity	0.1	NTU	0.1	0.1
SM 2540D	Total Suspended Solids	2	mg/L	2	1
SM 2540E	Volatile Suspended Solids	2	mg/L	1	1
SM 5310B	Total Organic Carbon	1	mg/L	1	0.5
EPA 418.1	Total Petroleum Hydrocarbon	5	mg/L	5	1.5
SM 5210 B	Biochemical Oxygen Demand	2	mg/L	2	1
SM 5220 D	Chemical Oxygen Demand	20-900	mg/L	20	10
SM 4500-NH3 C	Total Ammonia-Nitrogen	0.1	mg/L	0.1	0.1
SM4500-NH3 C	Total Kjeldahl Nitrogen	0.1	mg/L	0.1	0.1
EPA 300.0	Nitrate-N	0.1	mg/L	0.1	0.1
EPA 300.0	Nitrite -N	0.1	mg/L	0.1	0.1
SM 2320B	Alkalinity	2	mg/L	2	2
SM 2510 B	Specific Conductance	1	umho/cm	1	1
SM 2340C	Total Hardness	2	mg/L	2	2
SM 5540C	MBAS	0.5	mg/L	0.5	0.1
EPA 300.0	Chloride	2	mg/L	1	1
EPA 300.0	Fluoride	0.1	mg/L	0.1	0.1
EPA 624	Methyl tertiary butyl ether (MTBE)	1	mg/L	1	0.33
EPA 314.0	Perchlorate	4	µg/L	4	4
	METALS (Dissolved & Total)				

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Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
EPA 200.8	Aluminum	100	µg/L	100	50
EPA 200.8	Antimony	0.5	µg/L	0.5	0.5
EPA 200.8	Arsenic	1	µg/L	1	0.2
EPA 200.8	Beryllium	0.5	µg/L	0.5	0.1
EPA 200.8	Cadmium	0.25	µg/L	0.25	0.1
EPA 218.6	Chromium (Hexavalent)	5	µg/L	5	0.25
EPA 200.8	Chromium (total)	0.5	µg/L	0.5	0.5
EPA 200.8	Copper	0.5	µg/L	0.5	0.5
EPA 200.8	Iron	100	µg/L	100	50
EPA 200.8	Lead	0.5	µg/L	0.5	0.2
EPA 245.1	Mercury	0.5	µg/L	0.5	0.1
EPA 200.8	Nickel	1	µg/L	1	0.5
EPA 200.8	Selenium	1	µg/L	1	0.5
EPA 200.8	Silver	0.25	µg/L	0.25	0.1
EPA 200.8	Thallium	1	µg/L	1	0.1
EPA 200.8	Zinc	1	µg/L	1	1
	SEMIVOLATILE ORGANIC COMPOUNDS **ACIDS**				
EPA 625	2-Chlorophenol	2	µg/L	2	0.67
EPA 625	4-Chloro-3-methylphenol	1	µg/L	1	1
EPA 625	2,4-Dichlorophenol	1	µg/L	1	1
EPA 625	2,4-Dimethylphenol	2	µg/L	2	0.67
EPA 625	2,4-Dinitrophenol	5	µg/L	5	1
EPA 625	2-Nitrophenol	10	µg/L	10	1
EPA 625	4-Nitrophenol	5	µg/L	5	1
EPA 625	Pentachlorophenol	2	µg/L	2	0.67
EPA 625	Phenol	1	µg/L	1	0.33
EPA 625	2,4,6-Trichlorophenol	10	µg/L	10	3.33
	BASE/NEUTRAL				
EPA 625	Acenaphthene	1	µg/L	1	0.33
EPA 625	Acenaphthylene	2	µg/L	2	0.67
EPA 625 SIM	Acenaphthylene	2	µg/L		
EPA 625	Anthracene	2	µg/L	2	0.67
EPA 625	Benzidine	5	µg/L	5	1.67
EPA 625	1,2 Benzanthracene	5	µg/L	5	1.67
EPA 625	Benzo(a)pyrene	2	µg/L	2	0.67
EPA 625	Benzo(g,h,i)perylene	5	µg/L	5	1.67
EPA 625	3,4 Benzofluoranthene	10	µg/L	10	3.33

Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
EPA 625	Benzo(k)flouranthene	2	µg/L	2	0.67
EPA 625	Bis(2-Chloroethoxy) methane	5	µg/L	5	1.67
EPA 625	Bis(2-Chloroisopropyl) ether	2	µg/L	2	0.67
EPA 625	Bis(2-Chloroethyl) ether	1	µg/L	1	0.33
EPA 625	Bis(2-Ethylhexyl) phthalate	5	µg/L	5	1.67
EPA 625	4-Bromophenyl phenyl ether	5	µg/L	5	1.67
EPA 625	Butyl benzyl phthalate	10	µg/L	10	3.33
EPA624	2-Chloroethyl vinyl ether	1	µg/L	1	0.33
EPA 625	2-Chloronaphthalene	10	µg/L	10	3.33
EPA 625	4-Chlorophenyl phenyl ether	5	µg/L	5	1.67
EPA 625	Chrysene	5	µg/L	5	1.67
EPA 625	Dibenzo(a,h)anthracene	0.1	µg/L	0.1	0.033
EPA 625	1,3-Dichlorobenzene	1	µg/L	1	0.5
EPA 625	1,4-Dichlorobenzene	1	µg/L	1	0.5
EPA 625	1,2-Dichlorobenzene	1	µg/L	1	0.5
EPA 625	3,3-Dichlorobenzidine	5	µg/L	5	1.67
EPA 625	Diethyl phthalate	2	µg/L	2	1
EPA 625	Dimethyl phthalate	2	µg/L	2	1
EPA 625	di-n-Butyl phthalate	10	µg/L	10	3.33
EPA 625	2,4-Dinitrotoluene	5	µg/L	5	1.67
EPA 625	2,6-Dinitrotoluene	5	µg/L	5	1.67
EPA 625	4,6 Dinitro-2-methylphenol	5	µg/L	5	1
EPA 625	1,2-Diphenylhydrazine	1	µg/L	1	0.33
EPA 625	di-n-Octyl phthalate	10	µg/L	10	3.33
EPA 625	Fluoranthene	0.05	µg/L	0.05	0.017
EPA 625	Fluorene	0.1	µg/L	0.1	0.033
EPA 625	Hexachlorobenzene	1	µg/L	1	0.33
EPA 625	Hexachlorobutadiene	1	µg/L	1	0.33
EPA 625	Hexachloro-cyclopentadiene	5	µg/L	5	1.67
EPA 625	Hexachloroethane	1	µg/L	1	0.33
EPA 625	Indeno(1,2,3-cd)pyrene	0.05	µg/L	0.05	0.017
EPA 625	Isophorone	1	µg/L	1	0.33
EPA 625	Naphthalene	0.2	µg/L	0.2	0.067
EPA 625	Nitrobenzene	1	µg/L	1	0.33
EPA 625	N-Nitroso-dimethyl amine	5	µg/L	5	1.67
EPA 625	N-Nitroso-diphenyl amine	1	µg/L	1	0.33
EPA 625	N-Nitroso-di-n-propyl amine	5	µg/L	5	1.67
EPA 625	Phenanthrene	0.05	µg/L	0.05	0.017

Analytical Method	Analyte	Permit ML	Unit	LACFCD's Ag Lab	
				MRL	MDL
EPA 625	Pyrene	0.05	µg/L	0.05	0.017
EPA 625	1,2,4-Trichlorobenzene	1	µg/L	1	0.33
Chlorinated Pesticides					
EPA 608	Aldrin	0.005	µg/L	0.005	0.005
EPA 608	alpha-BHC	0.01	µg/L	0.01	0.01
EPA 608	beta-BHC	0.005	µg/L	0.005	0.005
EPA 608	delta-BHC	0.005	µg/L	0.005	0.005
EPA 608	gamma-BHC (lindane)	0.02	µg/L	0.02	0.02
EPA 608	alpha-chlordane	0.1	µg/L	0.1	0.1
EPA 608	gamma-chlordane	0.1	µg/L	0.1	0.1
EPA 608	4,4'-DDD	0.05	µg/L	0.05	0.05
EPA 608	4,4'-DDE	0.05	µg/L	0.05	0.05
EPA 608	4,4'-DDT	0.01	µg/L	0.01	0.01
EPA 608	Dieldrin	0.01	µg/L	0.01	0.01
EPA 608	alpha-Endosulfan	0.02	µg/L	0.02	0.02
EPA 608	beta-Endosulfan	0.01	µg/L	0.01	0.01
EPA 608	Endosulfan sulfate	0.05	µg/L	0.05	0.05
EPA 608	Endrin	0.01	µg/L	0.01	0.01
EPA 608	Endrin aldehyde	0.01	µg/L	0.01	0.01
EPA 608	Heptachlor	0.01	µg/L	0.01	0.01
EPA 608	Heptachlor Epoxide	0.01	µg/L	0.01	0.01
EPA 608	Toxaphene	0.5	µg/L	0.5	0.5
POLYCHLORINATED BIPHENYLS					
EPA 608	Aroclor-1016	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1221	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1232	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1242	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1248	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1254	0.5	µg/L	0.5	0.5
EPA 608	Aroclor-1260	0.5	µg/L	0.5	0.5
ORGANOPHOSPHATE PESTICIDES					
EPA507	Atrazine	2	µg/L	2	0.667
EPA507	Chlorpyrifos	0.05	µg/L	0.05	0.02
EPA507	Cyanazine	2	µg/L	2	0.667
EPA507	Diazinon	0.01	µg/L	0.01	0.003
EPA507	Malathion	1	µg/L	1	0.33
EPA507	Prometryn	2	µg/L	2	0.67
EPA507	Simazine	2	µg/L	2	0.67
HERBICIDES					
EPA 515.3	2,4-D	10	µg/L	0.2	0.02
EPA 547	Glyphosate	5	µg/L	5	5
EPA 515.3	2,4,5-TP-SILVEX	0.5	µg/L	0.2	0.067

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APPENDIX F

SEDIMENT AND WATER QUALITY DATA QUALITY OBJECTIVES FOR THE LOS ANGELES COUNTY SANITATION DISTRICT MONITORING AT R8.

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Table 1. Analytical Methods and Detection Limits Applicable to NPDES Monitoring in Receiving Waters - Los Angeles County Sanitation District.

CMP	COMPOUND	RL	UNITS
METALS AND HARDNESS			
7429-90-5	Aluminum	10	ug/l
7440-36-0	Antimony	0.5	ug/l
7440-38-2	Arsenic	1	ug/l
7440-39-3	Barium	0.5	ug/l
7440-41-7	Beryllium	0.25	ug/l
7440-42-8	Boron	0.02	mg/l
7440-43-9	Cadmium	0.2	ug/l
7440-70-2	Calcium	0.02	mg/l
7440-47-3	Chromium	0.5	ug/l
7440-47-3(3+)	Trivalent Chromium	0.5	ug/l
7440-48-4	Cobalt	0.25	ug/l
7440-50-8	Copper	0.5	ug/l
7439-89-6	Iron	0.02	mg/l
7439-92-1	Lead	0.25	ug/l
7439-95-4	Magnesium	0.02	mg/l
7439-96-5	Manganese	1	ug/l
7439-98-7	Molybdenum	0.25	ug/l
7440-02-0	Nickel	1	ug/l
7440-09-7	Potassium	0.2	mg/l
7782-49-2	Selenium	1	ug/l
7440-21-3	Silicon	0.02	mg/l
7440-22-4	Silver	0.2	ug/l
7440-23-5	Sodium	0.2	mg/l
7440-24-6	Strontium	0.2	ug/l
7440-28-0	Thallium	0.25	ug/l
7440-31-5	Tin	0.5	ug/l
7440-32-6	Titanium	2	ug/l
7440-62-2	Vanadium	1	ug/l
7440-66-6	Zinc	1	ug/l
SiO2	Si as SiO2	0.04	mg/l
CaHARDNESS	Calcium Hardness as CaCO3	0.05	mg/l
MgHARDNESS	Magnesium Hardness as CaCO3	0.08	mg/l
HARDNESS	Total Hardness as CaCO3	0.05	mg/l
PCBS			
12674-11-2	Aroclor 1016	0.1	ug/l
11104-28-2	Aroclor 1221	0.5	ug/l
11141-16-5	Aroclor 1232	0.3	ug/l
53469-21-9	Aroclor 1242	0.1	ug/l
12672-29-6	Aroclor 1248	0.1	ug/l

11097-69-1	Aroclor 1254	0.05	ug/l
11096-82-5	Aroclor 1260	0.1	ug/l
OC PESTICIDES			
309-00-2	Aldrin	0.005	ug/l
319-84-6	alpha-BHC	0.01	ug/l
319-85-7	beta-BHC	0.005	ug/l
5103-73-1	cis-Nonachlor	0.01	ug/l
319-86-8	delta-BHC	0.005	ug/l
60-57-1	Dieldrin	0.01	ug/l
959-98-8	Endosulfan I	0.01	ug/l
33213-65-9	Endosulfan II	0.01	ug/l
1031-07-8	Endosulfan sulfate	0.01	ug/l
72-20-8	Endrin	0.01	ug/l
7421-93-4	Endrin aldehyde	0.01	ug/l
58-89-9	gamma-BHC (Lindane)	0.01	ug/l
5103-71-9	alpha-Chlordane	0.01	ug/l
5103-74-2	gamma-Chlordane	0.01	ug/l
76-44-8	Heptachlor	0.01	ug/l
28044-83-9	Heptachlor epoxide (Isomer A)	0.01	ug/l
1024-57-3	Heptachlor epoxide (Isomer B)	0.01	ug/l
72-43-5	Methoxychlor	0.01	ug/l
2385-85-5	Mirex	0.05	ug/l
53-19-0	o,p'-DDD	0.01	ug/l
3424-82-6	o,p'-DDE	0.01	ug/l
789-02-6	o,p'-DDT	0.01	ug/l
26880-48-8	Oxychlordane	0.01	ug/l
72-54-8	p,p'-DDD	0.01	ug/l
72-55-9	p,p'-DDE	0.01	ug/l
50-29-3	p,p'-DDT	0.01	ug/l
12789-03-6	Technical Chlordane	0.05	ug/l
8001-35-2	Toxaphene	0.5	ug/l
56534-02-2	cis-Chlordene	0.02	ug/l
56641-38-4	trans-Chlordene	0.01	ug/l
39765-80-5	trans-Nonachlor	0.01	ug/l
959-98-8	Endosulfan I	0.01	ug/l
33213-65-9	Endosulfan II	0.01	ug/l
1031-07-8	Endosulfan sulfate	0.01	ug/l
7421-93-4	Endrin aldehyde	0.01	ug/l
PAHS			
83-32-9	Acenaphthene	0.02	ug/l
208-96-8	Acenaphthylene	0.02	ug/l
120-12-7	Anthracene	0.02	ug/l
56-55-3	Benzo(a)anthracene	0.02	ug/l

205-99-2	Benzo(b)fluoranthene	0.02	ug/l
207-08-9	Benzo(k)fluoranthene	0.02	ug/l
50-32-8	Benzo(a)pyrene	0.02	ug/l
191-24-2	Benzo(g,h,i)perylene	0.02	ug/l
218-01-9	Chrysene	0.02	ug/l
53-70-3	Dibenzo(a,h)anthracene	0.02	ug/l
206-44-0	Fluoranthene	0.02	ug/l
86-73-7	Fluorene	0.02	ug/l
193-39-5	Indeno(1,2,3-cd)pyrene	0.02	ug/l
91-20-3	Naphthalene	0.02	ug/l
85-01-8	Phenanthrene	0.02	ug/l
129-00-0	Pyrene	0.02	ug/l

Table 2. Reporting Limits and Data Quality Objectives (DQOs) for Sediment Sampling at R8 for the Harbor Toxics Monitoring Program

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
Grain Size: Estuary Sediment								
Sediment grain size	None	N/A	N/A	Laboratory Duplicate - RPD < 25%	90%	ABC	<2000 - >0.2	µm
Nutrients: Estuary Sediment								
Total Kjeldahl Nitrogen	None	None	N/A	Laboratory Duplicate - RPD < 25%	90%	IIRMES	0.04	mg/Kg dw
Phosphorus as P	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	80 - 120%	Laboratory duplicate, Blind Field duplicate, or MS/MSD 25%. RPD Laboratory duplicate minimum.	90%	IIRMES	0.05	mg/Kg dw
Total Organic Carbon	Total					IIRMES	0.02	% dw
Metals: Estuary Sediment								
Arsenic	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike. Matrix spikes sometimes have poor recovery in sediments, in which case a case a CRM and an LCS may be	75 -125% (70 - 130 % for Hg)	Laboratory Duplicate and Matrix Spike (or CRM) Duplicate - RPD < 25%	90%	IIRMES	0.5	mg/Kg dw
Cadmium	Total					IIRMES	0.4	mg/Kg dw
Chromium	Total					IIRMES	0.5	mg/Kg dw
Copper	Total					IIRMES	0.8	mg/Kg dw
Iron	Total					IIRMES	10	mg/Kg dw
Lead	Total					IIRMES	0.1	mg/Kg dw
Mercury	Total					IIRMES	0.02	mg/Kg dw
Nickel	Total					IIRMES	0.5	mg/Kg dw
Selenium	Total					IIRMES	0.5	mg/Kg dw
Zinc	Total					IIRMES	0.5	mg/Kg dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
		used.						
Organochlorine Pesticides: Estuary Sediment								
Aldrin	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	50 - 150%	Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%	IIRMES	1	ng/g dw
Chlordane, cis-	Total		50 - 150%			IIRMES	1	ng/g dw
Chlordane, trans-	Total		50 - 150%			IIRMES	1	ng/g dw
DDD(o,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDD(p,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDE(o,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDE(p,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDT(o,p')	Total		50 - 150%			IIRMES	1	ng/g dw
DDT(p,p')	Total		50 - 150%			IIRMES	1	ng/g dw
Dieldrin	Total		50 - 150%			IIRMES	1	ng/g dw
Endosulfan I	Total		50 - 150%			IIRMES	5	ng/g dw
Endosulfan II	Total		50 - 150%			IIRMES	5	ng/g dw
Endosulfan Sulfate	Total		50 - 150%			IIRMES	5	ng/g dw
Endrin	Total		50 - 150%			IIRMES	5	ng/g dw
Endrin Aldehyde	Total		33 - 138%			IIRMES	5	ng/g dw
Endrin Ketone	Total		50 - 150%			IIRMES	5	ng/g dw
HCH, alpha	Total		50 - 150%			IIRMES	1	ng/g dw
HCH, beta	Total		50 - 150%			IIRMES	1	ng/g dw
HCH, delta	Total		50 - 150%			IIRMES	1	ng/g dw
HCH, gamma	Total		50 - 150%			IIRMES	1	ng/g dw
Heptachlor	Total		50 - 150%			IIRMES	1	ng/g dw
Heptachlor Epoxide	Total		50 - 150%			IIRMES	1	ng/g dw
Methoxychlor	Total		34 - 143%			IIRMES	1	ng/g dw
Mirex	Total		50 - 150%			IIRMES	1	ng/g dw
Nonachlor, cis-	Total		50 - 150%			IIRMES	1	ng/g dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
Nonachlor, trans-	Total		50 - 150%			IIRMES	1	ng/g dw
Oxychlordane	Total		50 - 150%			IIRMES	1	ng/g dw
Toxaphene	Total		50 - 150%			IIRMES	1	
PCBs[1]: Estuary Sediment								
PCB 003	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	50 - 150 %	Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%	IIRMES	0.2	ng/g dw
PCB 008	Total					IIRMES	0.2	ng/g dw
PCB 018	Total					IIRMES	0.2	ng/g dw
PCB 028	Total					IIRMES	0.2	ng/g dw
PCB 031	Total					IIRMES	0.2	ng/g dw
PCB 033	Total					IIRMES	0.2	ng/g dw
PCB 037	Total					IIRMES	0.2	ng/g dw
PCB 044	Total					IIRMES	0.2	ng/g dw
PCB 049	Total					IIRMES	0.2	ng/g dw
PCB 052	Total					IIRMES	0.2	ng/g dw
PCB 056	Total					IIRMES	0.2	ng/g dw
PCB 056/060	Total					IIRMES	0.2	ng/g dw
PCB 060	Total					IIRMES	0.2	ng/g dw
PCB 066	Total					IIRMES	0.2	ng/g dw
PCB 070	Total					IIRMES	0.2	ng/g dw
PCB 074	Total					IIRMES	0.2	ng/g dw
PCB 077	Total					IIRMES	0.2	ng/g dw
PCB 081	Total					IIRMES	0.2	ng/g dw
PCB 087	Total					IIRMES	0.2	ng/g dw
PCB 095	Total					IIRMES	0.2	ng/g dw
PCB 097	Total					IIRMES	0.2	ng/g dw
PCB 099	Total					IIRMES	0.2	ng/g dw
PCB 101	Total					IIRMES	0.2	ng/g dw

1. Monitoring for PCBs will be reported as the summation of aroclors and a minimum of 50 congeners.

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
PCB 105	Total					IIRMES	0.2	ng/g dw
PCB 110	Total					IIRMES	0.2	ng/g dw
PCB 114	Total					IIRMES	0.2	ng/g dw
PCB 118	Total					IIRMES	0.2	ng/g dw
PCB 119	Total					IIRMES	0.2	ng/g dw
PCB 123	Total					IIRMES	0.2	ng/g dw
PCB 126	Total					IIRMES	0.2	ng/g dw
PCB 128	Total					IIRMES	0.2	ng/g dw
PCB 138	Total					IIRMES	0.2	ng/g dw
PCB 141	Total					IIRMES	0.2	ng/g dw
PCB 149	Total					IIRMES	0.2	ng/g dw
PCB 151	Total					IIRMES	0.2	ng/g dw
PCB 153	Total					IIRMES	0.2	ng/g dw
PCB 156	Total					IIRMES	0.2	ng/g dw
PCB 157	Total					IIRMES	0.2	ng/g dw
PCB 158	Total					IIRMES	0.2	ng/g dw
PCB 167	Total					IIRMES	0.2	ng/g dw
PCB 168	Total					IIRMES	0.2	ng/g dw
PCB 168/132	Total					IIRMES	0.2	ng/g dw
PCB 169	Total	Reference Material (CRM, SRM or LCS) and Matrix Spike	50 - 150 %	Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%	IIRMES	0.2	ng/g dw
PCB 170	Total					IIRMES	0.2	ng/g dw
PCB 174	Total					IIRMES	0.2	ng/g dw
PCB 177	Total					IIRMES	0.2	ng/g dw
PCB 180	Total					IIRMES	0.2	ng/g dw
PCB 183	Total					IIRMES	0.2	ng/g dw
PCB 187	Total					IIRMES	0.2	ng/g dw
PCB 189	Total					IIRMES	0.2	ng/g dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
PCB 194	Total					IIRMES	0.2	ng/g dw
PCB 195	Total					IIRMES	0.2	ng/g dw
PCB 209	Total					IIRMES	0.2	ng/g dw
PAHs: Estuary Sediment		Reference Material (CRM, SRM or LCS) and Matrix Spike		Laboratory Duplicate and Matrix Spike Duplicate - RPD < 25%	90%			
Acenaphthene	Total		50 - 150%			IIRMES	5	ng/g dw
Acenaphthylene	Total		50 - 150%			IIRMES	5	ng/g dw
Anthracene	Total		50 - 150%			IIRMES	5	ng/g dw
Benz(a)anthracene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(a)pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(b)fluoranthene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(e)pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(g,h,i)perylene	Total		50 - 150%			IIRMES	5	ng/g dw
Benzo(k)fluoranthene	Total		50 - 150%			IIRMES	5	ng/g dw
Biphenyl	Total		50 - 150%			IIRMES	5	ng/g dw
Chrysene	Total		50 - 150%			IIRMES	5	ng/g dw
Dibenz(a,h)anthracene	Total		50 - 150%			IIRMES	5	ng/g dw
Dibenzothiophene	Total		50 - 150%			IIRMES	5	ng/g dw
Dimethylnaphthalene, 2,6-	Total		50 - 150%			IIRMES	5	ng/g dw
Fluoranthene	Total		50 - 150%			IIRMES	5	ng/g dw
Fluorene	Total		50 - 150%			IIRMES	5	ng/g dw
Indeno(1,2,3-c,d)pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Methylnaphthalene, 1-	Total		50 - 150%			IIRMES	5	ng/g dw
Methylnaphthalene, 2-	Total		50 - 150%			IIRMES	5	ng/g dw
Methylphenanthrene, 1-	Total		50 - 150%			IIRMES	5	ng/g dw
Naphthalene	Total		41 - 109%			IIRMES	5	ng/g dw
Perylene	Total		50 - 150%			IIRMES	5	ng/g dw
Phenanthrene	Total		50 - 150%			IIRMES	5	ng/g dw

Parameter	Fraction	Accuracy		Precision	Completeness	Laboratory	Target Reporting Limits	Units
		Requirements	Recovery					
Pyrene	Total		50 - 150%			IIRMES	5	ng/g dw
Trimethylnaphthalene, 2,3,5-	Total		50 - 150%			IIRMES	5	ng/g dw
Toxicity: Estuary Sediment								
Eohaustorius sp.	N/A	Meets EPA control response standards; DMR intralab results w/in criteria	N/A	Ref Tox ± 2 SD of preceding 20 tests	90%	ABC	N/A	Survival (%)
Mytilus Sediment Water Interface	N/A					ABC		Mortality/ Normality (%)
Invertebrate Identifications: Estuary Sediment								
Sampling	N/A	≤10 seconds of nominal Lat/Long (300 m radius)	N/A	N/A	90%	ABC	1.0 seconds Lat/Long	N/A
Sorting	N/A	A minimum of 10% of all material will be resorted. Sorting accuracy within 5% (equivalent to 95% removal efficiency).	95 % Sorting Efficiency	N/A	90%	ABC	N/A	N/A

Table 3. Data Quality Objectives for Water Quality Monitoring during Dry Weather at R8

	Accuracy			
Parameter	**Requirements**	**Recovery**	**Precision**	**Completeness**
Temperature-field pH-field instrumentation Dissolved Oxygen- field				90%
CONVENTIONALS Oil and Grease Total Petroleum Hydrocarbon Total Phenols Cyanide Turbidity Total Suspended Solids Total Dissolved Solids Volatile Suspended Solids Total Organic Carbon Biochemical Oxygen Demand Chemical Oxygen Demand Alkalinity Specific Conductance Total Hardness MBAS Chloride Fluoride Perchlorate	Field Duplicate Laboratory Duplicate Matrix Spike/Spike Dup	80 - 120%	Field Duplicate - RPD < 25% Laboratory Dup. - RPD < 25%	90%
VOLATILE Methyl tertiary butyl ether (MTBE)				
BACTERIA Total coliform (marine waters) Fecal coliform (marine waters) Enterococcus (marine waters) E. coli (fresh waters)	None	N/A	Laboratory Duplicate - RPD < 25%	90%
NUTRIENTS Total Kjeldahl Nitrogen (TKN) Nitrate as Nitrogen (NO3-N) Nitrite as Nitrogen (NO2-N) Total Nitrogen Ammonia as Nitrogen (NH3-N) Total Phosphorus Dissolved Phosphorus	Reference Material (CRM, SRM or LCS) and Matrix Spike	80 - 120%	Laboratory duplicate, Blind Field duplicate, or MS/MSD 25%. RPD Laboratory duplicate minimum.	90%

APPENDIX G

MINIMUM CRITERIA FOR EVALUATION OF WATER QUALITY CONSTITUENTS IN TABLE E-2 OF THE MRP

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SUMMARY OF MINIMUM APPLICABLE WATER QUALITY CRITERIA FOR THE SAN GABRIEL RIVER WATERSHED

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Oil and Grease	5	mg/L	Basin Plan	Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.	N/A		
Total Phenols	100	µg/L	None	None	N/A		
Cyanide (Total)	5	µg/L	CTR Freshwater (1 hr avg.)	22	µg/L		
			CTR Freshwater (4 day avg.)	5.2			
pH	0 - 14	N/A	MS4 MAL[1]	7.7	N/A		
			Basin Plan	The pH of inland surface waters shall not be depressed below 6. 5 or raised above 8. 5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0. 5 units from natural conditions as a result of waste discharge.			
				The pH of bays or estuaries shall not be depressed below 6. 5 or raised above 8. 5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0. 2 units from natural conditions as a result of waste discharge.			
Temperature	None	°F	Basin Plan	The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. Alterations that are allowed must meet the requirements below.	°F		
				For waters designated WARM, water temperature shall not be altered by more than 5 °F above the natural temperature. At no time shall these WARM designated waters be raised above 80 °F as a result of waste discharges.			
				For waters designated COLD, water temperature shall not be altered by more than 5 °F above the natural temperature.			

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Dissolved Oxygen	Sensitivity to 5 mg/L	mg/L	Basin Plan	At a minimum (see specifics below), the mean annual dissolved oxygen concentration of all waters shall be greater than 7 mg/L, and no single determination shall be less than 5.0 mg/L, except when natural conditions cause lesser concentrations. The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges. The dissolved oxygen content of all surface waters designated as COLD shall not be depressed below 6 mg/L as a result of waste discharges. The dissolved oxygen content of all surface waters designated as both COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.	mg/L		
Fecal coliform (fresh waters)	20	MPN/100 ml	Basin Plan (REC-1, log mean, >= 4 samples for any 30-day period)	200	MPN/100 ml	Daily Maximum	
			Basin Plan (REC-1, <10% samples during any 30-day period)	400			
E. coli (fresh waters)	1	MPN/100 ml	None	None	N/A		
Dissolved Phosphorus	0.05	mg/L	Basin Plan	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.	mg/L		
Total Phosphorus	0.05	mg/L	MS4 MAL	0.8	mg/L		
Turbidity	0.1	NTU	Basin Plan	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits: (1) Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%; (2) Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%; (3) Allowable zones of dilution within which higher concentrations may be tolerated may be defined for each discharge in specific Waste Discharge Requirements.	NTU		

	Minimum Level		Water Quality Objective/Criterion			Notes	
Constituent	Value	Units	Source	Value	Units		
Total Suspended Solids (TSS)	2	mg/L	Basin Plan	Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.			
			MS4 MAL	264.1	mg/L		
Suspended Sediment Concentration (SSC)	0.5	mg/L	Basin Plan	Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.	mg/L		
Total Dissolved Solids (TDS)	2	mg/L	USEPA Secondary MCL	500	mg/L		
			CA Dept. Public Health Recommended Upper Level	1,000			
			CA Dept. Public Health Recommended Short-term Level	1,500			
Volatile Suspended Solids (VSS)	2	mg/L	Basin Plan	Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.	mg/L		
Total Organic Carbon (TOC)	1	mg/L	None	None	N/A		
Total Petroleum Hydrocarbons (extractable fraction, i.e., diesel and motor oil range hydrocarbons)	5	mg/L	None	None	none		
Biochemical Oxygen Demand	2	mg/L	Basin Plan	Waters shall be free of substances that result in increases in the BOD which adversely affect beneficial uses.			
Chemical Oxygen Demand	20-900	mg/L	MAL	247.5	mg/L		
Total Ammonia-Nitrogen (NH_3-N)	0.1	mg/L	Basin Plan	Varies based on pH and temperature for Cold waters and Warm Waters (Table 3-1 to 3-4 of Basin Plan)			
Total Kjeldahl Nitrogen (TKN)	0.1	mg/L	MS4 MAL	4.59	mg/L		
Nitrate+Nitrite (NO_2+NO_3 as N)	0.1	mg/L	MS4 MAL	1.85			
			Basin Plan	10 as NO3-N + NO2-N			

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Alkalinity	2	mg/L	USEPA National Recommended Water Quality Criteria (Freshwater)	20,000	ug/L		
Specific Conductance	1	umho/cm	CA Dept. Public Health Secondary MCL	900	µmhos/cm		
Total Hardness (as CaCO3)	2	mg/L	None	None	N/A		
Methylene Blue Active Substances (MBAS)	500	µg/L	CA Dept. Public Health Secondary MCL	500	µg/L		
			Basin Plan Federal MCL	500			
Chloride	2	mg/L	Basin Plan	150	mg/L		
Fluoride	100	µg/L	CA Dept. Public Health MCL (drinking water)	2,000	µg/L		
Methyl tertiary butyl ether (MTBE)	1000	µg/L	USEPA National Recommended Water Quality Criteria 4-day average (freshwater)	51,000	µg/L		
			USEPA National Recommended Water Quality Criteria 1-hour average (freshwater)	151,000	µg/L		
Perchlorate	4	µg/L	CA Dept. Public Health MCL (drinking water)	6	µg/L		
Aluminum	100	µg/L	USEPA National Recommended Water Quality Criteria 4-day average (freshwater)	87	µg/L	-	
			USEPA National Recommended Water Quality Criteria 1-hour average (freshwater)	750		-	
Antimony	0.5	ug/L	USEPA National Recommended Water Quality Criteria Freshwater (acute)	9000	µg/L		
			USEPA National Recommended Water Quality Criteria Freshwater (chronic)	1600			

	Minimum Level		Water Quality Objective/Criterion			Notes	
Constituent	Value	Units	Source	Value	Units		
Arsenic	1	µg/L	CTR Freshwater (1 hr avg.) dissolved	340	µg/L		
			CTR Freshwater (4 day avg.) dissolved	150	µg/L		
Beryllium	0.5	µg/L	USEPA National Recommended Water Quality Criteria Freshwater (acute)	130	µg/L		
			USEPA National Recommended Water Quality Criteria Freshwater (chronic)	5.3			
Cadmium	0.25	µg/L	MS4 MAL	2.52	µg/L		
			CTR Freshwater (1 hr avg.) dissolved	1.6	µg/L		
			CTR Freshwater (4-day avg.) dissolved	1.1			
Chromium	0.5	µg/L	MS4 MAL	20.2	µg/L		
			National Toxics Rule Freshwater (4-day avg.) dissolved	84			
			National Toxics Rule Freshwater (1-hour avg.) dissolved	260			
Chromium (Hexavalent)	5	µg/L	CTR Freshwater (1 hr avg.) dissolved	16	ug/L		
			CTR Freshwater (4 day avg.) dissolved	11			

Constituent	Minimum Level Value	Minimum Level Units	Water Quality Objective/Criterion Source	Water Quality Objective/Criterion Value	Water Quality Objective/Criterion Units	Notes	
Copper	0.5	µg/L	CTR Freshwater (1 hr avg.) dissolved	5.7	ug/L		
			CTR Freshwater (4 day avg.) dissolved	4.1	ug/L		
			San Gabriel River Metals TMDL	Dry Weather: Coyote Creek 0.941	kg/day	Calculated based upon the median flow at LACDPW Station F354-R of 19 cfs multiplied by the numeric target of 20 µg/L, minus direct air deposition of 0.002 kg/d.	
				Dry Weather: San Gabriel River Estuary 3.7	ug/L		
				Dry Weather: San Gabriel River Reach 1 18	ug/L		
				Wet Weather: Coyote Creek 24.71	ug/L	Multiply WLA by daily storm volume (L)	
Iron	100	µg/L	USEPA National Recommended Water Quality Criteria 4-day average (freshwater)	1,000	ug/L		
Lead	0.5	ug/L	CTR Freshwater (1 hr avg.) dissolved	24	ug/L		
			CTR Freshwater (4 day avg.) dissolved	0.92	ug/L		
			San Gabriel River Metals TMDL	Wet Weather: Coyote Creek 96.99	ug/L	Multiply WLA by daily storm volume (L)	
				Wet Weather: San Gabriel River Reach 2 81.34	ug/L		
				Wet Weather: San Jose Creek Reach 1 81.34	ug/L		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Nickel	1	µg/L	MS4 MAL	27.43	µg/L		
			CTR Freshwater (1 hr avg.) dissolved	220			
			CTR Freshwater (4 day avg.) dissolved	24			
Selenium	1	µg/L	CTR Freshwater (1 hr avg.) dissolved	20	ug/L		
			CTR Freshwater (4 day avg.) dissolved	5			
			San Gabriel River Metals TMDL	San Jose Creek Reach 1 0.228	kg/day		
Silver	0.25	µg/L	CTR Freshwater (1 hr avg.)	0.71	ug/L		
Thallium	1	µg/L	USEPA National Recommended Water Quality Criteria chronic (freshwater)	40	ug/L		
			USEPA National Recommended Water Quality Criteria acute (freshwater)	1400			
Zinc	1	µg/L	CTR Freshwater (1 hr avg.) dissolved	54	ug/L		
			CTR Freshwater (4 day avg.) dissolved	54			
			San Gabriel River Metals TMDL	Wet Weather: Coyote Creek 144.57	ug/L	Multiply WLA by daily storm volume (L)	
				Dry Weather: San Jose Creek Reach 1 5			
Mercury	0.5	µg/L	CTR Human Health Protection (30-d avg; fish consumption only)	0.051	µg/L		
2-Chloroethylvinyl ether[4]	1	µg/L	None	None	µg/L		
2-Chlorophenol	2	µg/L	CTR Human Health Protection (Sources of Drinking water)	120	µg/L		
4-Chloro-3-methylphenol	1	µg/L	USEPA National Recommended Water Quality Criteria (Taste & Odor)	3,000	µg/L		
2,4-Dichlorophenol	1	µg/L	CTR Human Health Protection (Sources of Drinking water)	93	µg/L		

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Constituent	Minimum Level Value	Minimum Level Units	Water Quality Objective/Criterion Source	Water Quality Objective/Criterion Value	Water Quality Objective/Criterion Units	Notes	
2,4-Dimethylphenol	2	µg/L	CTR Human Health Protection (Sources of Drinking water)	540	µg/L		
2,4-Dinitrophenol	5	µg/L	CTR Human Health Protection (Sources of Drinking water)	70	µg/L		
2-Nitrophenol	10	µg/L	None	None	N/A		
4-Nitrophenol	5	µg/L	None	None	N/A		
Pentachlorophenol	2	µg/L	CTR Fresh Water (4 day avg.) at pH 6.5	4	ug/L		
			CTR Freshwater (1 hr avg.) at pH 6.5	5.3			
Phenol	1	µg/L	CTR Human Health Protection (Sources of Drinking water)	21,000	µg/L		
2,4,6-Trichlorophenol	10	µg/L	CTR Human Health Protection (Sources of Drinking water)	2.1	µg/L		
Acenaphthene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	170	µg/L		
			USEPA National Recommended Water Quality Criteria toxicity to algae	520			
Acenaphthylene	2	µg/L	None	None	N/A		
Anthracene	2	µg/L	CTR Human Health Protection (other waters)	110,000	µg/L		
Benzidine	5	µg/L	CTR Human Health Protection (Sources of Drinking water)	0.00012	µg/L		
1,2 Benzanthracene	5	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Benzo(a)pyrene	2	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Benzo(g,h,i)perylene	5	µg/L	None	None	N/A		
3,4 Benzoflouranthene	10	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Benzo(k)flouranthene	2	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Bis(2-Chloroethoxy) methane	5	µg/L	None	None	N/A		
Bis(2-Chloroisopropyl) ether	2	µg/L	None	None	N/A		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Bis(2-Chloroethyl) ether	1	µg/L	None	None	N/A		
Bis(2-Ethylhexl) phthalate	5	µg/L	National Toxics Rule (other waters)	5.9	N/A		
4-Bromophenyl phenyl ether	5	µg/L	None	None	N/A		
Butyl benzyl phthalate	10	µg/L	None	None	N/A		
2-Chloronaphthalene	10	µg/L	None	None	N/A		
4-Chlorophenyl phenyl ether	5	µg/L	None	None	N/A		
Chrysene	5	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Dibenzo(a,h)anthracene	0.1	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
1,3-Dichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	1,120	µg/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	763			
1,4-Dichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	1,120	µg/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	763			
1,2-Dichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	1,120	µg/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	763			
3,3-Dichlorobenzidine	5	µg/L	None	None	N/A		
Diethyl phthalate	2	µg/L	None	None	N/A		
Dimethyl phthalate	2	µg/L	None	None	N/A		
Di-n-Butyl phthalate	10	µg/L	None	None	N/A		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
2,4-Dinitrotoluene	5	µg/L	None	None	N/A		
2,6-Dinitrotoluene	5	µg/L	USEPA Toxicity LOEL	330 (acute)	µg/L		
				230 (chronic)			
4,6 Dinitro-2-methylphenol	5	µg/L	None	None	N/A		
1,2-Diphenylhydrazine	1	µg/L	None	None	N/A		
Di-n-Octyl phthalate	10	µg/L	USEPA Toxicity LOEL	940 acute	µg/L		
				3 chronic			
Fluoranthene	0.05	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	398	ug/L		
Fluorene	0.1	µg/L	CTR Human Health Protection (other waters)	14,000	ug/L		
Hexachlorobenzene	1	µg/L	None	None	N/A		
Hexachlorobutadiene	1	µg/L	None	None	N/A		
Hexachloro-cyclopentadiene	5	µg/L	None	None	N/A		
Hexachloroethane	1	µg/L	None	None	N/A		
Indeno(1,2,3-cd)pyrene	0.05	µg/L	CTR Human Health Protection (other waters)	0.049	µg/L		
Isophorone	1	µg/L	None	None	N/A		
Naphthalene	0.2	µg/L	USEPA National Recommended Water Quality Criteria chronic (freshwater)	620	ug/L		
			USEPA National Recommended Water Quality Criteria acute (freshwater)	2,300			
Nitrobenzene	1	µg/L	None	None	N/A		
N-Nitroso-dimethyl amine	5	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	585	ug/L		
N-Nitroso-diphenyl amine	1	µg/L	None	None	N/A		
N-Nitroso-di-n-propyl amine	5	µg/L	None	None	N/A		

Constituent	Minimum Level Value	Minimum Level Units	Water Quality Objective/Criterion Source	Water Quality Objective/Criterion Value	Water Quality Objective/Criterion Units	Notes	
Phenanthrene	0.05	µg/L	None	None	N/A		
Pyrene	0.05	µg/L	CTR Human Health Protection (other waters)	11,000	ug/L		
1,2,4-Trichlorobenzene	1	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	250	ug/L		
			USEPA National Recommended Water Quality Criteria chronic (freshwater)	50			
Aldrin	0.005	µg/L	CTR freshwater instantaneous max.	3	ug/L		
alpha-BHC	0.01	µg/L	CTR Human Health Protection (other waters)	0.013	ug/L		
beta-BHC	0.005	µg/L	CTR Human Health Protection (other waters)	0.046	ug/L		
delta-BHC	0.005	µg/L	None	None	N/A		
gamma-BHC (lindane)	0.02	µg/L	CTR Freshwater (1 hr avg.)	0.95	ug/L		
alpha-chlordane[1]	0.1	µg/L	None	None	N/A		
gamma-chlordane[1]	0.1	µg/L	None	None	N/A		
4,4'-DDD	0.00004	µg/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	0.06	ug/L		
4,4'-DDE	0.00008	ug/L	USEPA National Recommended Water Quality Criteria acute (freshwater)	105	ug/L		
4,4'-DDT	0.00008	µg/L	CTR Freshwater (4-day avg.)	0.001	ug/L		
			CTR freshwater instantaneous max.	1.1			
Dieldrin	0.01	µg/L	CTR Freshwater (1 hr avg.)	0.24	ug/L		
			CTR Freshwater (4-day avg.)	0.056			
alpha-Endosulfan	0.02	µg/L	CTR Freshwater (1 hr avg.)	0.22	ug/L		
			CTR Freshwater (4-day avg.)	0.056			
beta-Endosulfan	0.01	µg/L	CTR Freshwater (1 hr avg.)	0.22	ug/L		
			CTR Freshwater (4-day avg.)	0.056			

Constituent	Minimum Level Value	Minimum Level Units	Water Quality Objective/Criterion Source	Water Quality Objective/Criterion Value	Water Quality Objective/Criterion Units	Notes	
Endosulfan sulfate	0.05	µg/L	USEPA 24 hr avg	0.056	µg/L		
Endrin	0.01	µg/L	CTR Freshwater (1 hr avg.)	0.086	µg/L		
			CTR Freshwater (4-day avg.)	0.036			
Endrin aldehyde	0.01	µg/L	None	None	N/A		
Heptachlor	0.01	µg/L	National Toxics Rule Freshwater (4-day avg.)	0.0038	ug/L		
			CTR freshwater instantaneous max.	0.52			
Heptachlor epoxide	0.01	µg/L	National Toxics Rule Freshwater (4-day avg.)	0.0038	ug/L		
			CTR freshwater instantaneous max.	0.52			
Toxaphene	0.5	µg/L	CTR Freshwater (1 hr avg.)	0.73	ug/L		
			CTR Freshwater (4-day avg.)	0.0002			
Total PCBs (sum of 166 congeners)	range for all congeners: 0.000005-0.000020	µg/L	National Toxics Rule Freshwater (4-day avg.)	0.014	ug/L		
	Total PCBs: 0.00002		California Primary MCL	0.5			
Atrazine	2	µg/L	USEPA National Recommended Water Quality Criteria Freshwater (1-hour avg)	1,500	ug/L		
Chlorpyrifos	0.05	µg/L	California Dept. of Fish and Game Freshwater (1-hour avg)	0.02	ug/L		
			California Dept. of Fish and Game Freshwater (4-day avg)	0.014			
Cyanazine	2	µg/L	None	None	N/A		
Diazinon	0.01	µg/L	California Dept. of Fish and Game Freshwater (4-day avg)	0.05	µg/L		
			California Dept. of Fish and Game Freshwater (1-hour avg)	**0.08**			
Malathion	1	µg/L	USEPA National Recommended Water Quality Criteria for Freshwater Aquatic Life (max instant.)	0.1	µg/L		

Constituent	Minimum Level		Water Quality Objective/Criterion			Notes	
	Value	Units	Source	Value	Units		
Prometryn	2	µg/L	None	None	N/A		
Simazine	2	µg/L	USEPA National Recommended Water Quality Criteria for Freshwater Aquatic Life (max instant.)	10	µg/L		
2,4-D	10	µg/L	USEPA National Recommended Water Quality Criteria (water+fish consumption)	100	ug/L		
Glyphosate	5	µg/L	None	None	N/A		
2,4,5-TP-SILVEX	0.5	µg/L	USEPA National Recommended Water Quality Criteria (water+fish consumption)	10	ug/L		

[1] MAL = Municipal Action Level as defined by Los Angeles County Permit Order No. R4-2012-0175 Attachment G.

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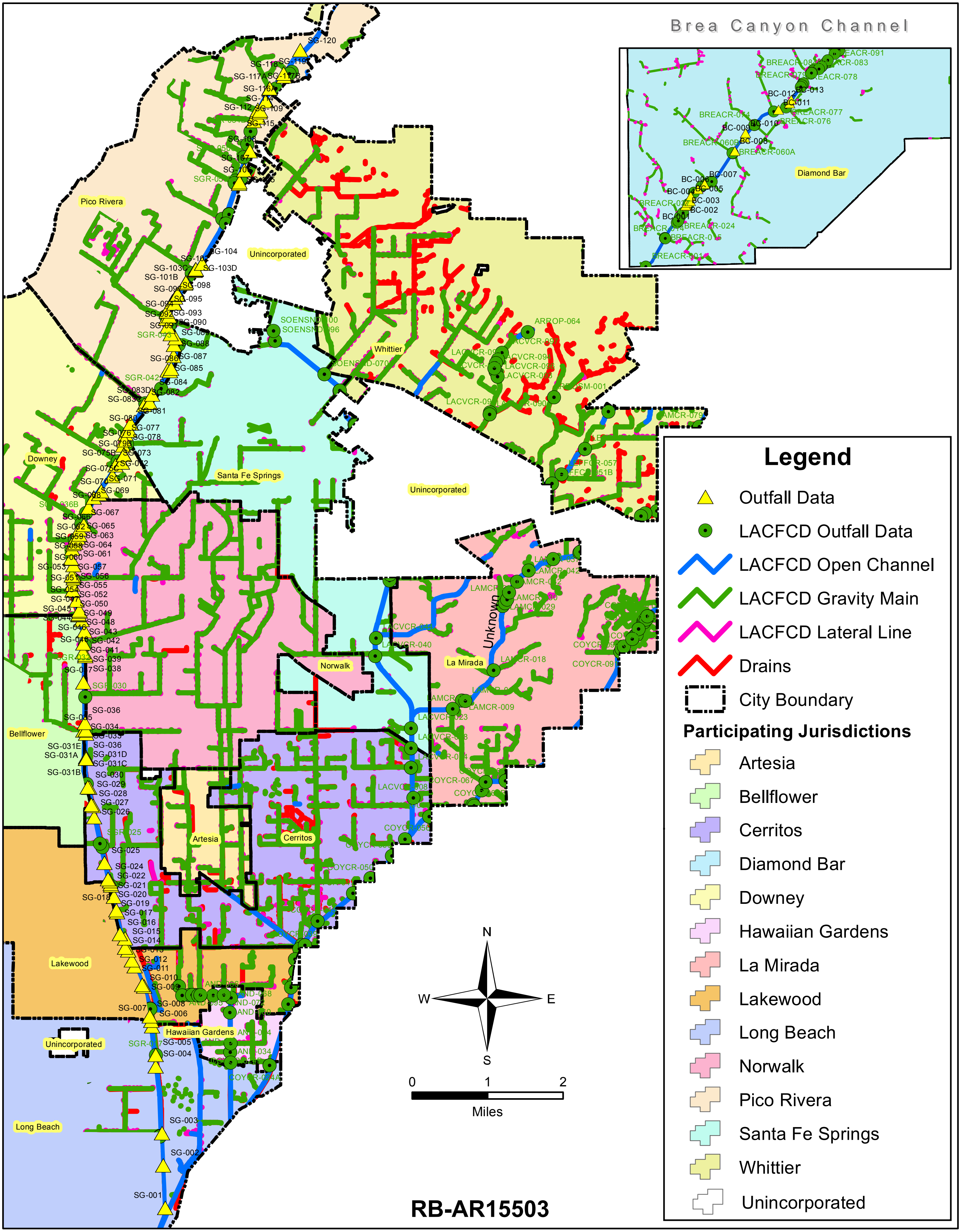
APPENDIX H

Outfall Identification

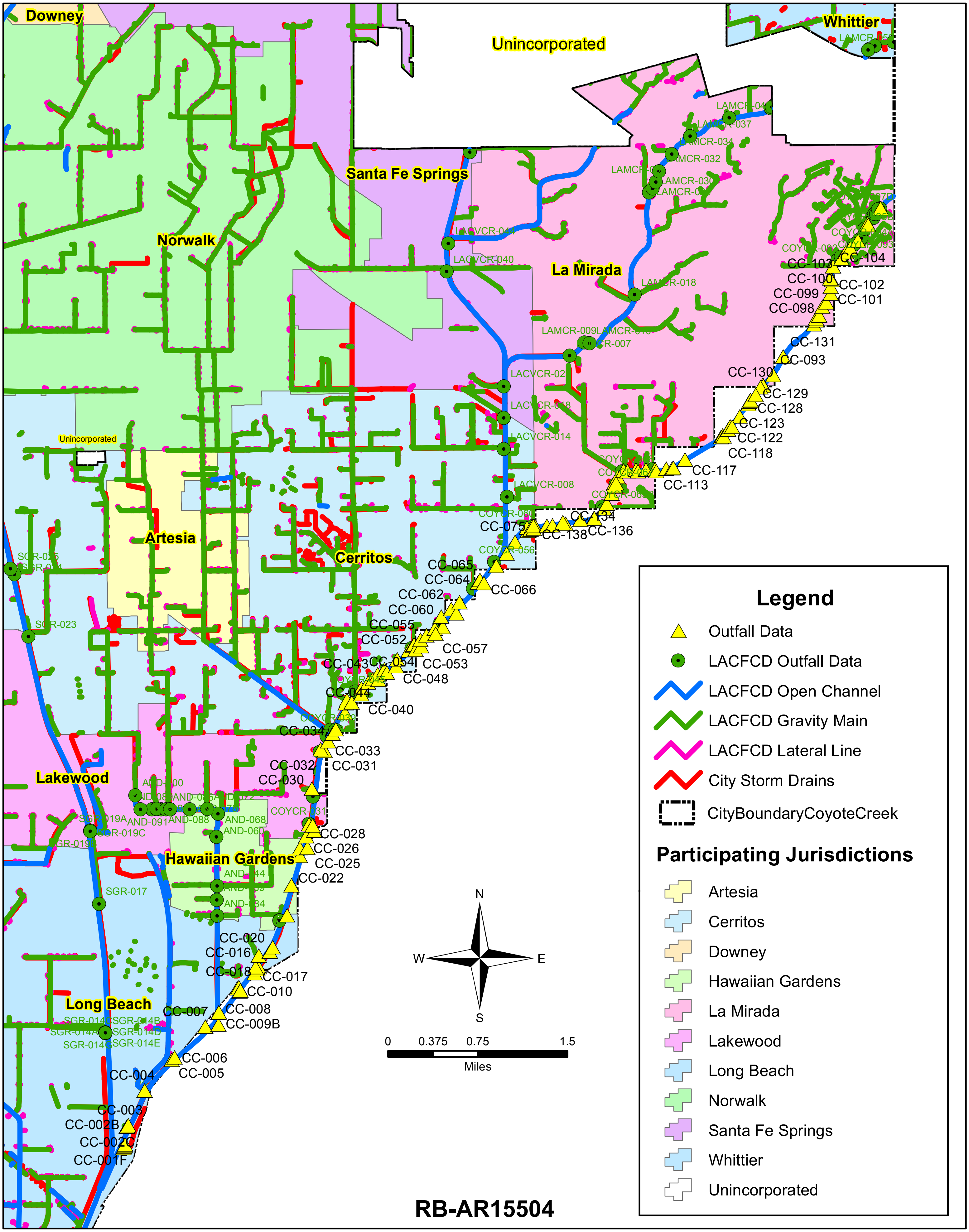
Per Section VII, Attachment E

Outfalls 12 inches and greater were surveyed. Maps showing the location of these outfalls are contained in this Appendix. Photographs collected during the survey and a database with outfall attributes is available upon request

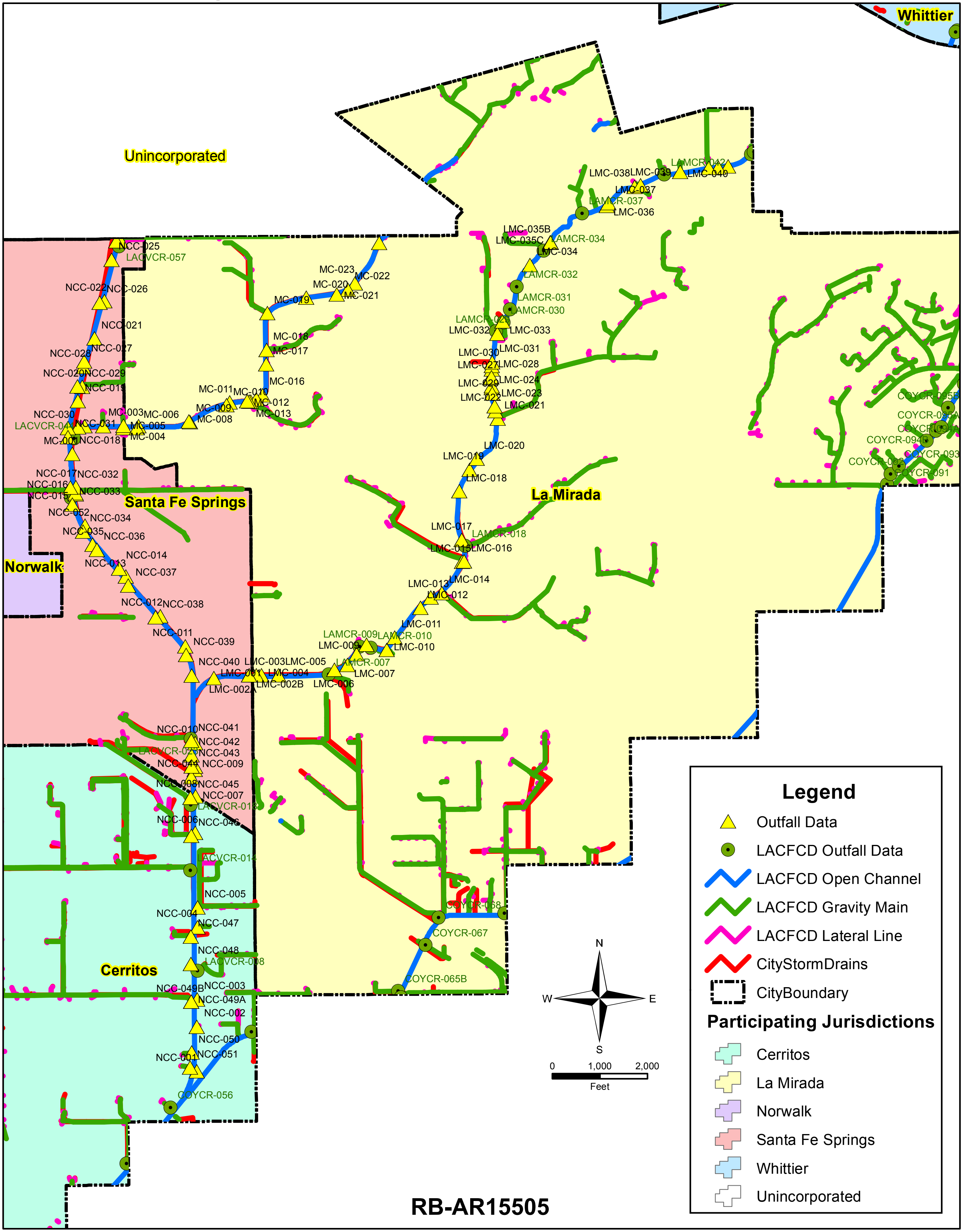
San Gabriel River



Coyote Creek Channel



North Coyote Creek Channel and Tributaries



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APPENDIX I

GENERAL FIELD SAMPLING PROCEDURES

FOR

COMPOSITE AND GRAB SAMPLES

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GENERAL FIELD SAMPLING PROCEDURE FOR:

Composite Samples

1.0 SCOPE

This Standard Operating Procedure (SOP) describes the procedures for the compositing and sub-sampling of non-point source (NPS) "composite" sample bottles. The purpose of these procedures is to ensure that the sub-samples taken are representative of the entire water sample in the "composite" bottle (or bottles). In order to prevent confusion, it should be noted that the bottles are referred to as "composite" bottles because they are a composite of many small samples taken over the course of a storm; in this SOP the use of "compositing" generally refers to the calculated combining of more than one of these "composite" bottles.

2.0 APPLICATION

This SOP applies to all laboratory activities that comprise the compositing and sub-sampling of NPS composite sample bottles.

3.0 HEALTH AND SAFETY CONSIDERATIONS

The compositing and sub-sampling of composite sample bottles may involve contact with contaminated water. Skin contact with sampled water should be minimized by wearing appropriate protective gloves, clothing, and safety glasses. Avoid hand-face contact during the compositing and sub-sampling procedures. Wash hands with soap and warm water after work is completed.

4.0 DEFINITIONS

4.1 **"Composite" sample bottle:** A borosilicate glass bottle that is used to collect multiple samples over the course of a storm (a composite sample).

4.2 **Large-capacity stirrer:** Electric motorized "plate" that supports composite bottle and facilitates the mixing of sample water within the bottle by means of spinning a pre-cleaned magnetic stir-bar which is introduced into the bottle.

4.3 **Stir-bar:** Pre-cleaned teflon-coated magnetic "bar" approximately 2-3 inches in length which is introduced into a composite bottle and is spun by the stirrer, thereby creating a vortex in the bottle and mixing the sample.

4.4 **Sub-sampling hose:** Two pre-cleaned ~3-foot lengths of Teflon tubing connected by a ~2-foot length of silicon tubing. Used with a peristaltic pump to transfer sample water from the composite sample bottle to sample analyte containers.

4.5 **Volume-to-Sample Ratio (VSR):** A number that represents the volume of water that will flow past the flow-meter before a sample is taken (usually in liters but can also be in kilo-cubic feet for river deployments). For example, if the VSR is 1000 it means that every time 1000 liters passes the flow-meter the sampler collects a sample (1000 liters of flow per 1 sample taken). Note: The VSR indicates when a sample should be taken and is NOT an indication of the sample size.

5.0 EQUIPMENT

5.1 Instrumentation: Not applicable

5.2 Reagents: Not applicable.

5.3 Apparatus:

1) Large capacity stirrer.

2) Stir bar.

3) Sub-sampling hose.

4) Peristaltic pump.

5.4 Documentation: Information from the field logbook should include the volume-to-sample ratio for each composite sample bottle, each bottle's ID number, and the time of the last sample taken at a particular sampling site (for purposes of holding times). Previous documentation should exist for the cleaning batch numbers for the 20-L bottles and the sub-sampling hoses.

6.0 COMPOSITING AND SUB-SAMPLING PROCEDURES

Compositing sample water prior to sub-sampling may be necessary if more than one composite sample bottle was filled (or partially filled) during the course of a storm at a particular sampling site. Care must be taken to ensure that no contaminants are introduced at any point during this procedure. If the compositing is not performed with this in mind, the possibility for the introduction of contaminants (i.e., from dust, dirty sub-sampling hose tips, dirty fingers/gloves, engine emissions, etc.) is increased significantly.

6.1 Determining the Fraction of Each Sample Bottle to be Composited: This is essential to producing a composite that is representative of the entire storm sampled and is not biased/weighted toward the first part of the storm (Bottle 1) or the last part of the storm (last bottle). In general, either the bottles have been sampled using the same volume-to-sample ratio (VSR), <u>OR</u> the VSR has been increased for the Bottle 2 in order to prevent over-filling of another bottle; this happens when the amount of rainfall and resulting runoff volume was underestimated.

6.1.1 Consult the field logbook and confirm that the bottles are from the same sampling station. Inspect the bottles' "ID" tags and confirm that the volume-to-sample ratio (VSR) numbers are the same as in the logbook.

6.1.2 If both bottles have the same VSR then equal parts of each sample should be mixed.

6.1.3 If the VSR of Bottle 2 is double that of Bottle 1 then 2-parts from Bottle 2 should be mixed with 1-part from Bottle 1. This is because Bottle 1 is, in a sense, twice as concentrated as Bottle 2, having sampled half as much flow per sample aliquot.

6.1.4 If there are more than two bottles to composite simply follow the rules above but apply it to all three bottles. For example, if Bottles 1, 2, and 3 had VSRs of 100, 200, and 400, respectively, then the composite would be composed of 4-parts from Bottle 3, 2-parts from Bottle 2, and 1-part from Bottle 1.

6.1.5 Volume-to-Sample Ratios are typically multiples of each other and are rarely fractions of each other. This is simply to make compositing bottles with different VSRs easier.

6.1.6 Rarely does an instance occur in which the VSR of Bottle 1 is HIGHER than that of Bottle 2. The only reason for this would be if the runoff was grossly overestimated and "Sample Control" instructed a field crew to pull Bottle 1 early and lower the VSR for Bottle 2.

6.2 **Determining Water Volume Needed and the Fate of Any Excess Water:** Compositing multiple composite bottles can often be done using only those bottles, or may require "dirtying" or "sacrificing" a clean composite bottle. The different reasons are described below.

6.2.1 **Determine sample volume needed:** The minimum volume of sample water needed for filling the numerous sample analyte containers must be known, or calculated on the spot. This is done by simply adding up the volumes of all sample containers to be filled. If there is not enough sample water (after compositing) to fill all the containers then consult with the project manager to determine what the order of priority is for the analyses (i.e., in what order to fill the containers). It is also useful to know the absolute minimum sample volumes needed by the laboratory to perform each analysis; some sample containers may not need to be filled completely.

6.2.2 **Determine if excess water is to be saved:** If the composite bottles are mostly full then it is likely that much of the sample water will be left over from the sub-sampling process. In this case it is sometimes prudent to save the left over sample water (on ice) for several days in case problems occur with the laboratory and more water is needed. Always check with the project manager on this point because it <u>may</u> require dirtying (sacrificing) a clean composite bottle to make the composite in. If any excess water is not to be saved then compositing can always be done in the existing composite sample bottles: while being homogenized on a stir plate the excess sample water is simply discarded (pumped out in a calculated fashion), making room for the final composite.

6.2.3 **Plan on making as large a composite as possible:** If, for example, only 8 liters of sample water are needed but there is enough water to make a higher volume composite then it is prudent to do so. This is to account for any accidental spills and, if required, to the save enough excess water for possible re-analysis. There generally will never be a need to make a composite greater than a single 20-L composite bottle.

6.2.4 **If only one composite bottle exists from a station:** Simply follow the procedures for sub-sampling into numerous sample containers described in Section 6.5.

6.3 **Compositing Without Saving Excess Water:** This procedure also applies to instances in which there may not be excess water. For the sake of clarity an example will be used to explain the following steps. In this example three 20-L composite bottles are involved in creating a composite: Bottle 1 has 20 liters of sample water and was filled at a Volume to Sample Ratio (VSR) of 100; Bottle 2 has 20 liters and a VSR of 200; Bottle 3 has 20 liters and a VSR of 400. Sample water will be composited in Bottle 3. Most bottles have 1 liter graduations; if some don't then sample depth must be used to figure the fraction of water to be transferred.

6.3.1 Carefully place Bottle 3 on a large spin plate and gently drop a pre-cleaned stir-bar into the bottle and adjust the speed of the spin plate to optimize the mixing of the sample water throughout the bottle. The speed at which the stir-bar is spun should be adjusted so that even mixing is achieved. Speeds that are too fast will create a large vortex within the composite bottle that can actually concentrate heavier particles and should be avoided. Settling on a particular speed is based on a subjective visual assessment of what speed produces the most even, random mixing throughout the composite bottle.

6.3.2 Install a pre-cleaned sub-sampling hose into a peristaltic pump. Carefully remove the plastic cover which protects the approximately 18 inches of its exterior surface which has been cleaned. Insert this end into Bottle 3. Uncap the other end of the sub-sampling hose and ready it over a waste bucket.

6.3.3 While being mixed on the stir plate pump 10 liters into the waste bucket, leaving 10 liters in Bottle 3. This is best performed by two people. One person is responsible for filling the waste bucket and one person is responsible for moving the intake tubing up and down in the water column of the composite sample and controlling the pump. Based on experimental evidence, this up and down movement of the intake helps obtain (or, in this case discard) a more representative sample. This is because there can still be some stratification of heavier particles in the sample bottle despite the mixing created by the stirrer. The up and down movement of the intake tubing should be limited to 80-90 percent of the water depth and should never touch the bottom of the sample bottle.

6.3.4 Remove Bottle 3 from the stir plate and replace with Bottle 2 and insert a new stir-bar and mix as described in Section 6.3.1. Keeping the sub-sampling hose clean (avoid setting it down or bumping it into objects), insert the intake end into Bottle 2. Using the methods described in Section 6.3.3 pump only 5 liters from Bottle 2 into Bottle 3, making a total of 15 liters. **NEVER INSERT THE "DIRTY" EFFLUENT END OF THE HOSE INTO ANY BOTTLE.**

6.3.5 Repeat the actions in Section 6.3.4 with Bottle 1, pumping only 2.5 liters of Bottle 1 into Bottle 3, making a total of 17.5 liters of composited water.

6.3.6 Note that this process cannot generate any excess composite water because there is none left from Bottle 3 that has not been contaminated in the waste bucket.

6.4 **Compositing While Also Saving Excess Water:** This is identical to the procedures described in Section 6.3 with one difference: the first 10 liters of Bottle 3 is pumped into a clean 20-L bottle instead of into a waste bucket. This "dirties" a fourth bottle but ensures that excess sample water can be kept and composited again, if desired.

6.5 **Sub-sampling Composited Water into Sample Containers:** This is the final stage in successfully filling a suite of sample analyte containers with composited water that is representative of an entire sampling event.

6.5.1 Place the composite bottle containing the composited water on the stir plate and achieve proper mixing.

6.5.2 Uncap and arrange all the sample containers to be filled in such a way that they can be easily filled. Due to the vibration of the peristaltic pump on the sub-sampling hose it takes a very steady hand to efficiently guide the stream of sample water into the containers. **NEVER INSERT THE "DIRTY" EFFLUENT END OF THE HOSE INTO THE SAMPLE CONTAINERS.** It is often necessary to steady the sample containers with a second hand so they do not fall over.

7.0 PERSONNEL

Only personnel that have been trained in the use of the proper safety equipment, as per the are allowed to complete this task. . The Laboratory Supervisor is responsible for training personnel in the proper procedures in composite sample bottle, teflon sample hose and silicon peristaltic tubing, and stir bar cleaning.

8.0 QUALITY ASSURANCE REQUIREMENTS

The composite sample bottles and sub-sampling hoses must have been evaluated ("blanked") for contaminants after their initial decontamination procedure.

GENERAL FIELD SAMPLING PROCEDURE FOR:

Grab Samples

1.0 SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) describes the procedures involved in the discrete manual sampling (grab sampling) of storm water for a nonpoint source (NPS) monitoring program. The purpose of these procedures is to ensure contaminant free samples, and to ensure the safety of the personnel involved.

2.0 DEFINITIONS

2.1 Sample Containers – any EPA or laboratory specified clean container that is used to collect sample water.

2.2 Grab Pole – used to obtain grabs from locations where it is impossible or too dangerous (fast current, storm drain pipe, etc.) to manually obtain a sample.

3.0 PERSONNEL

Only personnel that have been trained in the use of the proper safety equipment are allowed to complete this task. Training needs to include the proper sampling techniques and station hazards that will be encountered while performing this task. The Project Manager is responsible for training personnel in these procedures.

4.0 EQUIPMENT

4.1 Instrumentation – see section 12.0 Physical Parameters

4.2 Reagents – preservatives will be supplied by the laboratory that supplies the sample bottles. Usually, the preservative is a concentrated acid (HNO_3, H_2SO_4, HCl or other).

4.3 Apparatus – a telescoping grab pole with a bottle holding device secured to one end. The bottle holding device is made of plastic and Velcro. It is designed to hold in place sample bottles of various sizes and types.

4.4 Documentation – time, date, location, number of containers and type of grab (whether for chemical analysis or physical parameters) must be noted in the station log book for that station.

5.0 PROCEDURES

Grab sampling methods will be discussed for the following analytes:

Metals and Total Cyanide

Oil and Grease

Fecal Coliform and Fecal Streptococci

Volatile Organic and Aromatic Compounds (VOA's)

Organic Compounds (Pesticides, PAHs, PCBs, SVOCs, etc.)

Physical Parameters

6.0 GRAB SAMPLING TECHNIQUES

6.1 Grab sampling may be conducted at any time during the storm event, depending upon the specific project requirements. The type of grab study might vary as the storm season progresses and the scope requirements deem necessary. These might include:

6.1.1 **Discrete Grabs** – Taken once during the storm event at a predetermined time, usually at peak flow.

6.1.2 **Persistent Grabs** – A schedule of discrete grabs which continue through the end of the storm to show a rate of change over time.

6.1.3 **First Flush** – A type of discrete grab to be taken within the first thirty minutes of the storm event.

For the majority of grab sample studies, discrete grabs will be required. Grabs will be taken on the rising hydrocurve of the storm event and as close to peak stage as is feasible. The times of these grabs will be decided by the Storm Control and/or Shift Leader and will be relayed to the field crews.

6.2 Depending upon then type of analyte being sampled, the technique may vary but all sampling **MUST** follow these general rules to minimize contamination:

6.2.1 Grab bottles are to be filled as near to the intake as is safely possible.

6.2.2 When unable to obtain a sample near the intake, take one as near to the center of flow as possible or in an area of sufficient velocity to ensure good mixing

6.2.3 The field personnel taking grab samples must be standing downstream from the sample bottle when filling.

6.2.4 The mouth of the bottle must be facing into the current.

6.2.5 Raise and lower the bottle through the water column so the sample is not biased with only one level sampled.

6.2.6 Manhole sites and inaccessible stream sites are best sampled with a grab pole.

7.0 METALS AND TOTAL CYANIDE

Samples to be analyzed for metals and cyanide are grabbed in a plastic or Teflon® container. Metals and total cyanide will require a preservative in the container (see Section 4.2). These grabs require extra care so as to not overfill the container and spill out any of the preservative, or allow the preservative to come into contact with the skin.

Metals sample bottles contain an acid preservative (HNO_3) and total cyanide sample bottles contain a base (NaOH) for a preservative. When the grab container is being filled manually, the level of water can be watched so the container is not overfilled. When the sample cannot be taken by hand and must be taken with a grab pole, the filling becomes a bit more difficult. Lower the container with the grab pole and watch for escaping air bubbles when submerged. Pull the sample bottle out frequently to check the water level accumulated and quit filling when that level has reached the "shoulder" of the bottle. Be sure **NOT TO OVERFILL THE SAMPLE BOTTLE**; this would spill the preservative compromising the sample and possibly endangering the person sampling.

8.0 OIL AND GREASE

Oil and grease samples are very similar to metals in that the bottles contain preservative and **MUST NOT BE OVERFILLED**. Oil and grease analysis requires that the sample be taken in glass containers, usually amber and usually in duplicate (in case of breakage). Fill these containers in the same exact way as mentioned above for metals analysis.

9.0 FECAL COLIFORM AND FECAL STREPTOCOCCI

Fecal coliform and fecal streptococci are usually grabbed in bacteria bottles or urine analysis cups. They contain a residual chlorine removal preservative tablet and should be filled to the sample container fill line when sampling. Wear protective gloves so that there is no skin contact with the interior of the container. The main precaution is not to contaminate the sample when opening the cup. Fill each cup completely and secure the cap.

10.0 VOLATILE ORGANIC AND AROMATIC COMPOUNDS (VOA'S)

Collecting water for Volatile Organic Compounds (VOA) requires extreme care. VOA's volatilize (enter the gaseous phase very quickly), thus, sample vials are designed to prevent this. These vials will leave no headspace (air bubbles) in a properly filled container because they have a septa cap , thereby minimizing loss of analyte to the atmosphere.

To fill a VOA vial, lower it into the water column and allow it to **FILL UP COMPLETELY** (until a water dome is formed over the top of the vial). VOA's must be preserved with HCl so take extra care not to spill any of this preservative. Very carefully place the septa cap onto the vial so no air is introduced, start with the cap tilted to one side and gently lower it until it is seated onto the threads of the vial and secure. Make sure there is no air in the vial by inverting the sample. If air bubbles show, a new sample must be taken using a new vial and the bad container and sample must be returned to the lab for proper disposal. **See Section 13.0 for additional precautions to be taken with VOA vials.**

11.0 ORGANIC COMPOUNDS (PESTICIDES, PAHs, PCBs, SVOCS, etc.)

Organic compound samples are collected in glass containers, usually amber. These samples generally do not require preservatives but should be filled in the same way as those collected for metals, and oil and grease analyses.

12.0 PHYSICAL PARAMETERS

Each time a station is visited during a storm event, certain physical parameters must be measured. Generally, at a minimum, pH and temperature are measured. Follow the instructions that are included with the field instrumentation used for the best results. There are many different brands of meters that require different techniques.

Take the measurements as close to the grab sampling point as possible while keeping safety a priority. A grab sample may be taken and analyzed somewhere more convenient and safe than the stream edge. Remember that the analysis on a grab sample should be performed "as soon as possible" to ensure as accurate measurements (pH, temperature, etc.) as possible. Record all results in the log book for that station and be sure to write in the units of measurement.

13.0 QUALITY CONTROL LIMITS

Grab sample containers must come from a reputable distributor and be certified clean for the analyte to be sampled. They must also be properly preserved and labeled prior to sampling. Transport the bottles in clean coolers accompanied with any required paperwork or instructions.

Immediately upon completion of sampling, return the sample bottles to a clean cooler and ice them down to 4°C. Recheck to be certain that all the information on the label is correct (date, time, location, analysis, preservative, etc.). Fill out the required paperwork and station log book sheets and transfer the samples to a predetermined pick-up location for the Analytical Laboratory.

13.1 For some storm sampling events, different Quality Assurance and Quality Controls (QA/QC) will be implemented. These will include:

13.1.1 Field Duplicates – Additional set of sample bottles grabbed at the same location and time as the actual sample. This sample may be given its own mock station identification and be submitted to the Analytical Laboratory blind.

13.1.2 Field Blanks – This is a full set of sample bottles (usually minus TSS and turbidity) containing reagent grade analyte free water provided by the Analytical Laboratory that will be doing the analysis. These samples are poured by hand from clean bottles containing the blank water into a labeled sample container. These sample bottles may be given a mock station identification and submitted blind as well.

13.1.3 Trip Blanks – Usually required for very sensitive samples (VOA's). The Analytical Laboratory will provide sample bottles already filled with reagent grade analyte free water that will make the full "trip" from the lab, out into the field and back into the lab. **THESE CONTAINERS ARE NOT TO BE OPENED**.

Trip blanks are only analyzed if contamination is suspected. If analyzed and contamination is found, they usually warrant further investigation and subsequent sampling.

13.1.4 **Matrix Spiking and Lab Replicates** – These analyses can usually be taken from a sample bottle already sent into the field and do not require extra bottles, however, extra volume may be required at these stations.

13.2 While performing or preparing for grab sampling, be sure that no "outside" contamination will occur:

13.2.1 No engines are running in the general vicinity of sampling.

13.2.2 Sample containers are clean and intact.

13.2.3 Sample containers are properly labeled and meet bottle requirements for that analyte (size, type, preservative, type of cap liners, etc.).

13.2.4 Sample techniques are proper and safe.

13.3 **Volatile Organic and Aromatic Compounds (VOA's)** – require very special handling.

13.3.1 VOA vials are very fragile. Protect with adequate foam packing material.

13.3.2 VOA bottles should have no headspace (see Section 10.0). This means that they are subject to freezing. **Prevent direct contact of VOA vial with ice by using additional packaging.**

Los Angeles Regional Water Quality Control Board

April 28, 2015

Permittees of the Lower San Gabriel River Watershed Management Group[1]

APPROVAL, WITH CONDITIONS, OF THE LOWER SAN GABRIEL RIVER GROUP'S WATERSHED MANAGEMENT PROGRAM (WMP), PURSUANT TO THE LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NPDES PERMIT NO. CAS004001; ORDER NO. R4-2012-0175) AND THE CITY OF LONG BEACH MS4 PERMIT (NPDES PERMIT NO. CAS004003; ORDER NO. R4-2014-0024)

Dear Permittees of the Lower San Gabriel River Watershed Management Group:

On November 8, 2012, the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board or Board) adopted Order No. R4-2012-0175, *Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach* (hereafter, LA County MS4 Permit). On February 6, 2014, the Board adopted Order No. R4-2014-0024, *Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City of Long Beach* (hereafter, Long Beach MS4 Permit). Part VI.C of the LA County MS4 Permit and Part VII.C of the Long Beach MS4 Permit allow Permittees the option to develop either a Watershed Management Program (WMP) or an Enhanced Watershed Management Program (EWMP) to implement permit requirements on a watershed scale through customized strategies, control measures, and best management practices (BMPs).

Development of a WMP or EWMP is voluntary and allows a Permittee to address the highest watershed priorities, including complying with the requirements of Part V.A (Receiving Water Limitations), Part VI.E and Attachments L through R (Total Maximum Daily Load Provisions), and by customizing the control measures in Parts III.A (Prohibitions – Non-Storm Water Discharges) and VI.D (Minimum Control Measures), except the Planning and Land

[1] Permittees of the Lower San Gabriel River Management Group include the Los Angeles County Flood Control District and the cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, and Whittier. See attached distribution list.

Development Program, of the LA County MS4 Permit.[2] Pursuant to Part VI.C.4.c of the LA County MS4 Permit and Part VII.C.4.c of the Long Beach MS4 Permit, the Permittees of the Lower San Gabriel River Watershed Management Group (LSGR WMG) jointly submitted a draft WMP dated June 27, 2014, to the Los Angeles Water Board for review.

Public Review and Comment

On July 3, 2014, the Board provided public notice and a 46-day period to allow for public review and comment on the LSGR WMG's draft WMP. A separate notice of availability regarding the draft WMPs, including the LSGR WMG draft WMP, was directed to State Senators and Assembly Members within the Coastal Watersheds of Los Angeles County. The Board received two comment letters that had comments on WMPs generally, which were in part applicable to the LSGR WMG draft WMP. One joint letter was from Natural Resources Defense Council (NRDC), Heal the Bay, and Los Angeles Waterkeeper, and the other letter was from the Construction Industry Coalition on Water Quality (CICWQ). On October 9, 2014, the Board held a workshop at its regularly scheduled Board meeting on the draft WMPs. The Board also held a public meeting on April 13, 2015 for permittees and interested persons to discuss the revised draft WMPs with the Executive Officer and staff. During its initial review and its review of the revised draft WMP, the Los Angeles Water Board considered those comments applicable to the LSGR WMG's proposed WMP.

Los Angeles Water Board Review

Concurrently with the public review, the Los Angeles Water Board, along with U.S. EPA Region IX staff, reviewed the draft WMPs. On October 28, 2014, the Los Angeles Water Board sent a letter to the LSGR WMG detailing the Board's comments on the draft WMP and identifying the revisions that needed to be addressed prior to the Board's approval of the LSGR WMG's WMP. The letter directed the LSGR WMG to submit a revised draft WMP addressing the Los Angeles Water Board's comments. Prior to the LSGR WMG's submittal of the revised draft WMP, Board staff had a meeting on January 23, 2015 with LSGR WMG representatives and consultants to discuss the Board's comments and the revisions to the draft WMP, including the supporting reasonable assurance analysis (RAA), which would address the Board's comments. The LSGR WMG submitted a revised draft WMP on January 28, 2015 for Los Angeles Water Board review and approval.

[2] Equivalent requirements in the Long Beach MS4 Permit are as follows: Part VI.A (Receiving Water Limitations), Part VIII (Total Maximum Daily Load Provisions), Part IV.B (Prohibitions – Non-Storm Water Discharges), and Part VII.D-VII.M (Minimum Control Measures).

Approval of WMP, with Conditions

The Los Angeles Water Board hereby approves, subject to the following conditions, the LSGR WMG's January 28, 2015 revised draft WMP. The Board may rescind this approval if all of the following conditions are not met to the satisfaction of the Board within the timeframe provided below.

1. Revise Table 5-1 of the revised draft WMP to state that for control measures listed as being a "jurisdictional effort," the Permittees that are responsible for milestone completion are identified in Table 3-5.
2. Revise Table 5-1 of the revised draft WMP to include the milestones and milestone completion dates for the following targeted control measures (TCMs) as follows:
   a. TCM-PLD-2 (LID Ordinance): Remove the phrase "when practicable" and set a milestone date for ordinance adoption to 12/28/17 (i.e., end of permit term).
   b. TCM-TSS-1 (Exposed Soil Ordinance): Remove the phrase "if practicable" from the milestone description.
   c. TCM-TSS-3 (Private Lot Sweeping Ordinance): Remove the phrase "when practicable" from the milestone description.
   d. TCM-RET-1 (Encourage downspout disconnects): Identify interim milestone(s) and date(s) for milestone achievement and include in table.
3. Revise Section 5.2 of the revised draft WMP to include a table that lists definitive interim and final milestone achievement dates and the responsible Permittees for the Proposition 84 projects. Currently, the revised draft WMP only provides "expected" dates for construction and completion. The responsible Permittees within the LSGR WMG will be responsible for meeting these milestone achievement dates.
4. In Section 4.3 of the revised draft WMP, include references to Table 3-2, Table 3-5, and any other relevant tables that list BMPs contributing to the 10% pollutant reduction assumption for non-modeled BMPs.
5. Provide further detail and specificity in Section 3.4.1.3 of the revised draft WMP on what incentives are being included in TCM-NSWD-1 and whether any incentives are being offered apart from Metropolitan Water District's rebate program.
6. Revise the last sentence of Section 5.4.14 of the revised draft WMP to the following: "If it is determined through the adaptive management process that required bacteria load reductions may not be met by controlling for zinc, then the WMP will be modified to incorporate bacteria milestones with measureable criteria or indicators consistent with any future bacteria TMDL for the San Gabriel River and with, at the latest, a final deadline of 2040."
7. The City of Long Beach submitted its Statement of Legal Authority to the Los Angeles Water Board on February 26, 2015. Include this Statement of Legal Authority in the WMP appendix section containing the other Permittees' legal authority statements.

The LSGR WMG shall submit a final WMP to the Los Angeles Water Board that satisfies all of the above conditions no later than June 12, 2015.

Determination of Compliance with WMP

Pursuant to Part VI.C.6 of the LA County MS4 Permit and Part VII.C.6 of the Long Beach MS4 Permit, the Permittees of the LSGR WMG shall begin implementation of the approved WMP immediately. To continue to be afforded the opportunity to implement permit provisions within the framework of the WMP, Permittees must fully and timely implement all actions per associated schedules set forth in the approved WMP regardless of any contingencies indicated in the approved WMP (e.g., funding) unless a modification to the approved WMP, including any extension of deadlines where allowed, is approved by the Los Angeles Water Board pursuant to Part VI.C.6.a or Part VI.C.8.a.ii-iii of the LA County MS4 Permit, and/or Part VII.C.6 or Part VII.C.8.b-c of the Long Beach MS4 Permit. The Los Angeles Water Board will determine the LSGR Permittees' compliance with the WMP on the basis of the compliance actions and milestones included in the WMP, including, but not limited to, the following:

- Pollutant Reduction Plan to Attain Interim & Final Limits (Section 5.4)
- Nonstructural Best Management Practices Schedule (Section 5.1)
- Table 3-2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures (Section 3.2.4)
- Table 3-5 Nonstructural TCMs (Section 3.4.1)
- Proposition 84 Grant Award LID BMPs (Section 5.2)
- Structural Best Management Practice Schedule (Section 5.3)
- RAA Attachment B: Detailed Jurisdictional Compliance Tables

Pursuant to Parts VI.C.3 and VI.E.2.d.i.(4)(a) of the LA County MS4 Permit[3], the LSGR Permittees' full and timely compliance with all actions and dates for their achievement in their approved WMP shall constitute compliance with permit provisions pertaining to applicable WQBELs/WLAs in Part VI.E and Attachments N and P of the LA County MS4 Permit.[4] Further, per Part VI.C.2.b of the LA County MS4 Permit and Part VII.C.2.e of the Long Beach MS4 Permit, the LSGR Permittees' full compliance with all requirements and dates for their achievement in their approved WMP constitutes compliance with the receiving water limitations provisions of Part V.A of the LA County MS4 Permit and Part VI.A of the Long Beach MS4 Permit for the specific waterbody-pollutant combinations addressed by their approved WMP.

[3] Corresponding provisions in the Long Beach MS4 Permit are Parts VII.C.3 and VIII.E.1.d.

[4] Corresponding provisions in the Long Beach MS4 Permit are Part VIII (general TMDL provisions) and Parts VIII.P and VIII.Q (provisions specific to the Greater Harbors and San Gabriel River Watershed TMDLs).

If the Permittees in the LSGR WMG fail to meet any requirement or date for its achievement in the approved WMP, which will be demonstrated through the LSGR WMG's Annual Reports and program audits (when conducted), the Permittees in the LSGR WMG shall be subject to the baseline requirements of the LA County MS4 Permit and the Long Beach MS4 Permit, including demonstrating compliance with applicable receiving water limitations and TMDL-based WQBELs/WLAs through outfall and receiving water monitoring. See Parts VI.C.2.c and VI.E.2.d.i.(4)(c) of the LA County MS4 Permit, and Parts VII.C.2.f and VIII.E.1.d.iii of the Long Beach MS4 Permit.

Annual Reporting

The LSGR WMG shall report on achievement of actions and milestones within the reporting year, as well as progress towards future milestones related to multi-year projects, through their Annual Report per Attachment E, Part XVIII of the LA County MS4 Permit and Attachment E, Parts XV to XIX of the Long Beach MS4 Permit. For multi-year efforts, the LSGR WMG shall include the status of the project, which includes the status with regard to standard project implementation steps. These steps include, but are not limited to, adopted or potential future changes to municipal ordinances to implement the project, site selection, environmental review and permitting, project design, acquisition of grant or loan funding and/or municipal approval of project funding, contractor selection, construction schedule, start-up, and effectiveness evaluation (once operational), where applicable. For all stormwater retention/infiltration projects, including LID due to new/redevelopment, green streets, and regional BMPs, the Permittees in the LSGR WMG shall report annually on the volume of stormwater retained in the area covered by the LSGR WMG WMP. The LSGR WMG shall also report annually on runoff reduction, total suspended solids (TSS) reduction, and pollutant reductions from source control.

The LSGR WMG shall also include in their Annual Report the source(s) of funds used during the reporting year, and those funds proposed for the coming year, to meet necessary expenditures related to implementation of the actions identified in its WMP per Part VI.A.3 of the LA County MS4 Permit and Part VII.A.3 of the Long Beach MS4 Permit. Further, as part of the annual certification concerning a Permittee's legal authority required by Part VI.A.2.b of the LA County MS4 Permit and Part VII.A.2.b of the Long Beach MS4 Permit, each Permittee in the LSGR WMG shall also certify in the Annual Report that it has the necessary legal authority to implement each of the actions and milestones in the approved WMP as required by Part VI.C.5.b.iv.(6) of the LA County MS4 Permit and Part VII.C.5.vi of the Long Beach MS4 Permit. If a Permittee does not have legal authority to implement an action or milestone at the time the LSGR WMG submits their Annual Report, the Permittee shall propose a schedule to establish and maintain such legal authority.

Adaptive Management

The LSGR WMG shall conduct a comprehensive evaluation of its WMP no later than April 28, 2017, and subsequently, every two years thereafter pursuant to the adaptive management process set forth in Part VI.C.8 of the Los Angeles County MS4 Permit and Part VII.C.8 of the Long Beach MS4 Permit. As part of this process, the LSGR WMG must evaluate progress toward achieving:

- Applicable WQBELs/WLAs in Attachments N and P of the LA County MS4 Permit and Parts VIII.P and VIII.Q of the Long Beach MS4 Permit according to the milestones set forth in its WMP;
- Improved water quality in MS4 discharges and receiving waters;
- Stormwater retention milestones; and
- Multi-year efforts that were not completed in the current year and will continue into the subsequent year(s), among other requirements.

The LSGR WMG's evaluation of the above shall be based on both progress implementing actions in the WMP and an evaluation of outfall-based monitoring data and receiving water data. Per Attachment E, Part XVIII.6 of the LA County MS4 Permit and Attachment E, Part XVIII.6 of the Long Beach MS4 Permit, the LSGR WMG shall implement adaptive management strategies, including but not limited to:

- Refinement and recalibration of the Reasonable Assurance Analysis (RAA) based on data specific to the LSGR WMP area that are collected through the LSGR WMG's Coordinated Integrated Monitoring Program and other data as appropriate;
- Identifying the most effective control measures, why they are the most effective, and how other control measures can be optimized based on this understanding;
- Identify the least effective control measures, why they are ineffective, and how the control measures can be modified or replaced to be more effective;
- Identify significant changes to control measures during the prior year(s) and the rationale for the changes; and
- Describe all significant changes to control measures anticipated to be made in the next year(s) and the rationale for each change.

As part of the adaptive management process, any modifications to the WMP, including any requests for extension of deadlines not associated with TMDL provisions, must be submitted to the Los Angeles Water Board for review and approval. The Permittees of the LSGR WMG must implement any modifications to the WMP upon approval by the Los Angeles Water Board or its Executive Officer, or within 60 days of submittal of modification if the Los Angeles Water Board or its Executive Officer expresses no objections. Note that the LA County MS4 Permittees' Report(s) of Waste Discharge (ROWD) are due no later than July 1, 2017 and the City of Long Beach's ROWD is due no later than September 29, 2018. To align any modifications to the WMP proposed through the adaptive management process with permit reissuance, results of the first adaptive management cycle should be submitted in conjunction with the Permittees' ROWD.

Review by the State Water Board

The Los Angeles Water Board appreciates the participation and cooperation of the LSGR WMG in the implementation of the LA County MS4 Permit. If you have any questions, please contact Chris Lopez at Chris.Lopez@waterboards.ca.gov or by phone at (213) 576-6674. Alternatively, you may also contact Ivar Ridgeway, Storm Water Permitting, at Ivar.Ridgeway@waterboards.ca.gov or by phone at (213) 620-2150.

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer

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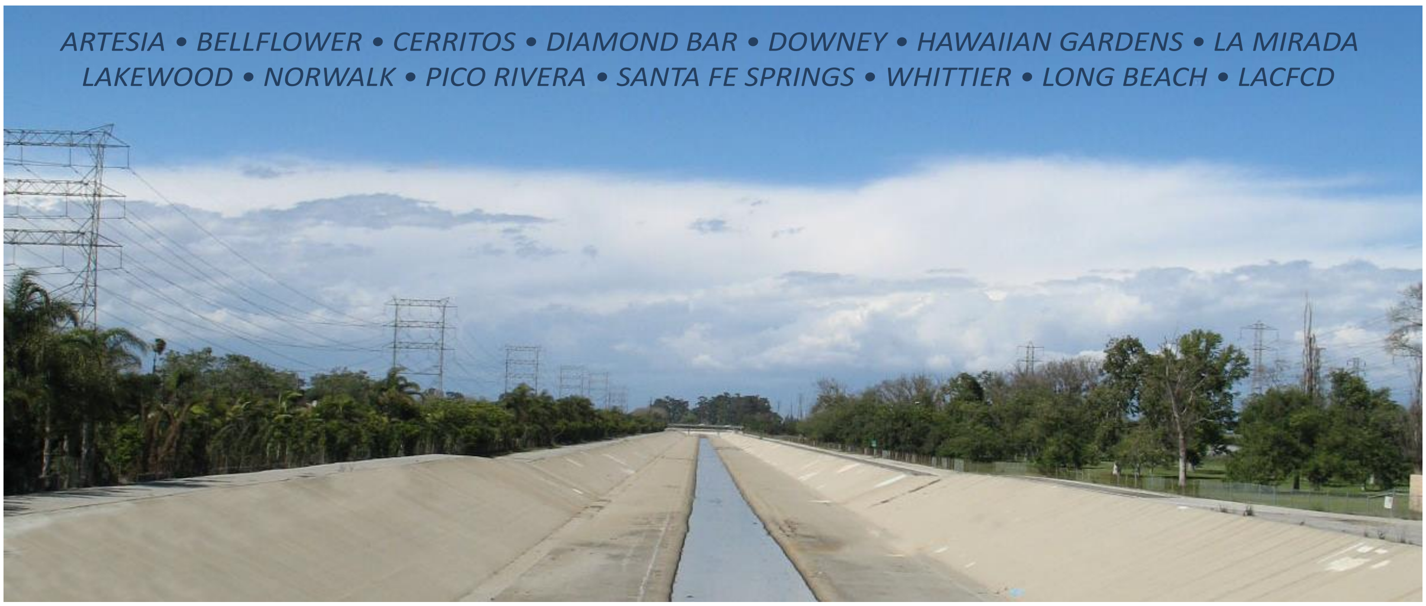
Lower San Gabriel River Watershed Management Program

June 12, 2015



Prepared For:

Lower San Gabriel River Watershed Group

Prepared By:

John L. Hunter AND ASSOCIATES, INC.

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EXECUTIVE SUMMARY

This Watershed Management Program (WMP) sets forth a path to achieve reductions in the pollutants in the waterbodies of the Lower San Gabriel River and its tributaries. The WMP includes: a discussion of existing and planned watershed control measures; a Reasonable Assurance Analysis (RAA) based upon the Watershed Management Modeling System previously developed by the Los Angeles County Flood Control District in collaboration with the USEPA; and a Coordinated Integrated Monitoring Program (CIMP) being implemented over a four year period which began in 2013 with the installation of an early action monitoring site.

The agencies of the Lower San Gabriel River (SGR) Watershed have been working cooperatively towards the goal of a cleaner watershed for several years. In 2011 the cities tributary to Coyote Creek (a major tributary of the San Gabriel River) formed a Technical Committee to address the USEPA's Metals TMDL. As the Regional Board neared completion of the current fourth term MS4 Permit, and as many of the Technical Committee agencies also had areas tributary to the San Gabriel River and in some cases San Jose Creek, the Technical Committee rapidly expanded to include these areas. Funding for the Technical Committee was originally approved by City Councils and agency governing boards through a Memorandum of Understanding (MOU) for the TMDL, which was quickly superseded by a second MOU with funding through December 31, 2022, for selected activities pertaining to the WMP and CIMP provisions of the fourth term MS4 permit. Through this cooperative effort, the Technical Committee requested and supported the Regional Board's effort to adopt a Basin Plan Amendment for a Metals TMDL implementation schedule which was accomplished in June of 2013. This cooperative effort continues and in 2014, the Watershed Group was notified of their successful multi-city grant application (as part of a larger Gateway effort) to install 17 LID BMPs along selected major thoroughfares.

Prior to 2012, MS4 permits required cities and agencies to implement a series of best management practices such as street sweeping and catch basin cleaning to demonstrate compliance. With the adoption of the fourth term MS4 permit by the Los Angeles Regional Water Quality Control Board on November 8, 2012, the emphasis shifted to a more watershed based effort that includes the goals of achieving specific pollutant targets as runoff leaves the storm drain system and enters the main river channels. This WMP and the accompanying RAA and CIMP constitute the first step in that watershed based effort.

The jurisdictional boundaries of the Lower San Gabriel River Watershed are complex. Coyote Creek has a larger drainage area in Orange County which is under a separate MS4 Permit issued by a different Regional Board. Efforts to coordinate activities between the areas of Orange and Los Angeles County are in their infancy and would benefit from a realignment of the two MS4 Permits. Many Cities have drainage areas in multiple watersheds. To facilitate the implementation of control measures and minimize the impact of multiple watershed implementation plans within a single city, the Cities have combined the efforts of the Lower Los Angeles River Watershed and the Los Cerritos Channel to create similar Watershed Management Programs. Two cities have areas that drain to San Jose Creek, also tributary to the San Gabriel River – these areas have been included in this WMP.

This WMP is a long-term planning document that takes a comprehensive look at the Lower SGR Watershed, including its land uses, MS4 system, existing and planned control measures (both structural and nonstructural), existing storm water treatment systems, historical monitoring data and the various segments of the San Gabriel River and its tributaries that have been identified as impaired by various pollutants. Using that data, the Watershed Management Modeling System, one of the three modeling system authorized by the MS4 Permit, is used to generate a Reasonable Assurance Analysis (RAA) which predicts an optimal combination of structural treatment systems and construction timelines to achieve the goals of the MS4 Permit. The RAA spreads responsibility for implementation of future treatment systems amongst all Participating Agencies.

The RAA identifies wet weather zinc as the primarily pollutant of concern[1]. This means that by designing treatment systems and other nonstructural controls measures for zinc, the targets for other pollutants of concern will also be met. The first target for zinc occurs in 2017, when 10 percent wet weather reduction of zinc must be demonstrated. The next targets specified in the MS4 Permit occur in 2020, 2023 and 2026 when 35, 65 and 100 percent respectively of the wet weather zinc reductions must be demonstrated. This WMP establishes milestones that are to be met through the implementation of enhanced nonstructural control measures (such as the City of Whittier's existing vacant parcel sediment ordinance that targets sediment reduction) and construction of structural treatment projects (such as the City of Downey's Discovery Park infiltration system and over 500 existing individual treatment systems).

The RAA provides a recommended volume of runoff on a city-by-city basis that must be treated in order to meet the milestones. In total, the RAA establishes a final (2026) goal of capturing and treating a cumulative 37 acre feet in the San Gabriel and 81.6 acre feet in the Coyote Creek portions of the Lower SGR Watershed. The ultimate cost will vary considerably depending on the availability and configuration of suitable treatment locations and effectiveness of nonstructural watershed control measures but is estimated to be cumulatively in the range of $33 to $65 million. The treatment volumes recommended by the RAA are estimates based on current land used data, historical monitoring and assumed treatment system efficiencies. The WMP also incorporates an adaptive management strategy to adjust and modify the various control measures as necessary.

A Coordinated Integrated Monitoring Program (CIMP) has been developed at a part of this WMP and greatly expands the monitoring of water quality in the Lower SGR Watershed. The CIMP goals are in part to measure the overall effectiveness of the control measures the Participating Agencies are implementing. Currently the Mass Emission Station operated by the Los Angeles County Flood Control District near the mouth of Coyote Creek is the only regularly monitored station in the watershed. A second Mass Emission Station located in the upstream section of the San Gabriel River near the Whittier Narrow Dam is conducting regular monitoring but due to its upstream location is only providing background and general health of the river monitoring information for the downstream portions of the San Gabriel River into which the Participating Agencies discharge.

[1] The discharge of copper is anticipated to be reduced as copper is removed from brake pads over the next decade.

The CIMP identifies five new monitor sites that will be phased in over a multi-year period and will include outfall and TMDL monitoring. The first of these sites has already been installed and is in operation at the base of the North Fork of Coyote Creek. Upon approval of the CIMP, a second station will be installed along the downstream portion of the San Gabriel River as it enters the estuary. Two stations will be added the following year and three potential sites have been identified for the year following that.

This WMP and its components, including Chapter 3 *Selection of Watershed Control Measures*, Chapter 4 *RAA* and Chapter 8 *CIMP* outline a path to achieve significantly improved water quality in the Lower SGR Watershed. The WMP outlines a path based on the optimal placement of treatment systems determined by the RAA, but this is not the only viable path. The agencies of the LSGR can follow the adaptive management strategy described in Chapter 9 to adjust the number, locations and sizes of future treatment systems as long as the timelines and goals of this WMP are followed. While this WMP has been developed to establish treatment and capture goals on an agency-by-agency basis, it does not preclude those agencies from collaborating (in actuality, collaboration is encouraged) on a regional and multi-agency basis.

As part of the overall collaborative and inclusive effort, this Draft Watershed Management Program was presented at a public stakeholder meeting at the Lakewood City Hall on April 30, 2014. The Watershed Control Measures, Reasonable Assurance Analysis and Coordinated Integrated Monitoring Programs were discussed and comments from interested members of the public were solicited.

1 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This Watershed Management Program (WMP) has been developed to implement the requirements of Los Angeles Regional Water Quality Control Board Order Nos. R4-2012-0175 and R4-2014-0024 (National Pollutant Discharge Elimination System (NPDES) Permit Nos. CA004001, CA004003 respectively) on a watershed scale. In addition, elements of this WMP relating to Total Maximum Daily Loads (TMDLs) address requirements of California State Water Resources Control Board Order No. 2012-0011-DWQ (the Caltrans Stormwater Permit) for those TMDLs within the watershed area as described in the Section 1.1.4. Combined, the Orders set forth waste discharge requirements for the Municipal Separate Storm Sewer (MS4) discharges by Caltrans, the Los Angeles County Flood Control District (LACFCD), the County of Los Angeles and 85 cities within the coastal watersheds of Los Angeles County (Permittees). These requirements include three fundamental elements: (i) effectively prohibit nonstormwater discharges through the MS4, (ii) implement controls to reduce the discharge of pollutants to the maximum extent practicable, and (iii) other provisions the Regional Water Board has determined appropriate for the control of such pollutants.[1] The ultimate goals of the WMP are listed in Section 1.2.3.

1.1.1 PARTICIPATING AGENCIES

This WMP is a collaborative effort of fourteen participating agencies with MS4 facilities within the subwatersheds[2] of Coyote Creek, Reaches 1, 2 and 3 of the San Gabriel River and San Jose Creek. For the purposes of this WMP, the area defined by the boundaries of the participating agencies with these subwatersheds is referred to as the Lower San Gabriel River Watershed (Lower SGR Watershed). The participating agencies and their respective MS4 stormwater Permits addressed by this WMP are listed in Table 1-1.

1.1.2 MS4 PERMITS ADDRESSED

As noted in Table 1-1, Caltrans and the City of Long Beach are regulated under their own MS4 Permits, separate from the Los Angeles MS4 Permit. The extent to which this impacts the contents of this WMP is explained in this section.

LONG BEACH AND LOS ANGELES MS4 PERMITS

The Long Beach and Los Angeles MS4 Permits, adopted by the Los Angeles Regional Water Quality Control Board (Regional Board) within 15 months of each other, contain similar language and requirements. Specifically, both Permits include an optional WMP approach to compliance. These similarities allow for the preparation of one WMP to address the requirements of both permits. Except

[1] LA County NPDES MS4 Permit Findings, page 20.

[2] Subwatersheds within this WMP are the "HUC-12 Equivalent" drainage areas as defined in 1.1.4.

where otherwise noted, the term *MS4 Permit* will refer exclusively to the Los Angeles and Long Beach MS4 Permits.

Table 1-1: Participating Agencies of the Lower SGR Watershed

Agency	Permit Order No.	Permit Name
Artesia	R4-2012-0175	Los Angeles County NPDES MS4 Permit (LA MS4 Permit)
Bellflower		
Cerritos		
Diamond Bar		
Downey		
Hawaiian Gardens		
La Mirada		
LACFCD[3]		
Lakewood		
Norwalk		
Pico Rivera		
Santa Fe Springs		
Whittier		
Long Beach	R4-2014-0024	Long Beach NPDES MS4 Permit (LB MS4 Permit)
Caltrans[3]	2012-0011-DWQ	Caltrans Stormwater Permit (Caltrans MS4 Permit)

CALTRANS STORMWATER PERMIT

Discharges to Caltrans' MS4 are regulated through the Caltrans MS4 Permit. Although the Caltrans Permit does not include a WMP compliance approach like the Los Angeles and Long Beach MS4 Permits, its TMDL provisions do require cooperation with agencies subject to the same TMDLs. As such, Caltrans' participation is restricted to those sections of the WMP related to TMDL requirements. Caltrans has acknowledged their intent to participate.

1.1.3 NON-PARTICIPATING AGENCIES

All other NPDES MS4 permitted agencies within these subwatersheds that are not listed in Table 1-1 have developed either individual or collaborative draft WMPs or draft EWMPs separately and are not participating in this WMP. Non-participating agencies include the County of Los Angeles (unincorporated areas), the City of La Habra Heights, multiple cities within and upstream of Reach 3 of the San Gabriel River and San Jose Creek and the agencies draining to Coyote Creek located within Orange County. Figure 1-1 shows the participating agencies within the Lower SGR.

[3] LACFCD and Caltrans participation is restricted to their land and stormwater facilities within the Lower SGR Watershed.

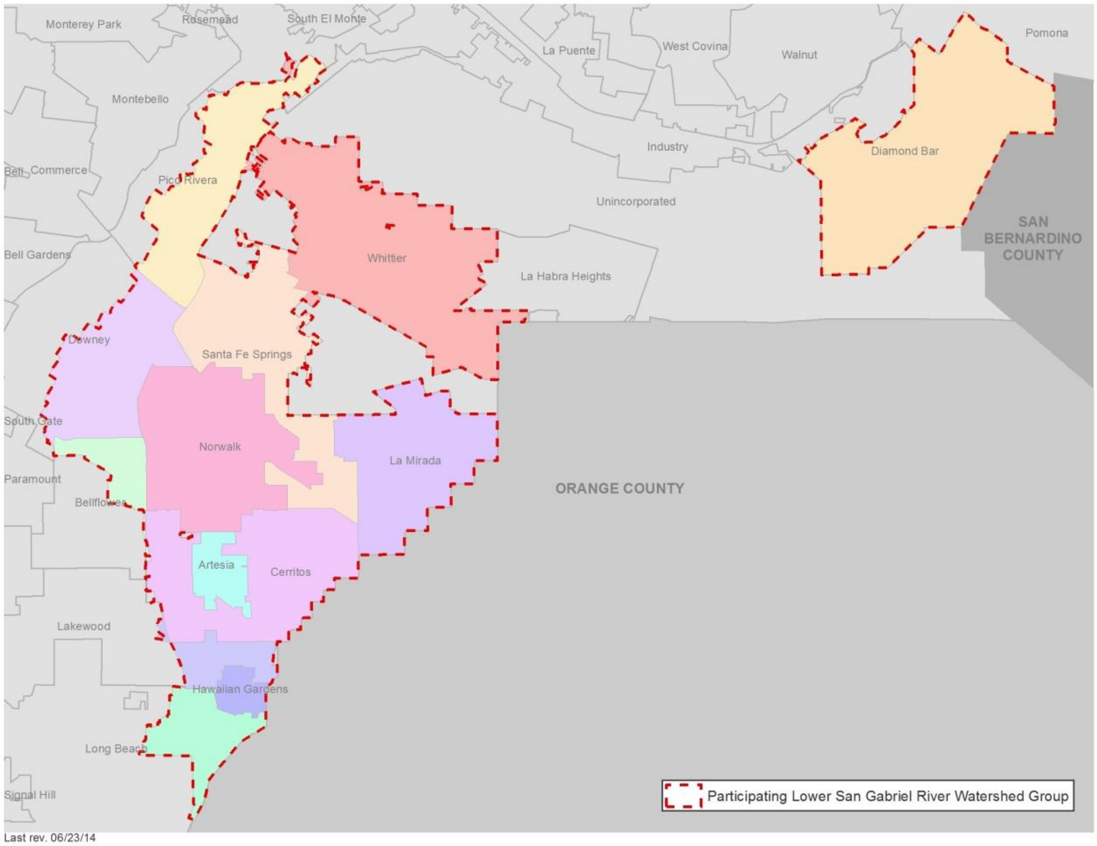


Figure 1-1: Participating Agencies map

1.1.4 THE LOWER SAN GABRIEL RIVER WATERSHED GROUP

DESIGNATION

Prior to the adoption of the MS4 permit, the participating agencies – with the exception of Caltrans, the LACFCD and the City of Pico Rivera – were under a Memorandum of Understanding to develop an Implementation Plan for the San Gabriel River Metals TMDL. After Permit adoption, this group decided to continue their collaborative efforts to develop a WMP. Caltrans, the LACFCD and the City of Pico Rivera decided to participate in this joint effort. The agencies' intent was to focus collective resources on water quality prioritization and implementation efforts to their shared receiving waters. The fourteen agencies submitted a Notice of Intent to develop a WMP to the Regional Board prior to the June 28, 2013[4], deadline and each signed a MOU to develop the WMP. Neighboring Los Angeles MS4 Permittees within the San Gabriel WMA chose to develop separate WMPs, either individually or collaboratively.

BOUNDARIES

The boundaries of the Lower SGR Watershed are both hydrological and jurisdictional. The jurisdictional boundaries, located in the east region, are primarily a consequence of the division of Coyote Creek

[4] The Notice of Intent was approved by the Regional Board on September 25, 2013

between the Counties of Los Angeles, Orange and San Bernardino. The Coyote Creek subwatershed is also split between Whittier and Diamond Bar, separated by the communities of La Habra Heights (incorporated) and Rowland Heights (unincorporated County), which are not participating in this WMP. In addition, the northeast boundary within the San Jose Creek subwatershed is defined by the jurisdictional boundaries of Diamond Bar. This WMP also applies to approximately 400 acres within Diamond Bar that does not have an MS4 draining to the San Gabriel River Watershed. The hydrological boundaries of Reach 1 and 2 of the San Gabriel River and Coyote Creek define the west region and most of the north region.

The Lower SGR Watershed is located within the San Gabriel River Watershed Management Area (WMA) as designated in the Los Angeles MS4 Permit (Figure B-5). The water bodies located within the Lower SGR Watershed - Coyote Creek, Reaches 1, 2 and 3 of the San Gabriel River and San Jose Creek - are defined by the Regional Board as inland Surface Waters of the State (A-9). As part of the main stem of the San Gabriel River, Reaches 1, 2 and 3 are considered Waters of the United States. By definition its tributaries are also Waters of the United States, which includes Coyote Creek and San Jose Creek (A-9). The drainage areas of these five water bodies in turn define five subwatersheds.

The main channels of the San Gabriel River, Coyote Creek and San Jose Creek and most of their tributaries are owned by the LACFCD, with the exception of a small area within the City of Pico Rivera owned by the Army Corps of Engineers. Figure 1-2 shows this area. Additionally, there are privately owned and maintained drains and open channels.

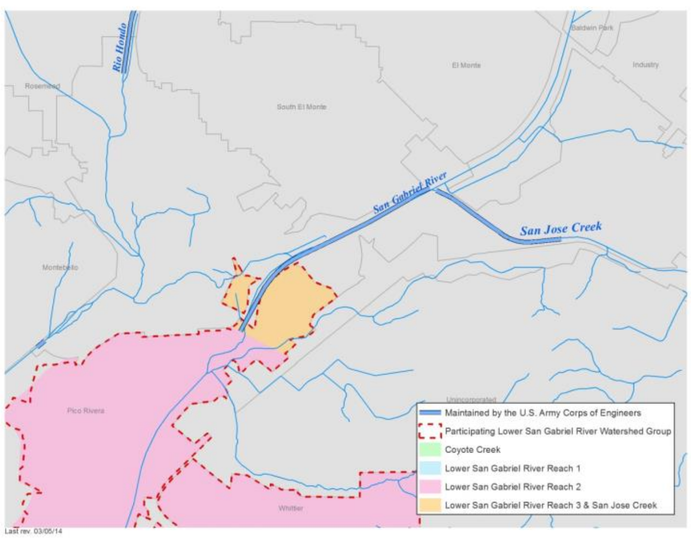


Figure 1-2: Extent of channel ownership by the Army Corps of Engineers

HYDROLOGIC UNIT CODES (HUC)

The United States Geological Survey's (USGS) Hydrologic Unit Codes (HUCs) are referenced in the MS4 Permits. The HUC system divides the United States into a hierarchical classification of defined, hydrologically-based watersheds. The LACFCD found that some of the HUC boundaries within the Los Angeles Basin were incorrect and have since developed more accurate "HUC equivalents". Following the

HUC Equivalent system, San Gabriel River Reach 1, 2 and 3 are within subwatershed 18070160606, Coyote Creek is within subwatersheds 180701060602, 180701060603 and 180701060606 and San Jose Creek is within subwatersheds 180701060501 and 180701060502. The subwatersheds of the Lower SGR Watershed are shown in Figure 1-3 and listed in Table 1-2.

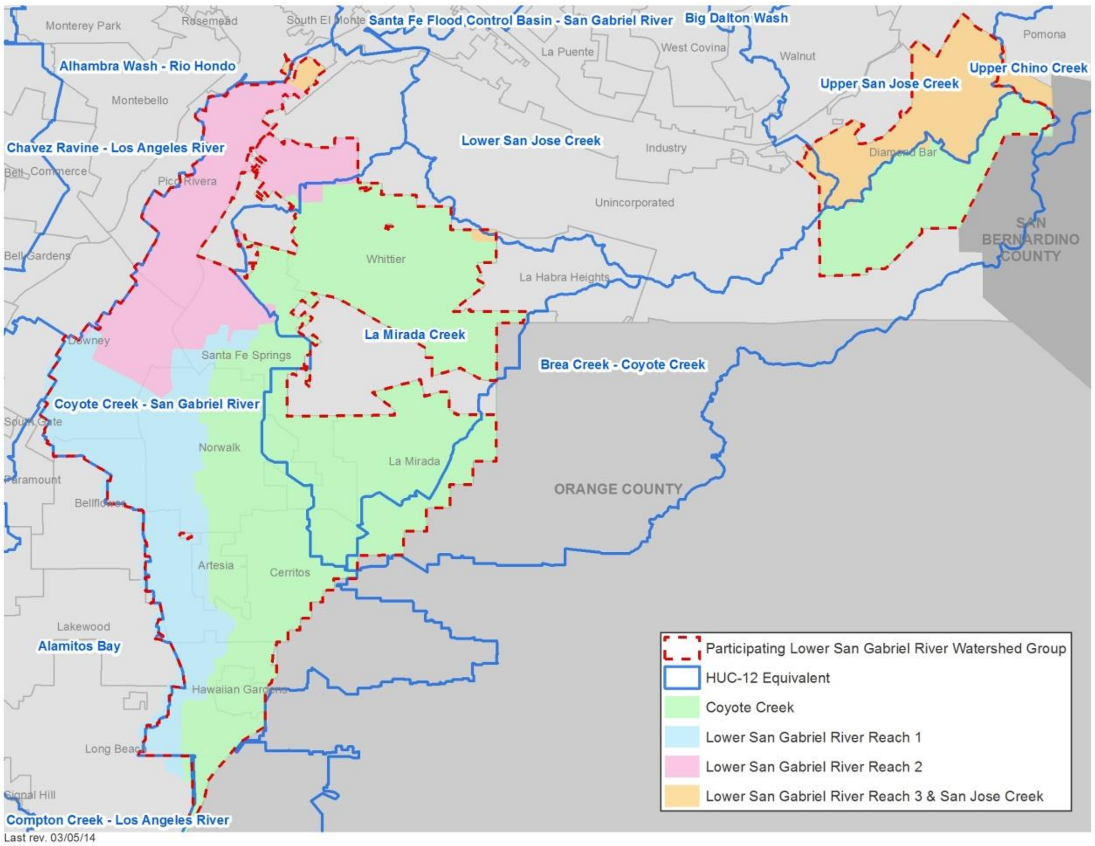


Figure 1-3: Watershed map with HUC-12 equivalent subwatershed

The subwatersheds defined by these 12 digit numbers are referred to as HUC-12. Groups of subwatersheds that share a common downstream waterbody form a watershed. A watershed is designated by the first 10 digits of a HUC-12 and as such is referred to as HUC-10. In the case of the Lower San Gabriel River Watershed, Coyote Creek and San Gabriel River Reach 1, 2 and 3 are within the Lower San Gabriel River HUC-10 watershed and San Jose Creek is itself a HUC-10 watershed. Both watersheds are within the San Gabriel HUC-08 subbasin, which shares most of its borders with the San Gabriel River WMA (Figure B-4).

WATERSHED AUTHORITY GROUP

Watershed Authority Groups (WAGs) as described in State Assembly Bill 2554, which in 2010 amended the Los Angeles County Flood Control District Act, are referenced in the MS4 Permits. The purpose of the WAGs is to implement collaborative water quality improvement projects and services, with the goal of improving water quality and reducing stormwater and urban runoff pollution. The creation and

funding of the WAGs has not yet occurred - it is dependent upon voter approval of the LACFCD's Water Quality Funding Initiative (a countywide parcel fee). AB 2554 divides the County into 9 WAGs - the LSGRW is located within the Lower San Gabriel River WAG, which shares borders with the Lower San Gabriel River HUC-10 watershed. Figure 1-4 is a complete map of the WAG groups.

Table 1-2: Subwatersheds/waterbodies within the Lower SGR Watershed

Subwatershed/ Waterbody	HUC 12 Equivalent	HUC Name	Area within Lower SGR Watershed (mi²)
Coyote Creek	180701060602	La Mirada Creek	68.05
	180701060603	Brea Creek-Coyote Creek	
	180701060606	Coyote Creek-San Gabriel River	
San Gabriel Reach 1	180701060606	Coyote Creek-San Gabriel River	16.31
San Gabriel Reach 2	180701060606	Coyote Creek-San Gabriel River	15.45
San Gabriel Reach 3	180701060606	Coyote Creek-San Gabriel River	0.51
San Jose Creek	180701060501	Upper San Jose Creek*	7.7

* The USGS Hydrologic Unit Code Equivalent HUC boundaries created by LACFCD included the City of Diamond Bar in the Upper SJC HUC (180701060501); however, this designation does not coincide with the LA Basin Plan Reach designations that commence the Upper SJC (Reach 2) at Temple Avenue in Pomona. According to this designation, Diamond Bar drains solely to SJC Reach 1.

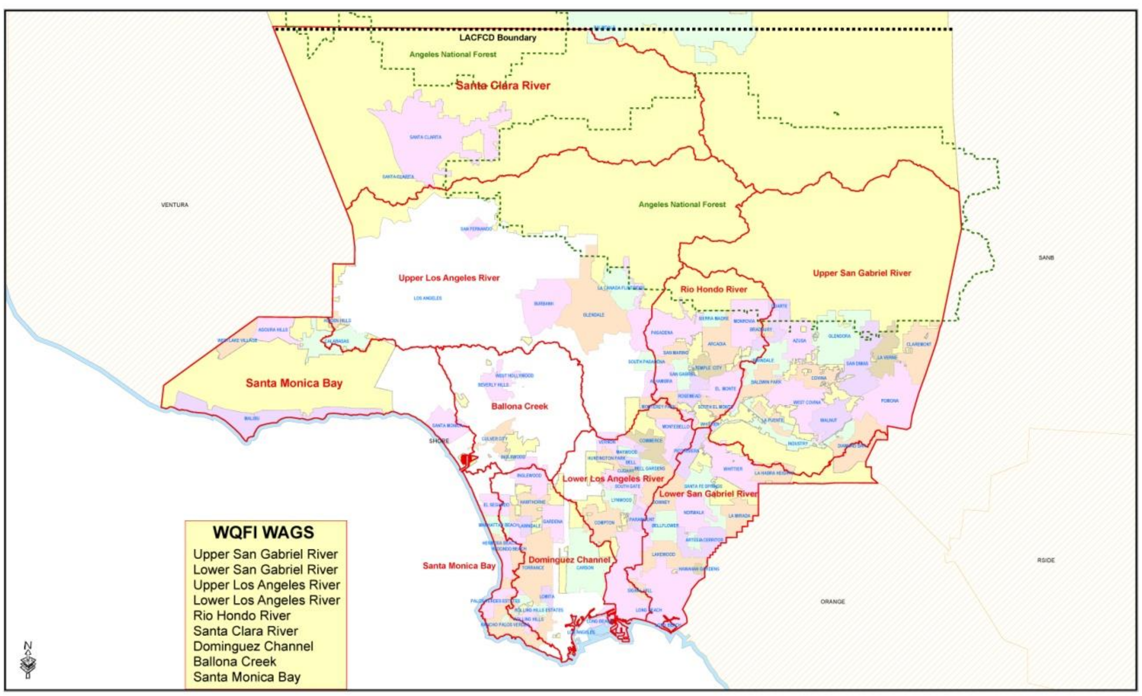


Figure 1-4: WAG map

1.2 THE WATERSHED MANAGEMENT PROGRAM

1.2.1 PURPOSE OF THE MS4 PERMIT

MS4s receive stormwater and non-stormwater discharges from various sources, including municipal MS4s and other public agencies, discharges under NPDES permits or authorized by the USEPA[5], groundwater and natural flow. As the discharges flow over the urban landscape, they may pick up pollutants generated by urban activities, such as metals, bacteria, pesticides, fertilizers and trash. Polluted stormwater and non-stormwater discharges conveyed through the MS4 ultimately reach receiving waters, resulting in adverse water quality impacts.[6]

The goal of the MS4 Permit is to reduce the discharge of these pollutants from MS4s to the maximum extent practicable.

1.2.2 WATERSHED MANAGEMENT EMPHASIS

The watershed management approach to permit implementation - described in the current MS4 Permits as a voluntary approach to compliance - is a departure from previous permit structures. The previous MS4 Permits (Order Nos. 01-182 and 99-060) addressed implementation through jurisdictional Stormwater Quality Management Programs (SQMPs). The Los Angeles countywide SQMP, prepared jointly by the Permittees and approved by the Regional Board in 2001, described the controls to be implemented in order to comply with the special provisions (now referred to as the Minimum Control Measures, or MCMs) of the MS4 Permit. These controls were identical for each Permittee and did not: 1) differentiate between watersheds or agencies or 2) target or identify priority pollutants.

The emphasis of the prior SQMP approach was rote program development and implementation. In contrast, management actions under the WMP are driven by the water quality conditions of the receiving waters and outfalls within the watershed.

The Regional Board outlines several reasons for this shift in emphasis from the prior MS4 permit. A watershed based structure for permit implementation is consistent with TMDLs developed by the Los Angeles Water Board and USEPA, which are established at a watershed or subwatershed scale and are a prominent part of the MS4 Permit. Many of the Permittees have already begun collaborating on a watershed scale to develop monitoring and implementation plans required by TMDLs.

[5] Including discharges subject to a decision document approved pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
[6] MS4 Permit Fact Sheet (pg. F7)

1.2.3 WATERSHED MANAGEMENT GOALS

Addressing MS4 discharges on a watershed scale focuses on water quality results by emphasizing the receiving waters and outfalls within the watershed[7]. The conditions of the receiving waters drive management actions, which in turn focus on the measures to address pollutant contributions from MS4 discharges.

The ultimate goals of the Watershed Management Programs is to ensure that discharges from the MS4:

1. Achieve applicable Water Quality Based Effluent Limitations (WQBELs) that implement TMDLs,
2. Do not cause or contribute to exceedances of receiving water limitations,
3. Non-stormwater discharges from the MS4 are not a source of pollutants to receiving waters.

1.2.4 WATERSHED MANAGEMENT APPROACH

In order to achieve the goals listed in the previous section, the approach of the WMP is to:

- Prioritize water quality issues resulting from stormwater and non-stormwater discharges from the MS4 to receiving waters,
- Identify and implement strategies, control measures, and BMPs that:
    - Achieve applicable water quality-based effluent limitations[8]
    - Do not cause or contribute to exceedances of receiving water limitations[9]
    - Do not include non-stormwater discharges that are effectively prohibited[10]
    - Ensure that controls are implemented to reduce the discharge of pollutants to the maximum extent practicable[11]
- Execute an integrated monitoring program and assessment program[12] to determine progress towards achieving applicable limitations and/or action levels
- Modify strategies, control measures, and BMPs as necessary based on analysis of monitoring data collected pursuant to the Monitoring and Reporting Program (MRP) to ensure that applicable water quality-based effluent limitations and receiving water limitations and other milestones set forth in the WMP are achieved in the targeted timeframes.
- Provide opportunity for meaningful stakeholder input. This includes participation in a permit-wide WMP technical advisory committee (TAC) that advises and participates in the development of the WMP from month six through the date of program approval.

[7] MS4 compliance is measured at 1) Receiving water monitoring, 2) Stormwater outfall based monitoring, 3) Non-storm water outfall based monitoring, and 4) New Development/Re-development effectiveness tracking

[8] Pursuant to Part VI.E and Attachments L through R pursuant to corresponding compliance schedules

[9] Pursuant to Parts V.A and VI.E and Attachments L through R of the Permit

[10] Pursuant to Part III.A of the Permit

[11] Pursuant to Part IV.A.1 of the Permit

[12] Pursuant to Attachment E – MRP, Part IV of the Permit

The overall approach is adaptive, whereby BMPs will be implemented, their effectiveness monitored and modifications to this WMP will be made as needed. These modifications will maintain consistency with the assumptions and requirements of applicable TMDL Waste Load Allocations.

1.2.5 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The goals and objectives of the WMP may be achieved by development of stormwater structural controls that may require discretionary approval subject to review under the California Environmental Quality Act (CEQA). The participating agencies intend to comply with CEQA when implementing structural BMPs. Public agencies responsible for carrying out or approving stormwater structural controls are identified as the lead agency. The environmental review required imposes both procedural and substantive requirements. At a minimum, the lead agency must adhere to the consultation and public notice requirements set forth in the CEQA Guidelines, make determinations whether the proposed stormwater treatment control is a "project", and if so, conduct an initial review of the project and its environmental effects. The lead agency must identify and document the potential environmental impacts of the proposed project in accordance with CEQA, (Public Resources Code Section 21000 et seq.), and the CEQA Guidelines (Title 14 of the California Code of Regulations, Section 15000, et seq.).

Certain classes of projects have been determined not to have significant effect on the environment and are exempt from the provisions of CEQA by statute or category. When a public agency decides that a project is exempt from CEQA, and the public agency approves or determines to carry out the project, the agency may file a Notice of Exemption. For projects deemed not exempt, the lead agency will prepare and Initial Study and decide whether a Negative Declaration will be required for the project, or depending on the potential effects, a further, and more substantial review may be conducted in the form of an Environmental Impact Report (EIR). A project may not be approved as submitted if feasible alternatives or Mitigation Measures are able to substantially lessen the significant environmental effects of the project. Moreover, environmental review must include provisions for wide public involvement, formal and informal, in order to receive and evaluate public reactions to environmental issues, and when deciding the matter, the lead agency must consider all comments it receives (Cal. Pub. Res. Code § 21091(d)(1); 14 CCR § 15074(b)). The lead agency will use the EIR in determining the environmental effects of the proposed storm water structural control project, and whether or not to approve the proposed project. If the proposed project is approved, all conditions and mitigations made in the adopted EIR will become part of any subsequent actions taken by the lead agency. The EIR will also be used by permitting agencies, funding agencies and the public to support proposed project decisions.

The National Environmental Quality Act (NEPA) comes into play less often than CEQA, but may be included for storm water treatment control projects involving federal funding. A joint NEPA and CEQA review process is encouraged to improve coordination and avoid redundancies. Like CEQA, NEPA process provides opportunities to address issues related to proposed projects early in the planning stages. NEPA was codified under Title 42 of the United States Code sections 4331 et seq. (42 U.S.C. 4331 et seq.).

1.3 LOWER SAN GABRIEL RIVER WATERSHED

1.3.1 OVERVIEW OF THE SAN GABRIEL RIVER WATERSHED

The San Gabriel River Watershed drains a watershed of 689 square miles. The main channel of the San Gabriel River is approximately 58 miles long. Its headwaters originate in the San Gabriel Mountains with the East, West, and North Forks. The river empties to the Pacific Ocean at the Los Angeles and Orange Counties boundary in Long Beach. The main tributaries of the river are Big and Little Dalton Wash, San Dimas Wash, Walnut Creek, San Jose Creek, Fullerton Creek, and Coyote Creek. Part of the Coyote Creek subwatershed is in Orange County and is under the authority of the Santa Ana Water Board. Land use in the watershed is diverse and ranges from predominantly open space in the upper watershed to urban land uses in the middle and lower parts of the watershed.

The remaining discussion on the watershed will solely refer to the specific characteristics of the Lower San Gabriel River Watershed.

1.3.2 LOWER SAN GABRIEL RIVER WATERSHED AREA

REGIONAL AND LOCAL SETTING

The Lower SGR Watershed encompasses an approximately 78.5 square miles (50,240 acres) within Los Angeles County and comprises 11.4% drainage area for the San Gabriel River Watershed. There are approximately 150 stream miles located in the watershed. The boundaries of the watershed are shown in Figure 1-1 and further explained in Section 1.1.

CLIMATE

Average annual precipitation for the watershed area is highly variable and terrain-dependent, averaging fifteen (15) inches annually and mainly occurring during the winter months (November through April). Due to the dominance of the stable marine layer, significant precipitation is rare between May and October.

During the winter months Pacific storms often push cold fronts across California from northwest to southeast. These storms and frontal systems account for the vast bulk of the area's annual rainfall. Such rainy season storms are migratory, with wet and dry periods alternating during the winter and early spring with irregularity in timing and duration. Rainfall patterns average 3.68 inches of rainfall in February to 0.01 inches of rainfall in July[13].

With the highly developed conditions within the watershed, most stormwater flows generated by the rainfall is routed to the ocean through the curb and gutters along the streets, catch basins and storm drains into the San Gabriel River. The velocity of the storm flows within this watershed ranges up to 20 feet per second within the waterways.

[13] National Climatic Data Center, http://lwf.ncdc.noaa.gov

RAINFALL AND FLOW CHARACTERISTICS

Historical rainfall records from 3 existing rain gauges located adjacent to the LSGR watershed were obtained and utilized in this analysis. These meteorological stations and resulting rain gauge data are maintained by National Climatic Data Center. The gauges were chosen due to their active status and the duration of available data. These locations are shown in Figure 1-5 with detailed location information provided in Table 1-3.

Table 1-3: Rainfall data summary

Station ID	Station	Period	Latitude	Longitude	Elevation (ft)	Mean Annual Precipitation (in)	85th Percentile Storm (in)
GHCND: USC00042494	Downey Fire Station	1949 - 2012	33.929	-118.145	110	12.32	0.22
GHCND: USW00023129	Long Beach Daugherty Field	1949 - 2014	33.811	-118.1463	30.84	11.20	0.18
GHCND: USC00049660	Whittier City Yard	1998 - 2014	33.9758	-118.0222	445.87	9.86	0.03

(1) National Climatic Data Center, http://lwf.ncdc.noaa.gov

Average monthly rainfall for the historical record has been calculated for each rain gauge and is provided in Table 1-3. The monthly values are similar among the two rain gauges.

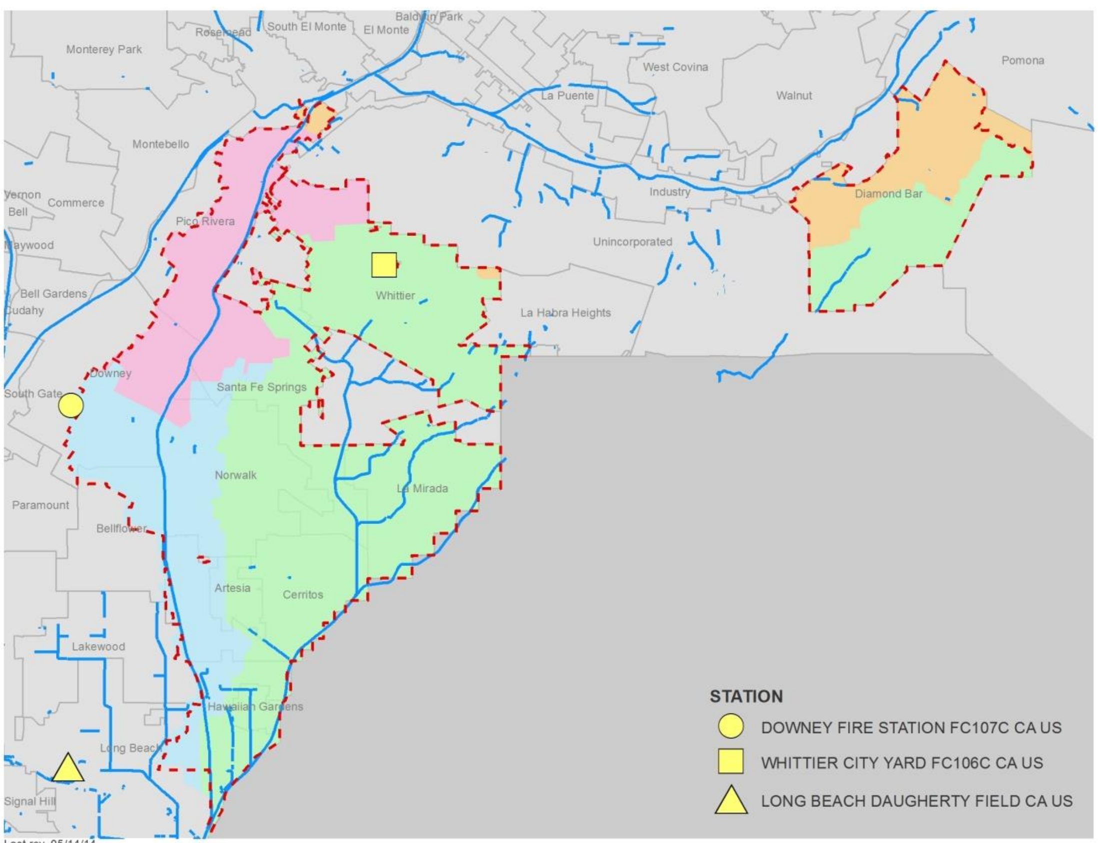


Figure 1-5: Rainfall gauge stations in Downey and Long Beach (yellow squares)

Table 1-4: Summary of average monthly rainfall (in)

Month	Downey Fire Station	Long Beach Daugherty Field	Whittier City Yard
January	3.3	2.8	2.8
February	3.3	3.6	3.7
March	2.4	2.2	2.2
April	1.0	0.6	0.7
May	0.3	0.3	0.3
June	0.1	0.2	0.1
July	0.0	0.0	0.0
August	0.1	0.1	0.1
September	0.3	0.3	0.3
October	0.4	0.4	0.4
November	1.5	1.0	0.9
December	2.0	2.0	2.0
Total Average Monthly Rainfall	1.2	1.1	1.1

(1) National Climatic Data Center, http://lwf.ncdc.noaa.govhttp://lwf.ncdc.noaa.gov/

DRY WEATHER FLOWS TO THE LOWER SAN GABRIEL RIVER

Dry weather flow in the San Gabriel River comes predominantly from effluent discharges and groundwater inflow. Sources of effluent discharges in the Lower San Gabriel River watershed include the Sanitation Districts of Los Angeles County, urban runoff such as irrigation overflows and car wash water, and various industrial discharges.

The Sanitation Districts of Los Angeles County maintain a regional, interconnected sewerage system called the Joint Outfall System. The Joint Outfall System includes five satellite water reclamation plants (WRPs) that discharge effluent into the San Gabriel River during dry weather:

THE LONG BEACH WRP is located at 7400 E. Willow Street in the City of Long Beach. The plant occupies 17 acres west of the San Gabriel River (605) Freeway and began operation in 1973. The Long Beach WRP provides primary, secondary and tertiary treatment for 25 million gallons of wastewater per day, and serves a population of approximately 250,000 people. Almost 6 million gallons per day of the reclaimed water is reused at over 60 reuse sites, including landscape irrigation of schools, golf courses, parks, and greenbelts by the City of Long Beach. The remaining water is discharged directly to Coyote Creek at one effluent discharge point directly above the confluence with the San Gabriel River. The average monthly effluent discharge from the Long Beach WRP was 11.97 MGD in 2012, with the average monthly max being 17.50 MGD and the average monthly minimum flows measured at 7.84 MGD.

THE LOS COYOTES WRP is located at 16515 Piuma Avenue in the city of Cerritos and occupies 34 acres at the northwest junction of the San Gabriel River (605) and the Artesia (91) Freeways. The Los Coyotes WRP provides primary, secondary and tertiary treatment for 37.5 million gallons of wastewater per day, and serves a population of approximately 370,000 people. Over 5 million gallons per day of the reclaimed water is reused at over 270 reuse sites, including landscape irrigation of schools, golf courses, parks, nurseries, and greenbelts. The remaining water is discharged directly to the San Gabriel River at one effluent discharge point above the confluence

with Coyote Creek. The average monthly effluent discharge from the Los Coyotes WRP was 18.85 MGD in 2012, with the average monthly max being 22.62 MGD and the average monthly minimum flows measured at 15.58 MGD.

The Pomona WRP is located at 295 Humane Way in the City of Pomona. The plant occupies 14 acres northeast of the intersection of the Pomona (60) and Orange (57) Freeways. The Pomona WRP provides primary, secondary and tertiary treatment for 15 million gallons of wastewater per day, and serves a population of approximately 130,000 people. Approximately 8 million gallons per day of the reclaimed water is reused at over 190 different reuse sites, including landscape irrigation of parks, schools, golf courses, greenbelts. The remaining water is discharged to the San Jose Creek channel at 1 effluent discharge point, where it is allowed to percolate into the groundwater in the unlined portions of the San Gabriel River before flowing into the ocean. The average monthly effluent discharge from the Pomona WRP was 4.22 MGD in 2012, with the average monthly max being 7.42 MGD and the average monthly minimum flows measured at 2.09 MGD.

The San Jose Creek WRP is located at 1965 Workman Mill Road, in unincorporated Los Angeles County, next to the City of Whittier. The plant occupies 39 acres north of the Pomona (60) Freeway on both sides of the San Gabriel (605) Freeway and consists of an East WRP and a West WRP. The San Jose Creek WRP provides primary, secondary and tertiary treatment for 100 million gallons of wastewater per day, and serves a large residential population of approximately one million people. Approximately 42 million gallons per day of the reclaimed water is reused at over 130 different reuse sites, including groundwater recharge and irrigation of parks, schools, and greenbelts. The remainder is discharged to the San Gabriel River at 5 discharge points. The average monthly effluent discharge from the East San Jose Creek WRP was 31.64 MGD in 2012, with the average monthly max being 44.34 MGD and the average monthly minimum flows measured at 9.03 MGD. The average monthly effluent discharge from the West San Jose Creek WRP was 9.65 MGD in 2012, with the average monthly max being 18.00 MGD and the average monthly minimum flows measured at 1.28 MGD.

The Whittier Narrows WRP is located at 301 N. Rosemead Boulevard in the City of El Monte. The plant occupies 27 acres south of the Pomona (60) Freeway, and provides primary, secondary and tertiary treatment for 15 million gallons of wastewater per day. Most of the reclaimed water is reused as groundwater recharge into the Rio Hondo and San Gabriel Coastal Spreading Grounds, or for irrigation at an adjacent nursery. Remaining effluent is discharged directly into the San Gabriel River at 1 effluent discharge point above Whittier Narrows Dam. The average monthly effluent discharge from the Whittier Narrows WRP was 6.44MGD in 2012, with the average monthly max being 8.05MGD and the average monthly minimum flows measured at 4.97MGD.

Wet Weather Flows to the Lower San Gabriel River

In addition to stormwater flows within the Los Angeles Basin, wet weather flows from the San Gabriel River Mountains also contribute to flows in the San Gabriel River.

WATERSHED CATCHMENT HYDROLOGIC CONNECTIVITY

The main reach through the watershed is the San Gabriel River, with Coyote Creek and San Jose Creek as major tributaries. The stretch of the San Gabriel River within the watershed consists of a concrete lined channel spanning 140 to 200 feet in width. Coyote Creek and San Jose Creek also have concrete channels at their confluence with the San Gabriel River. Figure 1-6 shows the LACFCD storm drain system within the LSGRW as well as its main channels and tributaries.

The Coyote Creek subwatershed drains approximately 185 square miles to its confluence with the San Gabriel River. The subwatershed is almost entirely developed.

The San Jose Creek subwatershed drains approximately 7.29 square miles to its confluence with the San Gabriel River.

The Lower SGR Watershed drains runoff directly from urbanized area totaling approximately 78.5 square miles. From its upstream beginning in Whittier (in Reach 3 of the San Gabriel River) to its downstream confluence with the San Gabriel River Estuary, the Lower SGR stretches approximately 17.1 miles. The Los Angeles County Department of Public Works provided the delineation of the catchments within each subwatershed. Approximately 107 catchments are located within this watershed[14]. These delineations are based on a combination of contour information and existing underground storm sewer systems.

Drainage areas for individual outfalls are not readily available at this time. Defining these areas would require significant resources. The Group proposes to provide drainages areas for major outfalls with significant discharges and outfalls to be monitored as part of the CIMP. To complete this task, existing drainage maps from the LACFD and/or cities will be obtained and converted to GIS project files. This task will be completed within one year of WMP approval.

The watershed is predominately served by storm drain systems, extending across 15 agency jurisdictions, connecting drainage in urbanized areas with the main tributaries. Although most agencies are not directly adjacent to the LSGR, their runoff ultimately reaches the SGR through its tributaries and connected storm sewer systems.

[14] Los Angeles County Watershed Management Modeling System, http://dpw.lacounty.gov/wmd/wmms/

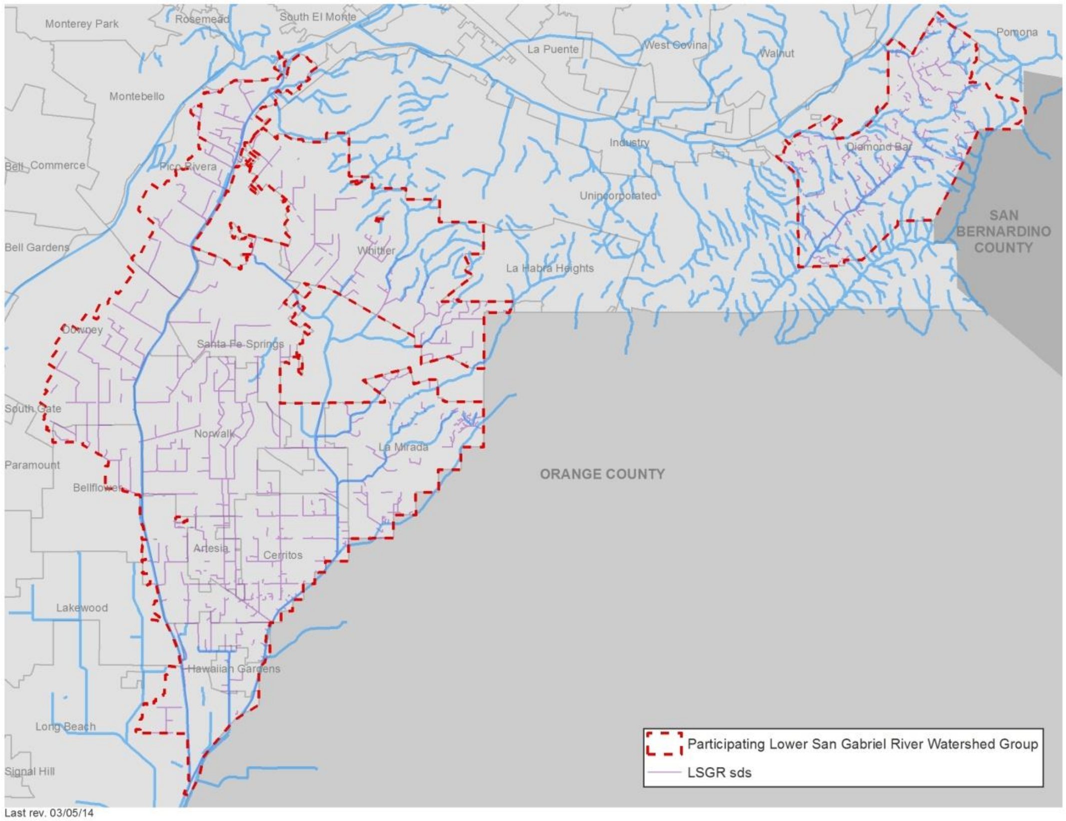


Figure 1-6: LACFCD storm drains

Geophysical Setting

Topography

Natural topography is comprised of the existing soils, ground elevation/slope, vegetation, stream network, and groundwater. These features impact each other in both the natural and built environments, and therefore should not be analyzed independently when evaluating BMP location options.

Soils

The Lower SGR Watershed can be characterized as having seven soil types. Figure 1-7 shows the various soil types underlying the watershed. Soils range from sandy loam to clay loam, having a varying range of saturated hydraulic conductivity.

Groundwater

Groundwater flow in the Lower SGR Watershed generally mimics surface topography. Depth to the groundwater varies from 11 feet to greater than 40 feet. Figure 1-8 shows the groundwater basin for the Lower SGR Watershed.

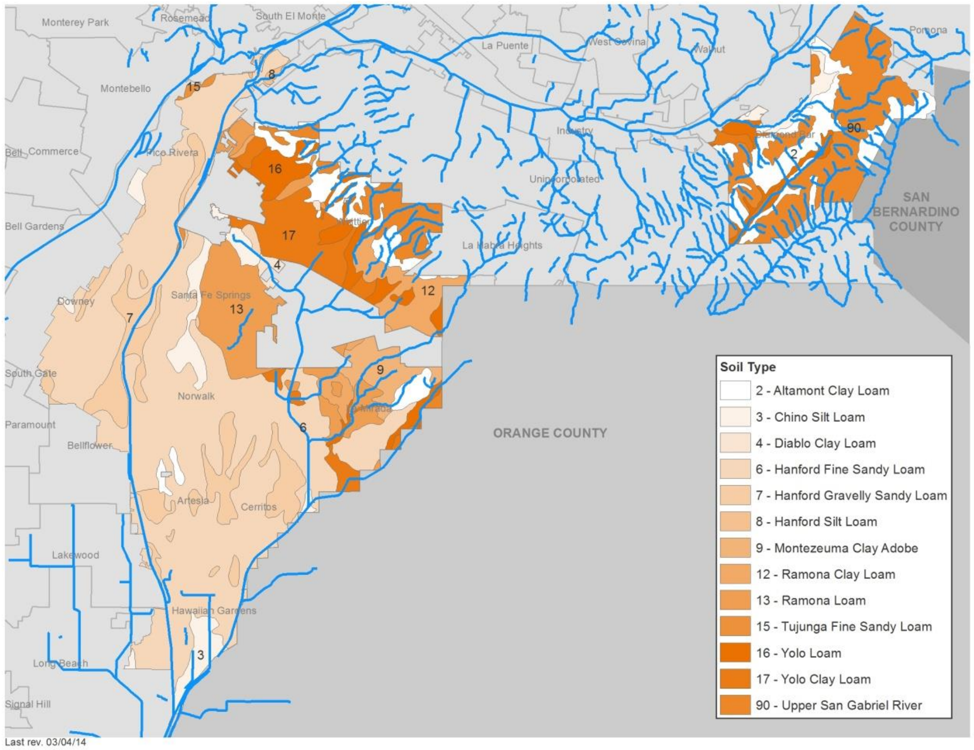


Figure 1-7: Soil types

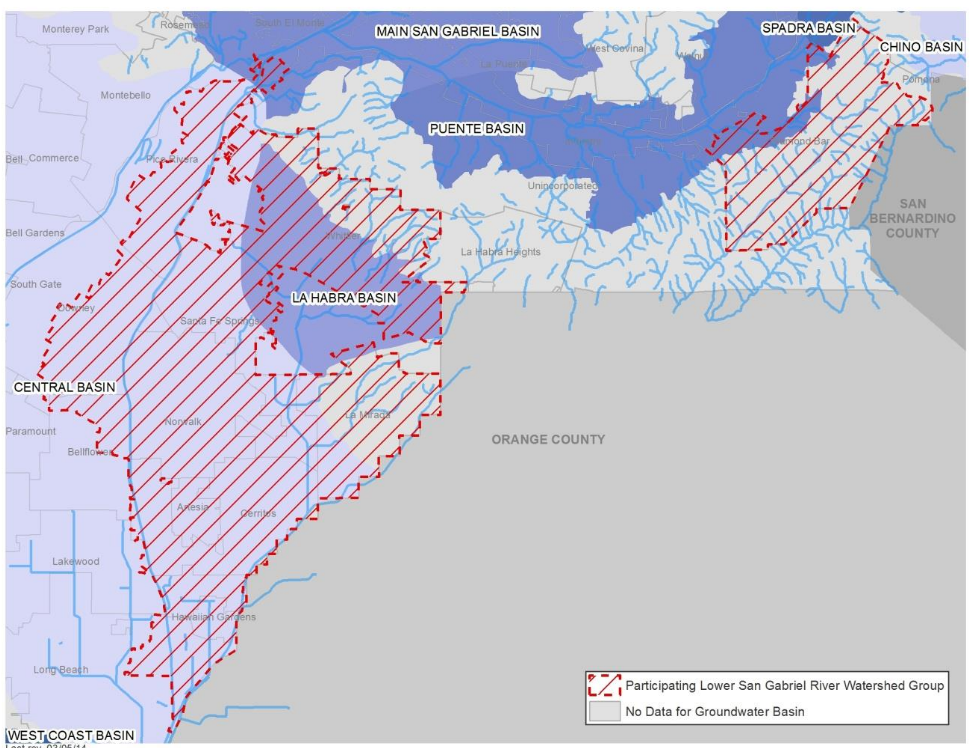


Figure 1-8: Groundwater basins

WATERSHED LAND AREA

Table 1-5 lists the percent land area within the Lower SGR for each participant. In addition to the areas listed in Table 1-5, the WMP will also cover the portions of the cities of Diamond Bar and Whittier do not drain to San Gabriel River Reach 1 and Reach 2 or Coyote Creek.

Table 1-5: Watershed land area

Permittee	Land Area (Acres)	Percent of Total Area
Artesia	1,037	2%
Bellflower	1,216	2%
Cerritos	5,645	11%
Diamond Bar	4,563	9%
Downey	4,237	8%
Hawaiian Gardens	614	1%
La Mirada	5,018	10%
Lakewood	1,293	3%
Long Beach	2,138	4%
Norwalk	6,246	11%
Pico Rivera	3,929	8%
Santa Fe Springs	5,683	11%
Whittier	9,382	16%
Caltrans	Caltrans owns and operates approximately 4% of the watershed	
LACFCD	N/A	N/A

LAND USES

Table 1-6 lists and Figure 1-9 shows the developed and undeveloped land within the Lower SGR Watershed.

Table 1-6: Developed and undeveloped land

Jurisdiction	Acres Developed	Acres Undeveloped	% Developed Lands
Artesia	***1,053***	15.90	99%
Bellflower	830	115	88%
Cerritos	4,600	250	95%
Diamond Bar	26,100	960	97%
Downey	4,090	166	96%
Hawaiian Gardens	1,650	2	100%
La Mirada	10,090	320	97%
LACFCD	ND	ND	ND
Lakewood	3,970	218	95%
Long Beach	4,330	700	86%
Norwalk	7,380	115	99%
Pico Rivera	3,770	283	93%
Santa Fe Springs	5,000	140	97%
Whittier	7,680	1,860	81%
Caltrans	ND	ND	ND

ND - Not delineated

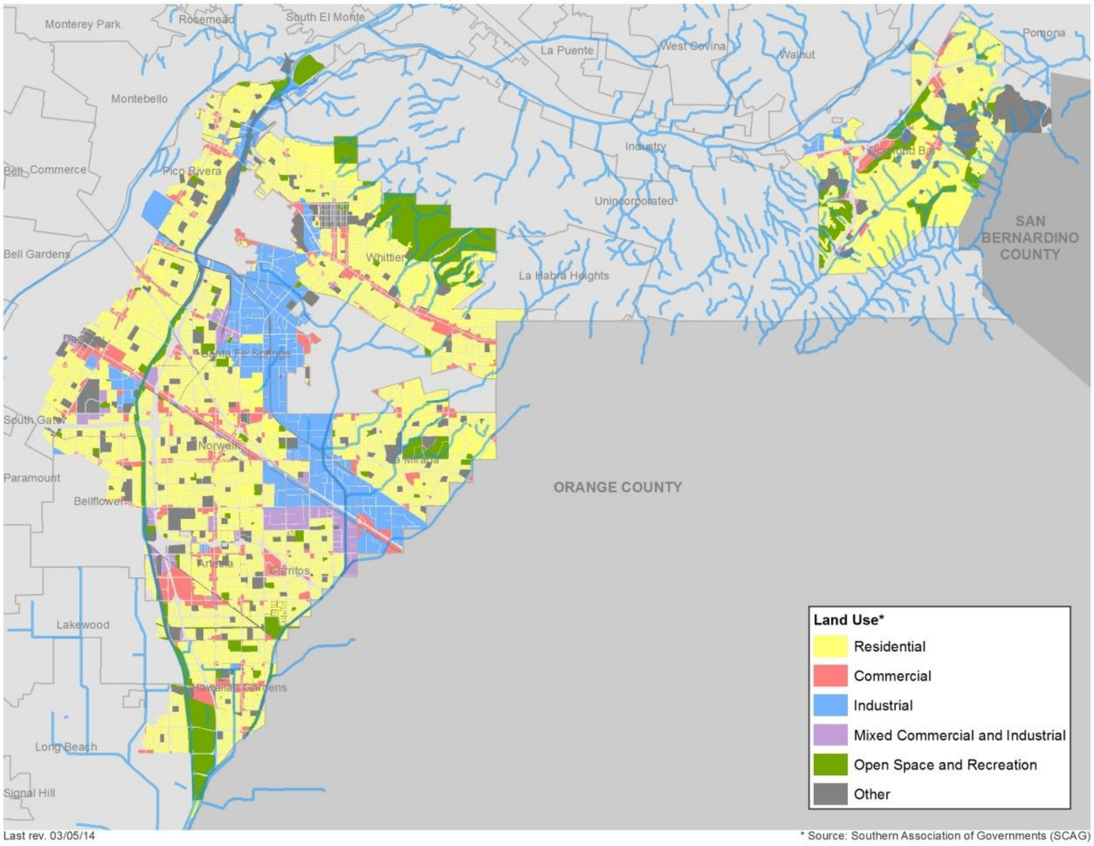


Figure 1-9: Land use map

Disadvantaged Community

The Lower SGR Watershed is in a geographic area encompassing all or part of thirteen cities. This area is a high-minority and economically disadvantaged region. Of the thirteen cities participating in this WMP, twelve are categorized as disadvantaged communities in part (see Table 1-7)[15], meaning that the median income levels in the city as a whole are less than 80% of the state's median household income ($48,706).

[15] United States Census Bureau, as accessed at *http://www.census.gov/*. February 2014.

Table 1-7: Income statistics by City

City	DAC Percentage
Artesia	14%
Bellflower	30%
Cerritos	6%
Diamond Bar	0%
Downey	29%
Hawaiian Gardens	40%
La Mirada	7%
Lakewood	3%
Norwalk	23%
Pico Rivera	34%
Santa Fe Springs	80%
Whittier	16%
Long Beach	49%

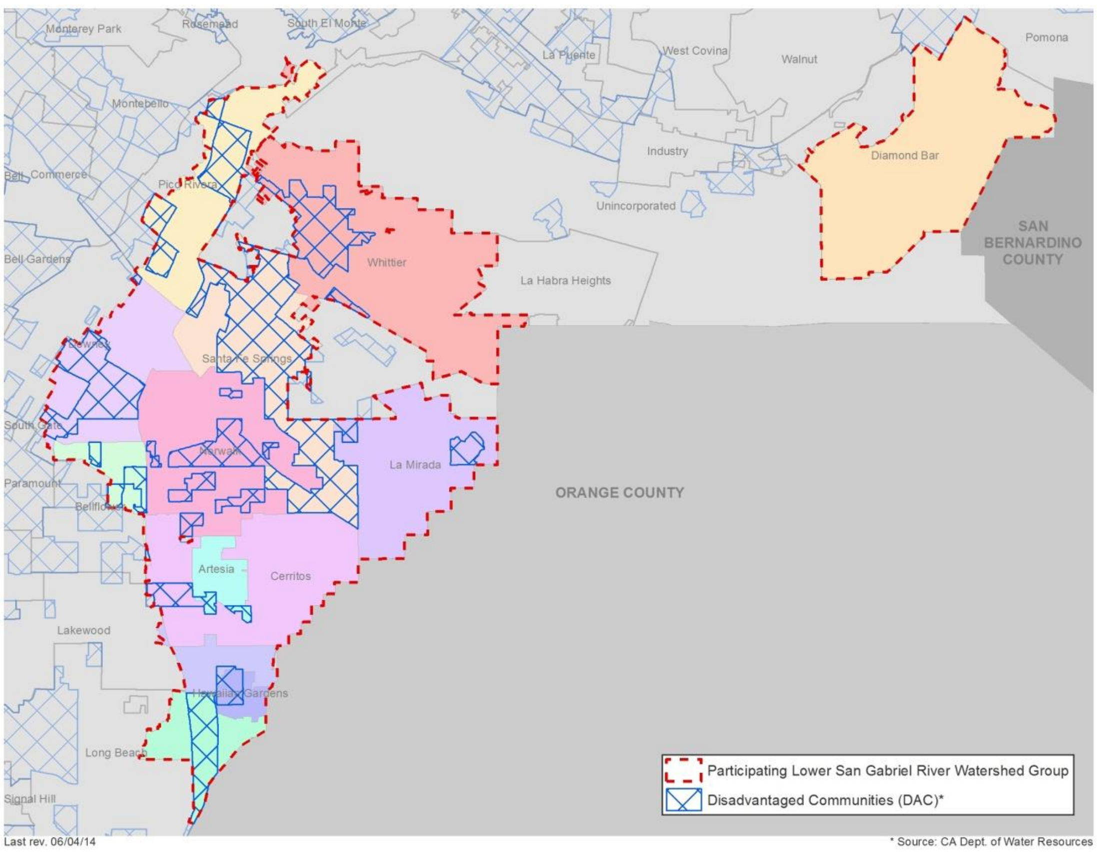


Figure 1-10: Disadvantage Community (DAC) map

1.4 WATER QUALITY IMPAIRMENTS

1.4.1 HISTORY OF IMPAIRMENTS IN THE LOWER SGR WATERSHED

Various reaches of the Lower SGR Watershed are on the 2010 CWA Section 303(d) List of impaired water bodies due to metals (copper, lead, selenium, and zinc). Segments of the San Gabriel River and its tributaries are listed as exceeding water quality objectives for copper, lead, selenium, and zinc. Metals loadings to San Gabriel River have the potential to cause impairments of the WILD, WARM, COLD, RARE, EST, MAR, MIGR, SPWN, WET, MUN, IND, AGR, GWR, and PROC beneficial uses. The San Gabriel River metals and selenium TMDL found that the MS4 contributes a large percentage of the metals loadings during dry weather because although their flows are typically low, concentrations of metals in urban runoff may be quite high. During wet weather, most of the metals loadings are in the particulate form and are associated with wet-weather stormwater flow.

1.4.2 ORGANIZING TO ADDRESS TMDLS

TMDLs represent large-scale efforts crossing jurisdictional boundaries and often encompassing the entire drainage of a major regional waterbody (e.g., San Gabriel River). These TMDLs involve coordinated participation from multiple agencies to address the impairments. Several agencies participating in the development of this WMP have already worked in a coordinated effort to address water quality issues throughout the San Gabriel River. This includes the Coyote Creek/San Gabriel River Metals TMDL Committee, which organized several cities under a Memorandum of Agreement in 2012 to develop an Implementation Plan for that TMDL. This effort has now been incorporated into this WMP approach in 2013 and development and adoption of a Basin Plan Amendment by the Regional Board in June 2013. Additional efforts included the cities of Downey, Norwalk, Pico Rivera, Santa Fe Springs and Whittier jointly applied for a Proposition 84 grant to install Low Impact Development (LID) BMPs along high traffic transportation corridors.

1.5 WATER QUALITY ISSUES AND THE HISTORY OF WATER QUALITY REGULATIONS

1.5.1 FEDERAL AND STATE LAW

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for all inland surface waters, estuaries, and coastal waters. The federal Environmental Protection Agency (EPA) is ultimately responsible for implementation of the CWA and its associated regulations. However, the CWA allowed EPA to authorize the NPDES Permit Program to state governments, enabling states to perform many of the permitting, administrative, and enforcement aspects of the NPDES Program. California, like other states, implements the CWA by promulgating its own water quality protection laws and regulations. As long as this authority provides equivalent protections as the federal CWA, EPA can delegate CWA

responsibilities to the state while retaining oversight responsibilities. In some cases, California has established requirements that are more stringent than federal requirements.

The 1970 Porter-Cologne Water Quality Control Act granted the California State Water Resources Control Board (SWRCB) and nine California Regional Water Quality Control Boards (Regional Boards) broad powers to protect water quality. This Act and its governing regulations provide the basis for California's implementation of CWA responsibilities. The Los Angeles Regional Water Quality Control Board (Regional Board) is the governing regulatory agency for the Lower SGR Watershed.

Section 303(d) of the CWA requires waterbodies not meeting water quality objectives even after all required effluent limitations have been implemented (e.g. through wastewater or stormwater discharge permits) to be regularly identified. These waters are often referred to as "303(d) listed" or "impaired" waters. Waterbodies that are listed on the 303(d) list typically require development of a Total Maximum Daily Load (TMDL) for the pollutant(s) impairing the use of the water. Development and approval of the 303(d) list is a lengthy state and federal process. A list is not effective until the EPA approves the list. The current EPA-approved 303(d) list for California is the 2010 list; this list can be found in APPENDIX X.

A TMDL establishes the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. Depending on the nature of the pollutant, TMDL implementation requires limits on the contributions of pollutants from point sources (waste load allocation), nonpoint sources (load allocation), or both. The Regional Board is responsible for TMDL development in the LSGRW.

Adoption of a TMDL requires an amendment to the Water Quality Control Plan (known as the Basin Plan) for the Los Angeles Region. The Regional Board's Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of regional waters. Specifically, the Basin Plan (i) designates beneficial uses for surface and ground waters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, and (iii) describes implementation programs to protect all waters in the Region. The Basin Plan is reviewed and updated as necessary (Regional Board 1994, as amended). Following adoption by the Regional Board, the Basin Plan and subsequent amendments are subject to approval by the State Board, the State Office of Administrative Law (OAL), and the Environmental Protection Agency (EPA).

1.5.2 WATER QUALITY REQUIREMENTS

The Regional Board designates "beneficial uses" for waterbodies in the watersheds that it governs and adopts water quality objectives to protect these uses[16]. In some cases, EPA may also promulgate objectives where it makes a finding that the state's objectives are not protective enough to protect the beneficial use. The nature of the objectives is directly related to the type of beneficial use. For example, the freshwater warm habitat beneficial use protects aquatic organisms resident in warm-water streams. The associated water quality objectives are for those constituents known to affect both the growth and reproduction of aquatic life. These objectives range from physical characteristics such as temperature,

[16] See Regional Board’s 1994 Los Angeles Region Basin Plan, as amended.

dissolved oxygen, and pH to potential toxic constituents including metals and organics. In California, the objectives for metals and a number of organic compounds have been established by the federal EPA rather than the state (California Toxics Rule, 2000). The EPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions based on the determination that the numeric criteria were necessary (since the state had been without numeric water quality criteria for many priority toxic pollutants as required by the CWA) to protect human health and the environment. These Federal criteria are legally applicable in the state for inland surface waters, enclosed bays and estuaries for all purposes and programs under the CWA.

1.6 MS4 Permit Requirements

The development of this WMP is a compliance option of the MS4 Permit held by the Permittees[17]. The WMP includes an evaluation of existing water quality conditions, including characterization of stormwater and non-stormwater discharges from the MS4 and receiving water quality to support identification and prioritization/sequencing of management actions. At a minimum, water quality priorities within each Watershed Management Area must include achieving applicable water quality based effluent limitations and/or receiving water limitations established.

The MS4 permit requires that this WMP identify strategies, control measures, and BMPs to implement through the stormwater management programs on a watershed scale, with the goal of creating an efficient program to focus collective resources on watershed priorities and effectively eliminate the source of pollutants. This WMP has identified strategies, control measures, and BMPs to be implemented on a watershed scale. Customization of the BMPs to be implemented, or required to be implemented, has been done with the goal of creating an efficient program to focus individual and collective resources on watershed priorities.

On the basis of the evaluation of existing water quality conditions, water body-pollutant combinations were classified into one of the following three categories:

- Category 1 (Highest Priority): Waterbody-pollutant combinations for which water quality based effluent limitations and/or receiving water limitations are included in the MS4 permit to implement TMDLs.

[17] The Cities of Pico Rivera, Downey, Norwalk, La Mirada and Artesia (hereinafter "the Cities") submitted Administrative Petitions (Petitions) to the California State Water Resources Control Board (SWRCB) pursuant to section 13320(a) of the California Water Code requesting that the SWRCB review various terms and requirements set forth in the 2012 MS4 Permit, Order No. R4-2012-0175 (2012 Permit) adopted by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board)." These Cities have participated in good faith in the development of this Lower San Gabriel River Watershed Management Program (WMP). Nothing in this WMP shall affect those cities' administrative petitions, nor shall anything in this WMP constitute a waiver of any positions or rights therein.

- CATEGORY 2 (HIGH PRIORITY): Pollutants for which data indicate water quality impairment in the receiving water according to the State's Listing Policy and for which MS4 discharges may be causing or contributing to the impairment.
- CATEGORY 3 (MEDIUM PRIORITY): Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in the MS4 permit and for which MS4 discharges may be causing or contributing to the exceedance.

Sources for the waterbody-pollutant combinations are identified by considering the following:

- Review of available data, including historical findings from the participating agencies' Minimum Control Measure and TMDL programs, watershed model results and other pertinent information, data or studies.
- Locations of major MS4 outfalls and major structural controls for stormwater and nonstormwater that discharge to receiving waters.
- Other known and suspected sources of pollutants from the MS4 to receiving waters.

Based on the findings of the source assessment, the issues within the watershed are prioritized and sequenced. Factors considered in establishing watershed priorities include:

1. Pollutants for which there are water quality based effluent limitations and/or receiving water limitations with interim or final compliance deadlines within the permit term.
2. Pollutants for which there are water quality based effluent limitations and/or receiving water limitations with interim or final compliance deadlines between October 26, 2012 and October 25, 2017.
3. Pollutants for which data indicate impairment in the receiving water and the findings from the source assessment implicates discharges from the MS4, but no TMDL has been developed.

1.6.1 REASONABLE ASSURANCE ANALYSIS AND WATERSHED CONTROL MEASURES

As part of the WMP plan, a Reasonable Assurance Analysis (RAA) is conducted for each waterbody-pollutant combination. The RAA consists of an assessment, through quantitative analysis or modeling, to demonstrate that the activities and control measures (i.e. BMPs) identified in the Watershed Control Measures section of the WMP are performed to demonstrate that applicable water quality based effluent limitations and/or receiving water limitations with compliance deadlines during the permit term will be achieved. Watershed Control Measures are subdivided into 1) Minimum Control Measures, 2) Non-Stormwater Discharge Measures 3) TMDL Control Measures and 4) other control measures for water-body pollutant Categories 1, 2 and 3.

Schedules are developed for strategies, control measures and BMPs to be implemented by each individual Permittee within its jurisdiction and for those that will be implemented by multiple

Permittees on a watershed scale. The schedule will measure progress and incorporate 1) Compliance deadlines occurring within the permit term for all applicable interim and/or final water quality based effluent limitations and/or receiving water limitations to implement TMDLs, 2) Interim deadlines and numeric milestones within the permit term for any applicable final water quality based effluent limitation and/or receiving water limitation to implement TMDLs, where deadlines within the permit term were not otherwise specified, and 3) For watershed priorities related to addressing exceedances of receiving water limitations.

1.6.2 ADAPTIVE MANAGEMENT

An adaptive management process will be implemented every two years from the date of program approval, adapting the WMP to become more effective, based on, but not limited to the following:

1. Progress toward achieving the outcome of improved water quality in MS4 discharges and receiving waters through implementation of the watershed control measures,
2. Progress toward achieving interim and/or final water quality based effluent limitations and/or receiving water limitations, or other numeric milestones where specified, according to established compliance schedules,
3. Re-evaluation of the highest water quality priorities identified for the Watershed Management Area based on more recent water quality data for discharges from the MS4 and the receiving water(s) and a reassessment of sources of pollutants in MS4 discharges,
4. Availability of new information and data from sources other than the Permittees' monitoring program(s) within the Watershed Management Area that informs the effectiveness of the actions implemented by the Permittees,
5. Regional Water Board recommendations; and
6. Recommendations for modifications to the WMP solicited through a public participation process

Based on the results of the iterative process, modifications necessary to improve the effectiveness of the WMP will be reported in the Annual Report, and as part of the Report of Waste Discharge (ROWD). Any necessary modifications to the WMP will be implemented upon acceptance by the Regional Water Board Executive Officer or within 60 days of submittal if the Regional Water Board Executive Officer expresses no objections.

2 IDENTIFICATION OF WATER QUALITY PRIORITIES

2.1 WATERBODY POLLUTANT CLASSIFICATION

One of the goals of this Watershed Management Program (WMP) is to identify and address water quality priorities within the Lower San Gabriel River Watershed (Lower SGR Watershed). In order to begin prioritizing water quality issues within the Lower SGR Watershed, an evaluation of existing water quality conditions, including characterization of stormwater and nonstormwater discharges from the Municipal Separate Storm Sewer System (MS4) and receiving waters has been completed per section VI.C.5.a of the MS4 Permit.

The existing water quality conditions of the Lower SGR Watershed were used to classify pollutants into three categories each with specific subcategories. These categories outline watershed priorities, which include, at a minimum, achieving applicable water quality-based effluent limitations and/or receiving water limitations established pursuant to TMDLs. The categories and subcategories are described below:

- Category 1: Waterbody-pollutant combinations for which water quality-based effluent limitations and/or receiving water limitations are established in Part VI.E TMDL Provisions and Attachments L through R of the MS4 Permit.
    - Category 1A: **Final** deadlines within permit term (after approval of WMP[1] & prior to December 28, 2017)
    - Category 1B: **Interim** deadlines within permit term (after approval of WMP[2] & prior to December 28, 2017)
    - Category 1C: **Final** deadlines between December 29, 2017 - December 28, 2022
    - Category 1D: **Interim** deadlines between December 29, 2017 - December 28, 2022
    - Category 1E: **Interim & final** deadlines after December 28, 2022
    - Category 1F: **Past final** deadlines (final deadlines due prior to approval of WMP)
- Category 2: Pollutants for which data indicate water quality impairment in the receiving water according to the State Board's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment.
    - Category 2A: Non-legacy pollutants
    - Category 2B: Bacterial indicators
    - Category 2C: Legacy pollutants
    - Category 2D: Water quality indicators
- Category 3: Pollutants for which there are insufficient data to indicate water quality impairment in the receiving water according to the State's Listing Policy, but which exceed applicable receiving water limitations contained in this Order and for which MS4 discharges may be causing or contributing to the exceedance.

[1] Upon approval and no later than April 28, 2015.

[2] *Ibid.*

- Category 3A: Non-legacy pollutants
- Category 3B: Bacterial indicators
- Category 3C: Legacy pollutants
- Category 3D: Water quality indicators

The Lower SGR Watershed encompasses Reaches 1, 2, and 3 of the San Gabriel River, Coyote Creek, and the lower portions of the San Jose Creek (SJC Reach 1)[3]. A small portion of the watershed in the Diamond Bar area drains primarily through natural drainage to Chino Creek and the jurisdiction of the Santa Ana Region (Region 8). This area will be addressed through watershed control measures discussed in later chapters of this WMP. The pollutants for which the Lower SGR Watershed is listed as impaired for are shown on Figure 1-1.

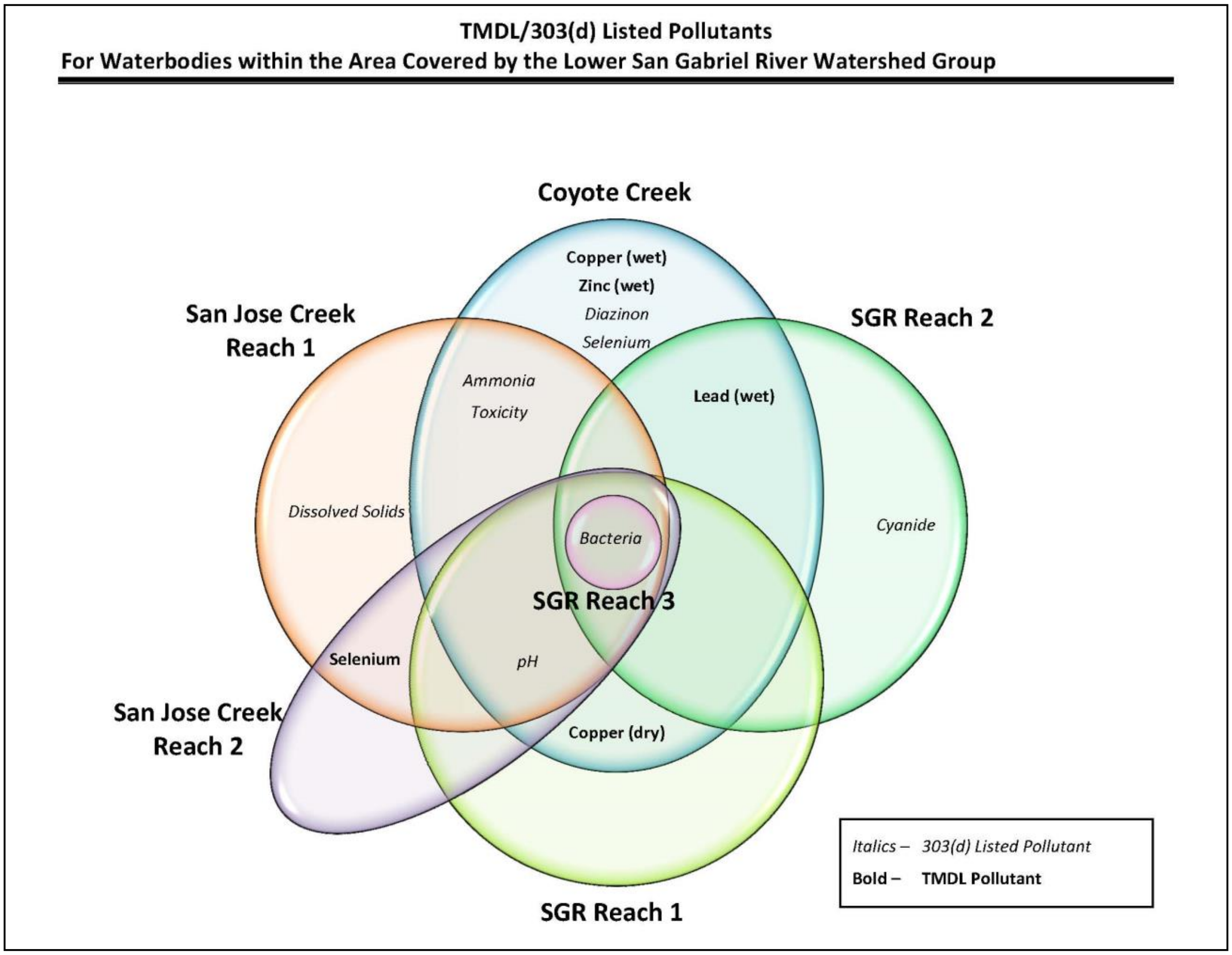


Figure 2-1: Lower San Gabriel River Watershed pollutant Venn diagram

[3] The USGS Hydrologic Unit Code Equivalent HUC boundaries created by LACFCD included the City of Diamond Bar in the Upper SJC HUC (180701060501); however, this designation does not coincide with the LA Basin Plan Reach designations that commence the Upper SJC (Reach 2) at Temple Avenue in Pomona. According to this designation, Diamond Bar drains solely to SJC Reach 1.

The pollutant categories are summarized below including the weather condition for which impairment was determined:

Category 1 B

- ***Copper*** *– San Gabriel River Reach 1 (Dry), Coyote Creek (Wet & Dry), North Fork Coyote Creek (Wet)*
- ***Lead*** *– San Gabriel River Reach 2 (Wet), Coyote Creek (Wet), San Jose Creek Reach 1 (Wet), North Fork Coyote Creek (Wet)*
- ***Zinc*** *– Coyote Creek (Wet), North Fork Coyote Creek (Wet)*
- ***Selenium*** *– San Jose Creek Reach 1 (Dry)*

Category 2A

- ***Ammonia*** *– Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Cyanide*** *– Coyote Creek (Wet & Dry), San Gabriel River Reach 2 (Wet & Dry)*
- ***Diazinon*** *– Coyote Creek (Wet & Dry)*
- ***PAHs*** *– San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet and Dry)*Category 2B
- ***Bacteria*** *– San Gabriel River Reach 1 (Wet & Dry), San Gabriel River Reach 2 (Wet & Dry), Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry), North Fork Coyote Creek (Wet & Dry)*

Category 2C

- ***Copper*** *– San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Lead*** *– Coyote Creek (Dry)*
- ***Mercury*** *– North Fork Coyote Creek (Wet & Dry)*
- ***Nickel*** *– Coyote Creek (Dry)*
- ***Selenium*** *– North Fork Coyote Creek (Wet & Dry)*
- ***Zinc*** *–San Gabriel River Reach 2 (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry), Coyote Creek (Dry)*

Category 2D

- ***Chloride*** *– San Jose Creek Reach 1 (Dry)*
- ***pH*** *– San Gabriel River Reach 1 (Wet & Dry), Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*
- ***Total Dissolved Solids*** *– San Jose Creek Reach 1 (Dry)*
- ***Toxicity*** *– Coyote Creek (Wet & Dry), San Jose Creek Reach 1 (Wet & Dry)*

Category 3A

- ***Cyanide*** *– North Fork Coyote Creek (Wet and Dry), San Jose Creek Reach 1 (Wet and Dry)*
- ***Chloride*** *– San Gabriel River Reach 2 (Dry), Coyote Creek (Dry), San Jose Creek Reach 1 (Dry)*
- ***Lindane*** *– San Gabriel River Reach 2 (Wet and Dry)*

- ***Sulfate** – San Gabriel River Reach 2 (Dry)[4], San Jose Creek Reach 1(Dry)*

CATEGORY 3C

- ***Alpha-Endosulfan** – Coyote Creek (Dry)[5]*
- ***Copper** – North Fork Coyote Creek (Dry)*
- ***Selenium** – San Gabriel River Reach 1 (Dry)*

CATEGORY 3D

- ***Dissolved Oxygen** – San Gabriel River Reach 1 (Dry),San Gabriel River Reach 2 (Wet and Dry), Coyote Creek (Wet)[6], San Jose Creek Reach 1 (Wet & Dry)*
- ***MBAS** – Coyote Creek (Wet), San Gabriel River Reach 2 (Wet)*
- ***pH** –North Fork Coyote Creek (Dry)*
- ***Total Dissolved Solids** – San Gabriel River Reach 2 (Dry)*

Tables 2-1 and 2-2 summarize the waterbody pollutant combinations for the Lower SGR Watershed.

Table 2-1: Wet weather waterbody/pollutant categories

Category	Analyte	SGR1[(a)]	SGR2[(b)]	SJC1[(c)]	CC[(d)]	NFC[(e)]
1	Copper				×	×
	Lead		×	×	×	×
	Zinc				×	×
2	Ammonia			×	×	
	Copper		×	×		
	Cyanide		×		×	
	Diazinon				×	
	E. coli	×	×	×	×	×
	Mercury					×
	PAH		×	×		
	pH	×		×	×	
	Selenium					×
	Toxicity			×	×	
	Zinc		×	×		
3	Cyanide			×		×
	Dissolved Oxygen		×	×	×	
	Lindane		×			
	MBAS		×		×	
	Selenium	×				

[(a)]San Gabriel River Reach 1, [(b)]San Gabriel River Reach 2, [(c)]San Jose Creek Reach 1
[(d)]Coyote Creek, [(e)]North Fork Coyote Creek

[4] This waterbody/pollutant combination was added due to one exceedance occurring during the 09-10 storm year. There have been no exceedances detected since this time.

[5] This waterbody/pollutant combination was added due to one exceedance occurring during the 09-10 storm year. There have been no exceedances detected since this time.

[6] This waterbody/pollutant combination was added due to one exceedance occurring during the 03-04 storm year. There have been no exceedances detected since this time.

Table 2-2: Dry weather waterbody/pollutant categories

Category	Analyte	SGR1[a]	SGR2[b]	SJC1[c]	CC[d]	NFC[e]
1	Copper	X			X	
	Selenium			X		
2	Ammonia			X	X	
	Chloride			X		
	Copper		X	X		
	Cyanide		X		X	
	Diazinon				X	
	E. coli	X	X	X	X	X
	Lead				X	
	Mercury					X
	Nickel				X	
	PAH		X	X		
	pH	X		X	X	
	Selenium					X
	TDS			X		
	Toxicity			X	X	
	Zinc		X	X	X	
3	Alpha-endosulfan				X	
	Chloride		X	X	X	
	Copper					X
	Cyanide			X		X
	Dissolved Oxygen	X	X	X		
	Lindane		X			
	pH					X
	Selenium	X				
	Sulfate		X	X		
	TDS		X			

[a]San Gabriel River Reach 1, [b]San Gabriel River Reach 2, [c]San Jose Creek Reach 1
[d]Coyote Creek, [e]North Fork Coyote Creek

2.1.1 CATEGORY 1 POLLUTANTS

METALS (COPPER, LEAD, & ZINC) AND SELENIUM

Copper (for San Gabriel River Reach 1 and Coyote Creek), lead (for San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1), zinc (for Coyote Creek), and selenium (for San Jose Creek Reach 1) are classified as a Category 1B pollutants. These waterbody-pollutant combinations are addressed in the USEPA established San Gabriel River and Impaired Tributaries Metals and Selenium TMDL. Implementation of this TMDL to achieve applicable receiving water limitations for these pollutants is discussed in later chapters of this WMP. Table 2-3 lists the TMDL targets.

Table 2-3: TMDL Targets for Category 1 Pollutants

Weather	Waterbody	Pollutant	Target	Source
Wet	San Gabriel River Reach 2	Pb	81.34 ug/L	WQBEL
	Coyote Creek	Cu	24.71 ug/L	WQBEL
	Coyote Creek	Pb	96.99 ug/L	WQBEL
	Coyote Creek	Zn	144.57 ug/L	WQBEL
Dry	San Gabriel River Reach 1	Cu	18 ug/L	WQBEL
	San Gabriel River Reach 1	*E-coli*	126 MPN/100 mL	WQBEL
	San Jose Creek Reach 1, 2	Se	5 ug/L	WQBEL
	San Jose Creek Reach 1, 2	*E-coli*	126 MPN/100mL	WQBEL
	Coyote Creek	Cu	0.941 kg/d	WQBEL
	Coyote Creek	*E-coli*	126 MPN/100mL	WQBEL

2.1.2 CATEGORY 2 POLLUTANTS

The following pollutants have been categorized as Category 2 because data indicate water quality impairment due to these constituents according to the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy)[7]. This section concludes with Table 2-4, a summary of the applicable Water Quality Objectives (WQOs) for these pollutants.

AMMONIA[8]

Ammonia is a nutrient which is harmful in high levels. The 303(d) List has indicated that the San Jose Creek Reach 1 and Coyote Creek are impaired by ammonia; therefore, ammonia is classified as a Category 2A pollutant for San Jose Creek Reach 1 and Coyote Creek.

According to the California 2010 Integrated Report, ammonia was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reach 1; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

BACTERIA

The 303(d) List has indicated that the San Gabriel River (Reaches 1 & 2), San Jose Creek (Reach 1), North Fork Coyote Creek, and Coyote Creek are impaired by bacteria[9]. In addition, Los Angeles County Flood Control District (LACFCD) Tributary Station TS(17) North Fork Coyote Creek detected 8 out of 8 wet weather exceedances of LA Basin Plan bacterial WQOs for total coliform, fecal coliform, and fecal

[7] An excerpt of the 2010 California 303(d) List of Water Quality Limited Segments for Region 4 is included in Appendix 2-1

[8] According to the Council for Watershed Health's State of the San Gabriel River watershed, over the last 10 years, upgrades to water reclamation plant (WRP) technologies has resulted in significant decreases in nitrogen compounds (such as ammonia) in receiving waters.

[9] According to the California 2010 Integrated Report, bacteria was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reaches 1 and 2; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

enterococcus. Therefore, bacteria is classified as a Category 2B pollutant for Reaches 1, 2, and 3 of the San Gabriel River, Reach 1 of the San Jose Creek, and Coyote Creek.

CHLORIDE

LACSD data detected 26 out of 108 dry weather exceedances at C1, 22 out of 108 dry weather exceedances at C2, and 21 out of 102 dry weather exceedances at RD in of the LA Basin Plan WQO for chloride between 2004 and 2012. These stations all correspond to Coyote Creek. Since the number of exceedances meets the State Listing Criteria for 303(d) listing[10] chloride is classified as a Category 2D pollutant in Coyote Creek.

COPPER

LACFCD mass emission station S(14) San Gabriel River detected 23 out of 38 wet weather exceedances and 14 out of 21 dry weather exceedances, and LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 9 out of 10 wet weather exceedances and TS(15) Upper San Jose Creek detected 9 out of 10 wet weather and 4 out of 4 dry weather exceedances of the CTR WQO for copper between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[11] Copper is classified as a Category 2C pollutant in San Gabriel River Reach 2, North Fork Coyote Creek and San Jose Creek Reach 1.

CYANIDE

Cyanide is an inorganic chemical compound. The 303(d) List has indicated that San Gabriel River Reach 2 is impaired by cyanide. In addition, there were 4 out of 40 wet weather and 22 out of 23 dry weather exceedances of the CTR water quality objective for cyanide at Coyote Creek between 2002 and 2012[12]. Since this meets the State Listing Criteria for 303(d) listing[13], cyanide is classified as a Category 2A pollutant for the Reach 2 of the San Gabriel River and Coyote Creek.

DIAZINON

Diazinon is an organophosphate insecticide. The 303(d) List has indicated that Coyote Creek is impaired by diazinon; therefore, diazinon is classified as a Category 2A pollutant for the Reach 1 of Coyote Creek.

According to the California 2010 Integrated Report, diazinon was considered for removal from the 303(d) list for Coyote Creek; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards are exceeded and diazinon contributes to or causes the problem.

[10] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Conventionals – Table 3.2.

[11] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

[12] According to the California 2010 Integrated Report, cyanide was considered for placement onto 303(d) list for Coyote Creek; however, it was concluded that the pollutant should not be placed on the 303(d) list for Coyote Creek because applicable water quality standards for the pollutant are not being exceeded.

[13] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

Lead

Lead is classified as a Category 1B pollutant for San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1 during wet weather as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided during dry weather.

Although Coyote Creek does not have an established dry weather WLA within the San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL, data indicates that Coyote Creek is impaired by lead in dry weather. LACFCD Mass Emission Station S(13) detected 9 out of 23 dry weather exceedances of the CTR water quality objective for lead between 2002 and 2012. Therefore, lead is classified as a Category 2C pollutant for Coyote Creek.

Mercury

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by mercury, the LACFCD Tributary station TS(17) North Fork Coyote Creek collected 1 out of 4 wet weather samples and 2 out of 10 dry weather samples exceeding the California Toxics Rule WQO for this pollutant between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[14], mercury is classified a category 2C pollutant within this WMP. It is anticipated that the control measures used to address the pollutants within San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL will subsequently address mercury; however, if exceedances occur and the implemented or proposed control measures do not address mercury, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

Nickel

LACSD data detected 58 out of 85 dry weather exceedances of the CTR WQO for nickel in the Coyote Creek between 2004 and 2012. Since this meets the State Listing Criteria for 303(d) listing[15] nickel is classified as a Category 2C pollutant in Coyote Creek.

PAHs

Although the San Gabriel River and San Jose Creek are not listed as impaired on the 303(d) List for PAHs, monitoring data from the LA County Sanitation Districts (LACSD) indicate numerous exceedances of PAH compounds in the San Gabriel River and San Jose Creek from 2004-2012. Therefore, PAHs are classified as a Category 2A pollutant for San Gabriel River Reach 2 and San Jose Creek Reach 1.

pH

pH is a measure of the acidity or basicity of an aqueous solution. The 303(d) List has indicated that San Gabriel River Reach 1, Coyote Creek, and San Jose Creek Reach 1 are impaired by pH; therefore, pH is

[14] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.
[15] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

classified as a Category 2D for Reach 1 of the San Gabriel River, Coyote Creek, and Reach 1 of the San Jose Creek.

According to the California 2010 Integrated Report, pH was considered for removal from the 303(d) list for Coyote Creek and San Gabriel River Reach 1; however, it was concluded that the pollutant should not be removed from the 303(d) list because applicable water quality standards for the pollutant are being exceeded.

SELENIUM

Selenium is classified as a Category 1C pollutant for San Jose Creek Reaches 1 and 2 as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided for Reaches 1, 2, or 3 of the San Gabriel River or for Coyote Creek.

Although Coyote Creek does not have an established WLA within the San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL, the 303(d) List has indicated that North Fork Coyote Creek is impaired by selenium[16]. Therefore, selenium is classified as a Category 2C pollutant for Coyote Creek.

TOTAL DISSOLVED SOLIDS

Total Dissolved Solids (TDS) is a measure of the combined content of all inorganic and organic substances contained in a liquid. The 303(d) List has indicated that the San Jose Creek Reach 1 is impaired by TDS; therefore, TDS is classified as a Category 2D for San Jose Creek Reach 1.

TOXICITY

The 303(d) List has indicated that Coyote Creek and San Jose Creek Reach 1 are impaired by toxicity; therefore, toxicity is classified as a Category 2D for Coyote Creek and Reach 1 of the San Jose Creek.

According to the California 2010 Integrated Report, San Gabriel River Reaches 1 and 3 were originally listed on the 303(d) list for toxicity and were removed based on the conclusion that applicable water quality standards are not being exceeded.

ZINC

LACFCD mass emission station S(13) Coyote Creek detected 5 out of 23 dry weather exceedances, LACFCD mass emission station S(14) San Gabriel River detected 27 out of 38 wet weather exceedances and 8 out of 21 dry weather exceedances, and LACFCD Tributary Station TS(15) Upper San Jose Creek detected 9 out of 10 wet weather exceedances and 3 out of 4 dry weather exceedances of the CTR WQO

[16] Based on data from the State Listing Policy lines of evidence ID #2425, #2426, #25164, and #25162 collected by the County of Los Angeles Department of Public Works, and the Los Angeles County Sanitation Districts, selenium is being considered for removal from the 303(d) list for Coyote Creek. The Regional Board concluded that the pollutant should not be on the 303(d) list because applicable water quality standards are not being exceeded. It has been recommended that the decision be approved by the State Board and selenium has not yet been removed from the 303(d) list for Coyote Creek

for zinc between 2002 and 2012. Since this meets the State Listing Criteria for 303(d) listing[17] zinc is classified as a Category 2C pollutant in San Gabriel River Reach 2 and San Jose Creek Reach 1.

Table 2-4: Water Quality Objectives for Category 2 Pollutants

Pollutant	Weather	Lowest Applicable WQO	Source
Ammonia	Wet	Varies based on pH and temperature for Cold waters and Warm Waters (Table 3-1 to 3-4 of Basin Plan)	Basin Plan—Total Ammonia-Nitrogen (NH3-N)
	Dry		
Copper	Wet	5.7 ug/L[(a)]	CTR Freshwater (1 hr avg.) dissolved
	Dry	4.1 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved
Cyanide	Wet	22 ug/L	CTR Freshwater (1 hr avg.)
	Dry	5.2 ug/L	CTR Freshwater (4 day avg.)
Diazinon	Wet	0.16 ug/L[(b)]	CA Dept. of Fish and Game Freshwater (1-hour avg)
	Dry	0.1 ug/L[(b)]	CA Dept. of Fish and Game Freshwater (4-day avg)
PAHs	Wet	See footnote (c)	CTR Human Health other than drinking water
	Dry	See footnote (c)	CTR Human Health other than drinking water
E. coli	Wet	235/100 ml	LA Basin Plan
	Dry	235/100 ml	LA Basin Plan
Mercury	Wet/Dry	0.051 ug/L	CTR Human Health (30-d avg; fish consumption only)
pH	Wet/Dry	6.5-8.5	LA Basin Plan
Selenium	Wet	20 ug/L	NTR Freshwater (1 hr avg.) total recoverable
	Dry	5 ug/L	NTR Freshwater (4 day avg.) total recoverable
Toxicity	Wet/Dry	See footnote (d)	Basin Plan
Zinc	Wet	54 ug/L[(a)]	CTR Freshwater (1 hr avg.) dissolved
	Dry	54 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved
Chloride	Dry	150 mg/L	Basin Plan: applies to specific portions of watershed
Lead	Dry	0.92 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved
Nickel	Dry	20 ug/L[(a)]	CTR Freshwater (4 day avg.) dissolved

a) Objectives for these constituents are hardness dependent. Values listed are based upon a total hardness of 40 mg/L.

b) Value adjusted by removing *Gammarus fasciatus* study results per recommendation of Finlayson, California Dept. of Fish and Game.

c) CTR does not contain criteria for total PAHs. Each available human health CTR Water Quality Objectives for other than drinking water will be applied.

d) There shall be no acute toxicity in ambient waters, including mixing zones. The acute toxicity objective for discharges dictates that the average survival in undiluted effluent for any three consecutive 96-hour static continuous flow bioassay tests shall be at least 90%, with no single test having less than 70% survival when using an established USEPA, State Board, or other protocol authorized by the Regional Board. There shall be no chronic toxicity in ambient in ambient waters outside mixing zones. To determine compliance with this objective, critical life stage tests for at least three species with approved testing protocols shall be used to screen for the most sensitive species. The test species used for screening shall include a vertebrate, an invertebrate, and an aquatic plant. The most sensitive species shall then be used for routine monitoring. Typical endpoints for chronic toxicity tests include hatchability, gross morphological abnormalities, survival, growth, and reproduction.

[17] According to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Minimum Number of Measured Exceedances Needed to Place a Water Segment on the Section 303(d) List for Toxicants – Table 3.1.

2.1.3 CATEGORY 3 POLLUTANTS

The waterbody-pollutant combinations described below have been identified as exceeding water quality objectives (WQOs) in the Lower SGR Watershed. Through the adaptive management process, water quality priorities identified in this WMP will be re-evaluated every two years, and if exceedances of Category 3 WQOs are identified through monitoring, then the WMP will be adapted to become more effective in addressing these constituents, per Section VI.C.8.a.ii of the MS4 Permit. Note that station S(14) is of limited value to the Lower SGR Watershed as the watershed's drainage comprises approximately 2% of the drainage captured by this station. Therefore its precision in measuring MS4 contributions from the watershed is uncertain.

ALPHA-ENDOSULFAN

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by Endulsulfan sulfates, the LACFCD Mass Emissions station S(13) in the Coyote Creek collected 1 out of 22 dry weather samples exceeding the California Toxics Rule WQO for this pollutant between 2002 and 2012. This exceedance occurred during the 2009-10 storm year, and there have been no further exceedances detected since this time. Alpha-Endosulfan is classified a category 3C. If exceedances are found to occur and the implemented or proposed control measures do not address Alpha-Endosulfan, the WMP will be revised to include control measures to address the pollutant directly.

CHLORIDE

According to the California 2010 Integrated Report, Coyote Creek was originally listed on the 303(d) list for chloride and was removed based on the conclusion that applicable water quality standards are not being exceeded. However, there were 4 out of 22 dry weather exceedances of the LA Basin Plan WQO for chloride at the LACFCD Mass Emissions station S(14) in San Gabriel River between 2002 and 2012 and 3 out of 23 wet weather exceedances of the USEPA National Recommended WQO for chloride at S(13) between 2002 and 2012; therefore, Chloride is classified a category 3A pollutant within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address chloride, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

COPPER

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 4 out of 4 dry weather exceedances of the CTR WQO for copper between 2002 and 2012. Copper is classified as a Category 3C pollutant within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address Copper, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

CYANIDE

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 1 out 8 wet weather and 1 out of 4 dry weather exceedances and Station TS(15) Upper San Jose Creek detected 1 out of 9 wet weather exceedances of the CTR WQO for cyanide between 2002 and 2012. Therefore Cyanide is classified as a

Category 3C pollutant for North Fork Coyote Creek and San Jose Creek Reach 1. If exceedances are found to occur and the implemented or proposed control measures are not expected to address cyanide, the Lower SGR WMP will be revised to include control measures to address the pollutant directly.

Dissolved Oxygen

According to the California 2010 Integrated Report, dissolved oxygen (more correctly a lack of dissolved oxygen) was considered for placement onto 303(d) list for Coyote Creek; however, it was concluded that the dissolved oxygen should not be placed on the 303(d) list for Coyote Creek because applicable water quality standards are not being exceeded.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by low dissolved oxygen, the LACFCD Mass Emissions station S(13) in Coyote Creek collected 1 out of 39 wet weather samples below the dissolved oxygen water quality criteria between 2002 and 2012. This exceedance occurred during the 2003-04 storm year, and there have been no exceedances detected since that time. In addition, LACSD detected 10 out of 501 samples during dry weather in San Jose Creek and 11 out of 550 samples in San Gabriel River that were below the WQO for dissolved oxygen between 2004 and 2012. Therefore, dissolved oxygen is classified as a Category 3D pollutant within this WMP. If exceedances are found to occur through monitoring and the implemented or proposed control measures are not expected to address the dissolved oxygen impairment, the WMP will be revised to include control measures to address it directly.

Lindane

Lindane is a persistent organic pollutant and is relatively long-lived in the environment.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by lindane, historical data detected exceedances of lindane in San Gabriel River Reach 2. Therefore, lindane is classified as Category 3A within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the pollutant, the WMP will be revised to include control measures to address it directly.

Methylene Blue Active Substances (MBAS)

An MBAS assay is used to detect the presence of detergents or foaming agents in water samples.

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by MBAS, the LACFCD Mass Emissions station S(13) in Coyote Creek collected 5 out of 42 wet weather samples, the LACFCD Mass Emissions station S(14) in Upper San Gabriel River collected 1 out of 37 wet weather samples that exceeded the Basin Plan WQO for MBAS between 2002 and 2012. Therefore, MBAS is classified as Category 3D within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the pollutant, the WMP will be revised to include control measures to address it directly.

pH

LACFCD Tributary Station TS(17) North Fork Coyote Creek detected 3 out of 4 dry weather exceedances of the LA Basin Plan WQO for pH between 2002 and 2012. Therefore pH is classified as a Category 3D pollutant within this WMP. If exceedances are found to occur through monitoring and the implemented or proposed control measures are not expected to address the impairment, the WMP will be revised to include control measures to address pH directly.

Selenium

Selenium is classified as a Category 1B pollutant for San Jose Creek Reach 1 during dry weather as it is to be addressed by the USEPA established San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL; however, waste load allocations (WLAs) are not provided for the San Gabriel River or Coyote Creek.

Although the San Gabriel River Reach 1 is not listed as impaired by selenium, the Council for Watershed Health monitoring site SGLT5617 in the San Gabriel River detected 1 exceedance of the National Toxics Rule WQO for selenium between 2005 and 2009. Therefore, selenium is classified as a Category 3C pollutant within this WMP for the San Gabriel River Reach 1. It is anticipated that the control measures used to address the pollutants within the San Gabriel River and Impaired Tributaries Metals and Selenium TMDL will subsequently address selenium; however, if exceedances are found to occur and the implemented or proposed control measures do not address sulfates, the WMP will be revised.

Sulfates

Although the waterbodies within the Lower SGR Watershed are not listed as impaired by sulfates, the LACFCD Mass Emissions station S(14) in the Upper San Gabriel River collected 1 out of 22 dry weather samples exceeding the Basin Plan WQO for sulfates between 2002 and 2012. This exceedance occurred during the 2009-10 storm year, and there have been no exceedances detected since that time. In addition, the LACSD detected 1 out of 503 dry weather samples exceeding the California Secondary MCL for sulfates between 2004 and 2012 in the San Jose Creek. Therefore, Sulfates are classified as a Category 3A within this WMP for the San Gabriel River Reach 1 and the San Jose Creek; however, these waterbody/pollutant combinations will not be directly addressed through the WMP. It is anticipated that the control measures used to address the pollutants within San Gabriel River Metals and Impaired Tributaries Metals and Selenium TMDL will subsequently address sulfates; however, if exceedances are found to occur and the implemented or proposed control measures do not address sulfates, the WMP will be revised to include control measures to address the pollutant directly.

Total Dissolved Solids

Total Dissolved Solids (TDS) is a measure of the combined content of all inorganic and organic substances contained in a liquid. The LACFCD Mass Emission station S(14) collected 2 out of 22 dry weather samples exceeding the LA Basin Plan WQO for Total Dissolved Solids between 2002 and 2012.

Therefore TDS is classified as a Category 3D within this WMP. If exceedances are found to occur and the implemented or proposed control measures are not expected to address the condition, the WMP will be revised to include control measures to address it directly.

2.1.4 POLLUTANT CLASSIFICATION

In order to determine the sequence of addressing pollutants of concern, the pollutants have been placed into classification groups. Pollutants have been identified to be in the same "class" if they have a similar fate and transport, can be addressed via the same types of control measures, and can be addressed within the same timeline. The six following classes have been identified:

- Metals
- Nutrients
- Bacteria
- Pesticides
- Semivolatile Organic Compounds (SVOC)
- Water Quality Indicators/General

The specific classes and pollutants associated can be found below. Since similar control measures and timelines are to be implemented for pollutants within the same class, each class will be treated with the highest priority of any one pollutant within that class. Watershed Control Measures and Compliance Schedules are discussed in Sections 3 and 5, respectively.

METALS

Copper
Lead
Mercury
Nickel
Selenium
Zinc

NUTRIENTS

Ammonia

BACTERIA

Coliform Bacteria
E.Coli

PESTICIDES

Alpha Endosulfan
Diazinon
Lindane

SVOCS

PAHs

WATER QUALITY INDICATORS/GENERAL

Chloride
Cyanide
Dissolved Oxygen
MBAS
pH
Sulfate
Total Dissolved Solids
Toxicity

2.2 WATER QUALITY CHARACTERIZATION

In order to characterize existing water quality conditions in the Lower SGR Watershed, and to identify pollutants of concern for prioritization per section VI.C.5.a.ii of the MS4 Permit, available monitoring data collected during the previous ten years were analyzed. The following sources were utilized during the water quality characterization:

- LACFCD Mass Emission and Tributary Monitoring Programs
- Los Angeles County Sanitation Districts (LACSD)
- San Gabriel River Regional Watershed Monitoring Program (SGRRMP)
- County of Orange Coyote Creek Monitoring Program

A summary of each of these monitoring efforts and relevant findings is presented below. In addition to providing a characterization of the current conditions within the watershed, this information will be used to target watershed management efforts in the Lower SGR Watershed.

2.2.1 MASS EMISSIONS HISTORICAL DATA ANALYSIS

Since 1994, the LACFCD has conducted stormwater monitoring in Los Angeles County. The LACFCD operates seven mass emission monitoring stations, which collect runoff from the major watersheds in the county with the goal of estimating the mass emissions from the MS4, assessing mass emissions trends, and determining whether the MS4 is contributing to exceedances of water quality standards by comparing results to applicable objectives in the Water Quality Control Plan for the Los Angeles Region (Basin Plan), and the California Toxics Rule (CTR).

The mass emissions monitoring dataset is the most comprehensive information to date regarding the condition of water quality in the San Gabriel River and its tributaries. Two LACFCD Monitoring Stations, S(13) and S(14), collect samples that are applicable to the Lower SGR Watershed.

COYOTE CREEK MONITORING STATION S(13)

The Coyote Creek Monitoring station, S(13), is located at the existing Army Corps of Engineers stream gauge station (i.e. Stream Gauge F354-R) below Spring Street in the Lower SGR Watershed. The upstream tributary area is 150 square miles and extends into Orange County. The sampling station was chosen to avoid backwater effects from the San Gabriel River to ensure that all water being sampled is from Coyote Creek only. Coyote Creek is a concrete-lined trapezoidal channel at this location. Figure 2-2 shows the location and sub-drainage area of this station.

SAN GABRIEL MONITORING STATION S(14)

The San Gabriel River Monitoring Station, S(14), is located at an historic stream gauge station (Stream Gauge F263C-R), below San Gabriel River Parkway in Pico Rivera. Approximately 10% of the Lower SGR Watershed area drains to the San Jose Creek which discharges to the San Gabriel River Reach 2 upstream of the S(14) monitoring station. Lower SGR Watershed drainage comprises approximately 2% of the drainage captured by this station. While the Watershed Group is aware of this monitoring

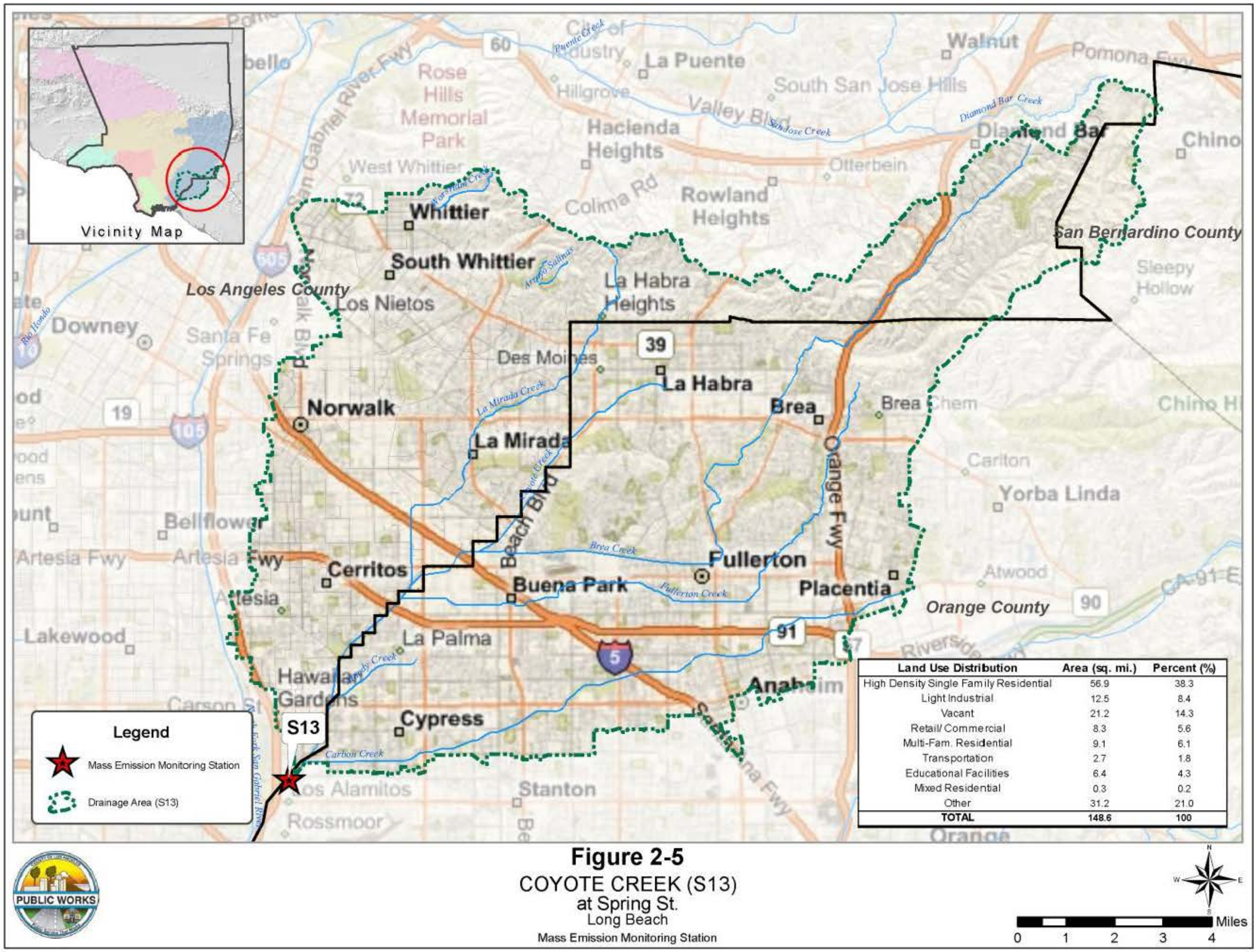
location and analyzed 10 years of data to determine WQPs, it may not be wholly representative of MS4 contributions from the Lower SGR Watershed since the station captures runoff from a large area outside of the Lower SGR Watershed. The Lower SGR Watershed Group will continue to monitor this station through the Lower SGR CIMP.

The upstream tributary area for station S(14) is 450 square miles (most of this area falls outside of the Lower SGR Watershed). The San Gabriel River is a grouted rock-concrete stabilizer along the western levee and a natural section on the eastern side. Flow measurement and water sampling are conducted in the grouted rock area along the western levee of the river. The length of the concrete stabilizer is nearly 70 feet. The San Gabriel River sampling location has been an active stream gauging station since 1968. Figure 2-3 shows the location and sub-drainage area of this station.

Both stations, S(13) and S(14), are equipped with automated samplers with integral flow meters, and collect flow composite samples from a minimum of three storm events, including the first storm, and two dry weather events in accordance with the 1996 MS4 Permit.

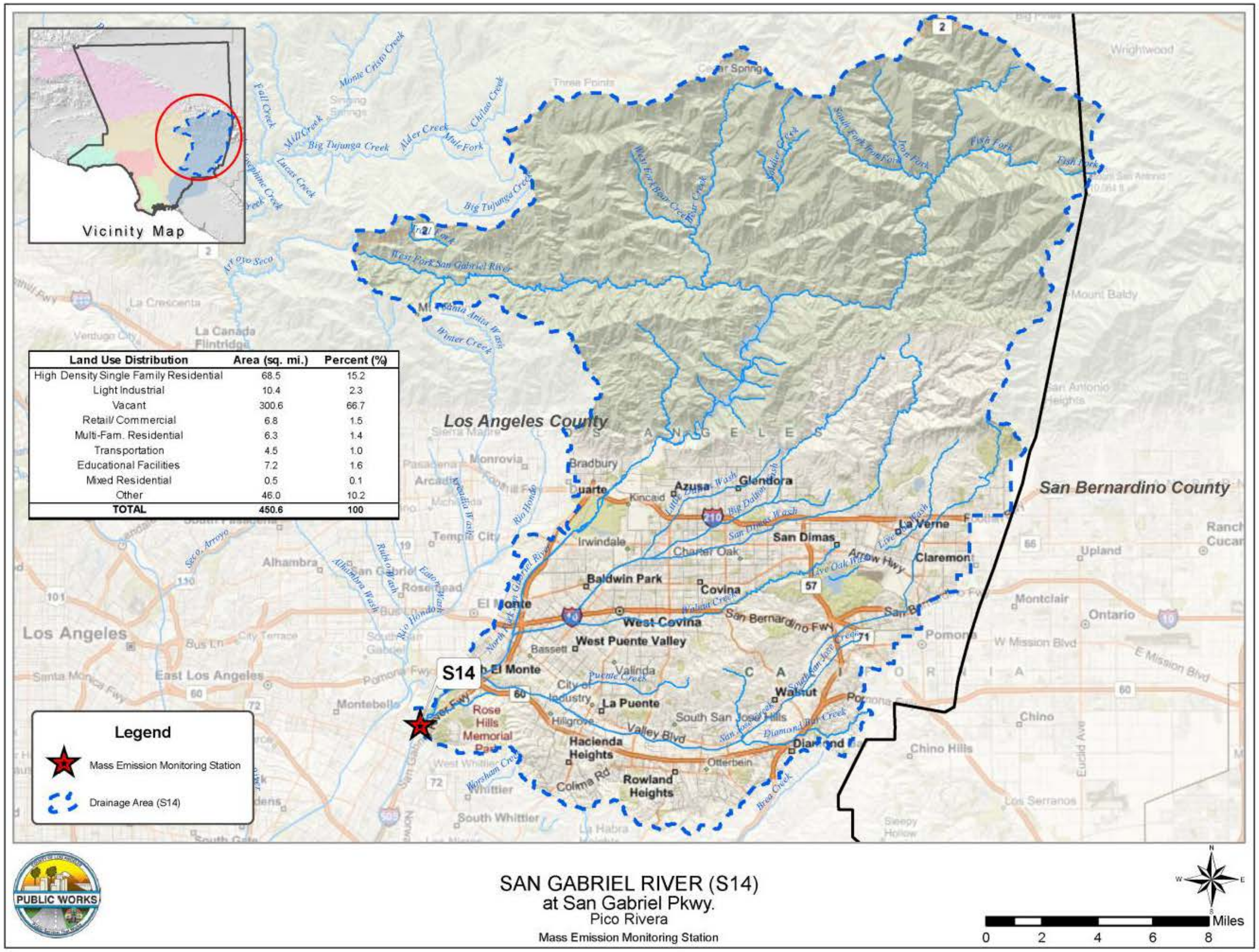
Monitoring data from stormwater collected at stations S(13) and S(14) were compared to the most stringent applicable WQOs to determine exceedances of receiving water limitations. WQOs were determined pursuant to TMDLs, the Basin Plan and the California Toxics Rule, 40 CFR Part 131.38 (CTR). Water quality objectives for chlorpyrifos and diazinon were determined using the freshwater final acute criteria set by the California Department of Fish and Game. Many of the WQOs were used as benchmarks for determining Water Quality Priorities, and should not be used for compliance purposes. Please refer to the Lower SGR Watershed Coordinated Integrated Monitoring Plan (CIMP) for a table of monitored constituents along with their most up-to-date WQOs.

A summary of the constituents not attaining WQOs at stations S(13) and S(14) during the monitoring years 2002-2012 is presented in Tables 2-5 to 2-8 below. Complete tables of monitoring results can be found in Appendix 2-2. Constituents were compared against the most appropriate WQO to date. Refer to CIMP Appendices for a table of monitored constituents along with applicable WQOs.



Land Use Distribution	Area (sq. mi.)	Percent (%)
High Density Single Family Residential	56.9	38.3
Light Industrial	12.5	8.4
Vacant	21.2	14.3
Retail/ Commercial	8.3	5.6
Multi-Fam. Residential	9.1	6.1
Transportation	2.7	1.8
Educational Facilities	6.4	4.3
Mixed Residential	0.3	0.2
Other	31.2	21.0
TOTAL	**148.6**	**100**

Figure 2-2: Coyote Creek S(13) monitoring station



Land Use Distribution	Area (sq. mi.)	Percent (%)
High Density Single Family Residential	68.5	15.2
Light Industrial	10.4	2.3
Vacant	300.6	66.7
Retail/ Commercial	6.8	1.5
Multi-Fam. Residential	6.3	1.4
Transportation	4.5	1.0
Educational Facilities	7.2	1.6
Mixed Residential	0.5	0.1
Other	46.0	10.2
TOTAL	**450.6**	**100**

Figure 2-3: San Gabriel River (S14) Monitoring Location

Table 2-5: S(13) Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	40	4	10	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	42	2	5	6.5-8.5	LA Basin Plan
Dissolved Oxygen	39	1	3	5	LA Basin Plan
Total Coliform	40	37	93	10000	LA Basin Plan - Marine Waters
Fecal Coliform	40	40	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	40	40	100	104	LA Basin Plan - Marine Waters
MBAS	42	5	12	0.5	LA Basin Plan
Total Copper	42	26	62	27	SG River Metals TMDL
Total Lead	42	1	2	106	SG River Metals TMDL
Total Selenium	42	1	2	5	SG River Metals TMDL
Dissolved Zinc	42	8	19	120	CTR-100mg/L CMC
Total Zinc	42	29	69	106	SG River Metals TMDL
Diazinon	42	3	7	0.08	CADF&G

Table 2-6: S(13) Constituents Exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	23	22	96	0.0052	CTR Freshwater Aquatic Life Protection, Chronic
pH	23	5	22	6.5-8.5	LA Basin Plan
Total Coliform	23	10	43	10000	LA Basin Plan - Marine Waters
Fecal Coliform	23	18	78	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	23	16	70	104	LA Basin Plan - Marine Waters
Chloride	23	3	13	230	USEPA National Recommended Criteria
Total Copper	23	3	13	19.1	SG River Metals TMDL
Total Lead	23	9	39	0.92	CTR Freshwater Aquatic Life Criteria - Chronic
Total Selenium	23	14	61	5	SG River Metals TMDL
Total Zinc	23	1	4	95.6	SG River Metals TMDL
Diazinon	23	2	9	0.05	CADF&G
Alpha Endosulfan	23	1	0.04	0.034	CTR Freshwater Aquatic Life Protection, Chronic

Table 2-7: S(14) Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	38	4	11	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	38	2	5	6.5-8.5	LA Basin Plan
Total Coliform	38	33	87	10000	LA Basin Plan - Marine Waters
Fecal Coliform	38	36	95	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	38	36	95	104	LA Basin Plan - Marine Waters
MBAS	37	1	3	0.5	LA Basin Plan
Total Copper	38	23	61	14	CTR Aquactic Life Protection - Acute
Total Zinc	38	27	71	54	CTR Aquactic Life Protection - Acute
Diazinon	39	4	10	0.08	CADF&G

Table 2-8: S(14) Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	22	16	73	0.0052	CTR Freshwater Aquatic Life Protection - Chronic
pH	21	3	14	6.5-8.5	LA Basin Plan
Total Coliform	22	11	50	10000	LA Basin Plan - Marine Waters
Fecal Coliform	22	12	55	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	22	12	55	104	LA Basin Plan - Marine Waters
Chloride	22	4	18	150	LA Basin Plan
Sulfate	22	1	5	300	LA Basin Plan
Total Dissolved Solids	22	2	9	750	LA Basin Plan
Total Copper	21	14	67	9.3	CTR Aquatic Life Protection - Chronic

2.2.2 LACFCD Tributary Monitoring

In addition to the Mass Emission Station monitoring, LACFCD conducted tributary monitoring during the 2006-07 and 2007-08 storm years. This monitoring occurred at 4 tributary stations that fall within the Lower SGR Watershed: TS15: Upper San Jose Creek, TS16: Maplewood Channel, TS17: North Fork Coyote Creek, and TS18: SD 21 (Artesia Norwalk Drain). Two of these sites are located in the storm drain system (TS15 and TS18), while TS15 and TS17 are in 303(d) listed receiving waterbodies. Note: only the data from TS15 and TS17 was used to characterize receiving water and identify WQPs in the Lower SGR watershed. Data analyzed from the TS16 and TS18 will be considered in pollutant source identification during WMP implementation.

TS15: Upper San Jose Creek

The Upper San Jose Creek tributary monitoring site is located on Upper San Jose Creek in the City of Industry, upstream of the confluence with Puente Creek. The site is approximately 500 feet south of where Don Julian Road crosses Puente Creek. The upstream tributary watershed area of Upper San Jose Creek is approximately 72.60 square miles.

TS16: Maplewood Channel

The Maplewood Channel tributary monitoring site is located on Maplewood Channel in Bellflower City, where Trabuco Street ends and crosses Maplewood Channel. The upstream tributary watershed area of Maplewood Channel is approximately 4.90 square miles.

TS17: North Fork Coyote Creek

The North Fork Coyote Creek tributary monitoring site is located on North Fork Coyote Creek in the City of Cerritos, where Artesia Boulevard crosses North Fork Coyote Creek. The upstream tributary watershed area of North Fork Coyote Creek is approximately 34.89 square miles.

TS 18: SD 21 (Artesia-Norwalk Drain)

The SD 21 (Artesia-Norwalk Drain) monitoring site is located on SD 21 (Artesia–Norwalk Drain) in the City of Long Beach, where Wardlow Road crosses the SD 21 (Artesia-Norwalk Drain). The upstream tributary watershed area of this site is approximately 4.14 square miles.

Monitoring data from stormwater collected at stations TS15 and TS17 were compared to the most stringent applicable WQOs to determine exceedances of receiving water limitations. WQOs were determined pursuant to TMDLs, the Basin Plan and the California Toxics Rule, 40 CFR Part 131.38 (CTR). WQOs for chlorpyrifos and diazinon were determined using the freshwater final acute criteria set by the California Department of Fish and Game. Many of the WQOs were used as benchmarks for determining Water Quality Priorities, and should not be used for compliance purposes. Please refer to the CIMP for a table of monitored constituents along with their most up-to-date WQOs.

A summary of the constituents not attaining WQOs at stations TS(15) and TS(17) during the monitoring years 2002-2012 is presented in Tables 2-9 to 2-12 below. Complete tables of monitoring results can be found in Appendix 2-2.

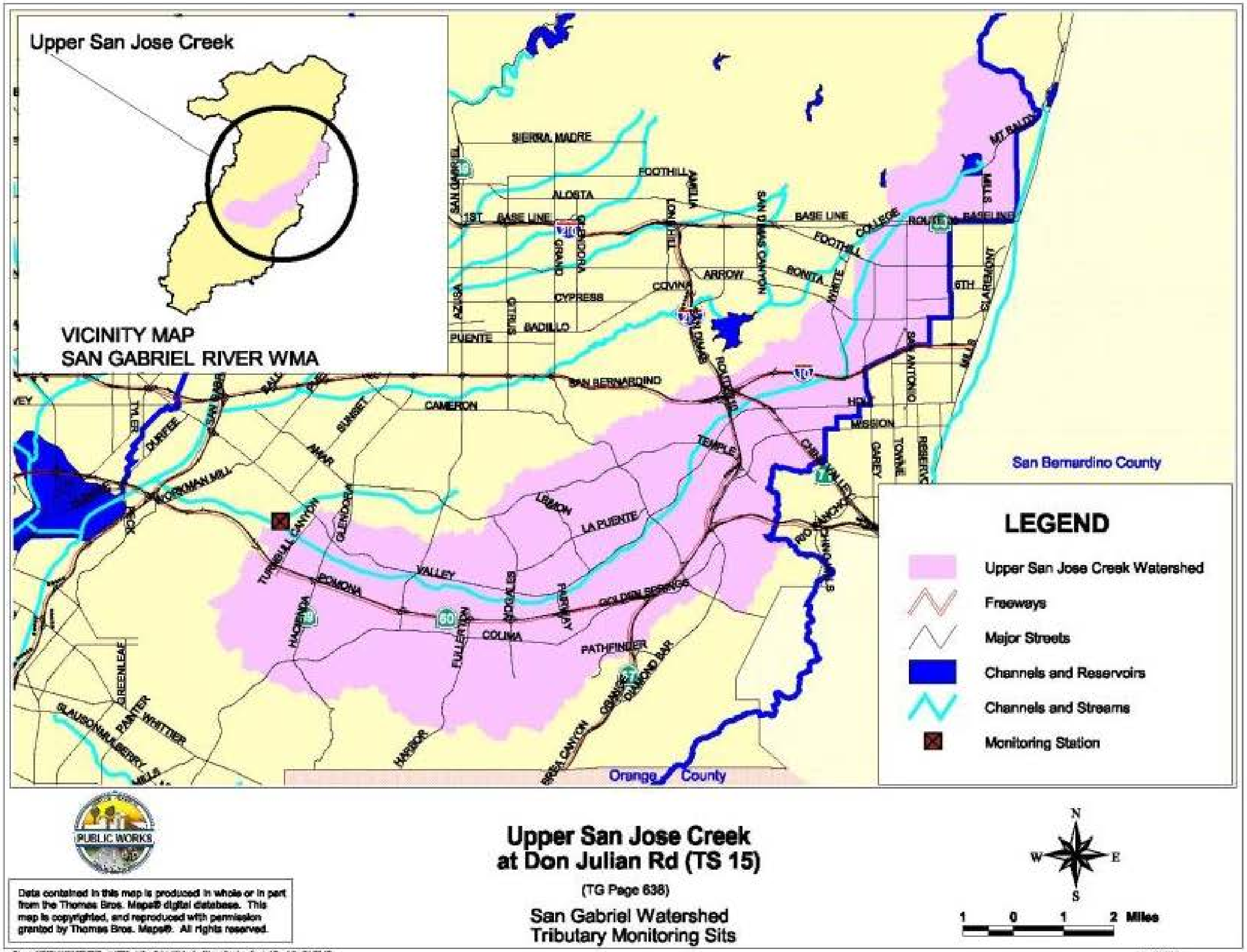


Figure 2-4: TS15 monitoring location

Figure 2-5: TS16 monitoring location

Figure 2-6: TS17 monitoring location

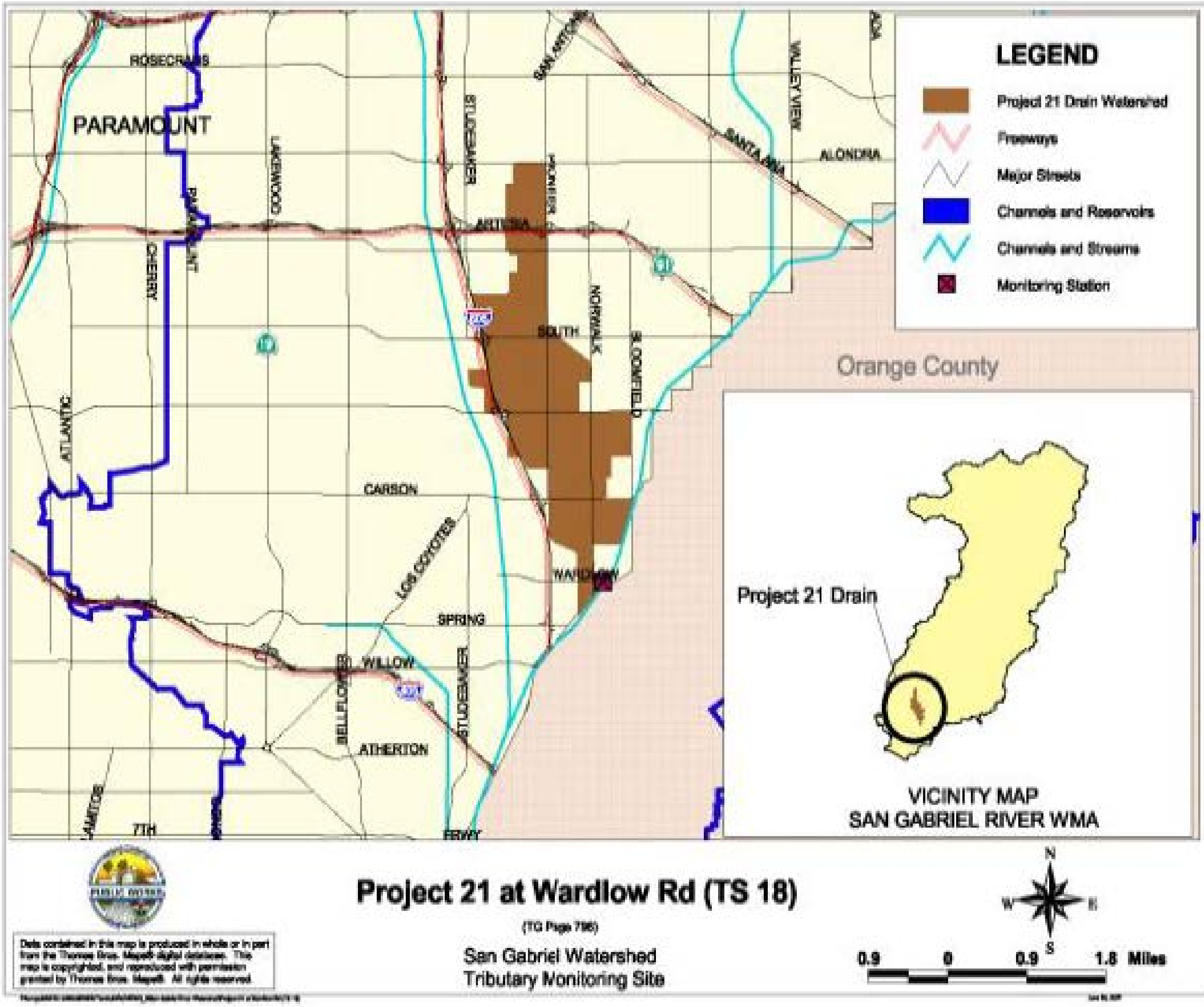


Figure 2-7: SD21 monitoring site location

Table 2-9: TS15 Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	8	1	13	0.022	CTR Freshwater Aquatic Life Protection - Acute
Total Coliform	8	8	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	8	8	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	8	8	100	104	LA Basin Plan - Marine Waters
Total Copper	10	9	90	14	CTR Freshwater Aquatic Life Protection – Acute
Total Mercury	4	1	25	0.051	CTR Human Health Consumption

Table 2-10: TS15 Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Total Coliform	4	4	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	4	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	4	100	104	LA Basin Plan - Marine Waters

Table 2-11: TS17 Constituents exceeding WQOs during wet weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
Cyanide	4	1	25	0.022	CTR Freshwater Aquatic Life Protection - Acute
pH	4	3	75	6.5-8.5	LA Basin Plan
Total Coliform	4	2	50	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	2	50	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	2	50	104	LA Basin Plan - Marine Waters
Total Mercury	810	12	1320	0.022051	CTR Human Health Consumption

Table 2-12: TS17 Constituents exceeding WQOs during dry weather

Constituent	No Samples	No. Exceeding Applicable WQOs	Percent of Samples Exceeding WQOs	Source of Lowest Applicable WQO Value	Source
pH	4	3	75	6.5-8.5	LA Basin Plan
Total Coliform	4	4	100	10000	LA Basin Plan - Marine Waters
Fecal Coliform	4	4	100	235	LA Basin Plan Fresh- Rec 1 Standard
Fecal Enterococcus	4	2	50	104	LA Basin Plan - Marine Waters

2.2.3 LA COUNTY SANITATION DISTRICT MONITORING

The County Sanitation Districts of Los Angeles County (LACSD) are a confederation of 23 independent special districts serving the water pollution control management needs of about 5.7 million people in Los Angeles County. The Sanitation Districts' service area covers approximately 820 square miles and encompasses 78 cities and unincorporated territory within the County. With regard to wastewater treatment, the Sanitation Districts construct, operate and maintain facilities to collect, treat and dispose of wastewater and industrial wastes.

Seventeen of the 23 districts are signatory to an agreement which provides for sewerage service to the majority of residential, commercial and industrial users (IUs) within the County, but mostly located outside of the City of Los Angeles service area. This treatment system, known as the Joint Outfall System (JOS), currently consists of the Joint Water Pollution Control Plant (JWPCP) located in the City of Carson and six upstream water reclamation plants (WRPs); the Whittier Narrows WRP near the City of South El Monte, the Los Coyotes WRP in the City of Cerritos, the San Jose Creek WRP adjacent to the City of Industry, the Long Beach WRP in the City of Long Beach, the Pomona WRP in the City of Pomona and the La Cañada WRP in La Cañada Flintridge. All JOS facilities except the La Cañada WRP are regulated under the NPDES program; all six WRPs are subject to California Waste Discharge or Water Reclamation Requirements. See Chapter 1 Introduction for more detail on the WRP discharges within the Lower SGR Watershed.

The LACSD monitors its effluent at multiple locations within the Lower SGR Watershed. Data from 2004 to 2012 was analyzed and exceedances of the following constituents were found: PAHs in San Gabriel River Reach 2 and San Jose Creek Reach 1, Nickel in Coyote Creek, Chloride in San Jose Creek Reach 1, Sullfates in San Jose Creek Reach 1, and Dissolved Oxygen in San Gabriel River Reach 1 and San Jose Creek Reach 1.

2.2.4 COUNCIL FOR WATERSHED HEALTH SAN GABRIEL RIVER REGIONAL MONITORING PROGRAM

Since 2005, the San Gabriel River Regional Monitoring Program (SGRRMP), a group of local, state, and federal stakeholders led by the Council for Watershed Health, has conducted watershed scale dry weather (May through July) monitoring at targeted and random sites throughout the San Gabriel River watershed. From 2005-2009, the SGRRMP collected and analyzed aquatic chemistry, toxicity bioassessment, and physical habitat data from 69 randomly selected sites within the San Gabriel River watershed representing the upper river watershed, the lower river watershed, and mainstream channel below Whittier Narrows. The SGRRMP also relied on LACFCD tributary monitoring in the San Gabriel River and Coyote Creek watersheds for assessing water quality conditions. A map of randomly selected sites used for biological assessment, along with their biological condition scores is shown in Figure 2-29.

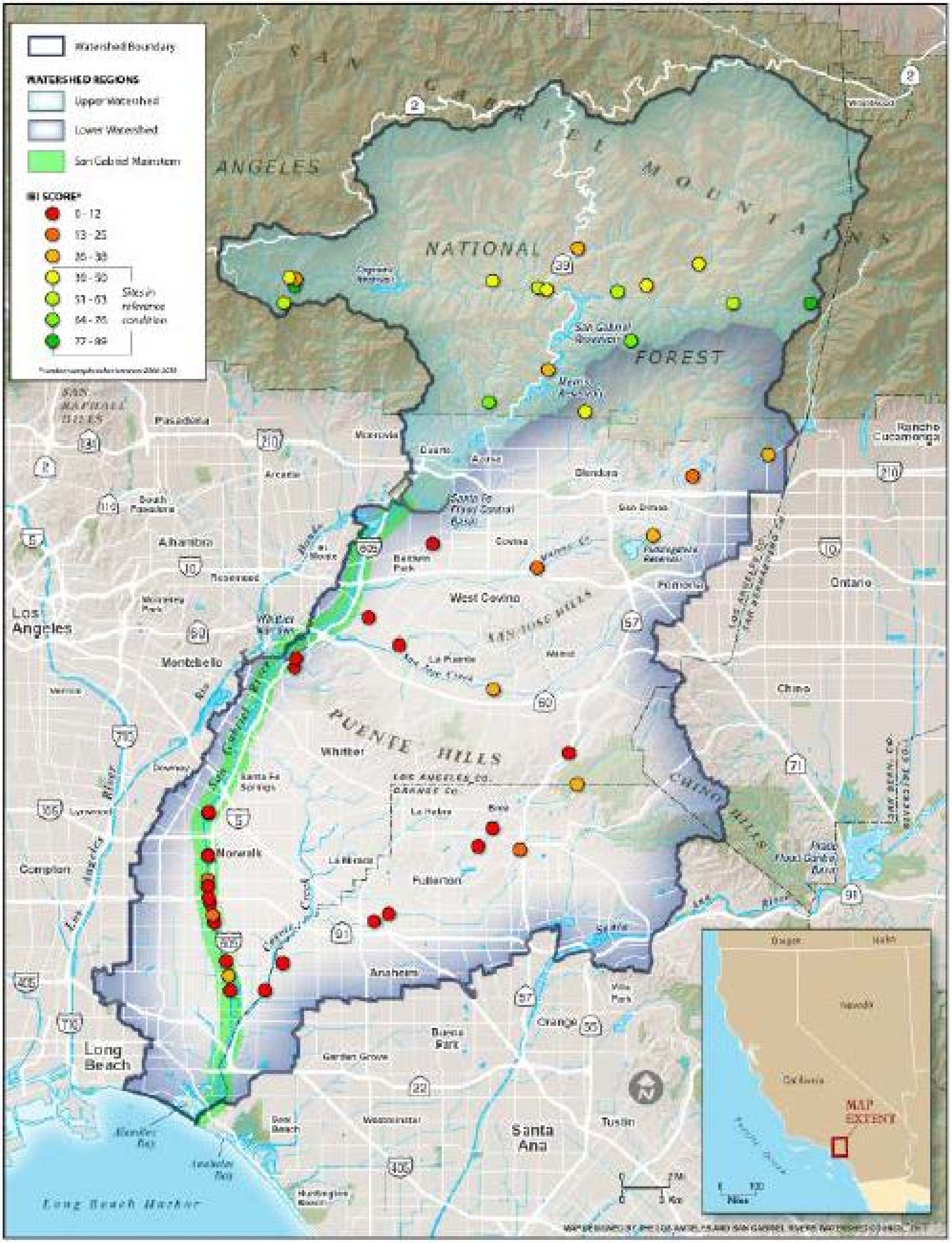


Figure 2-8: SGRRWMP stream monitoring locations used for water quality and biological conditions assessment

The following is a summary of significant observations found after the first five years of monitoring under this program[18]:

- "There were few exceedances of dry weather Basin Plan standards for any water quality parameters measured during the 5-year period."
- "Nutrients were greatest on the mainstem, while most metals were greatest in lower tributaries. An exception to this was dissolved zinc, which was much greater on the mainstem compared to other sub-regions."
- "While nutrients and metals were elevated in the lower tributaries and mainstem, they rarely exceeded water quality objectives and did not strongly correlate with the biotic condition."
- "Nitrate and ammonia were well below toxicity thresholds/standard and there were no exceedances of the hardness-adjusted California toxics rule for any dissolved metal."
- "Organophosphorous and pyrethroid pesticides were nearly always below method detection limits (i.e. Non-detect)."
- "A total of 61 water samples tested for acute and chronic toxicity using water fleas"…"All of the toxic endpoints measured during the five years were in the lower or upper watershed, with no toxicity measured on the San Gabriel River mainstem."
- 317 water samples collected at the confluence of 5 major tributaries with the San Gabriel River during the summers of 2007, 2008, and 2009 were analyzed for E. coli. "47% of these samples exceeded standards with the greatest rate of exceedances occurring at San Jose Creek (range 89 to 100%) and the fewest at Coyote Creek (10 to 29%)."[19]
- "San Jose Creek conveys the largest [relative] loads of most constituents during wet weather, particularly total suspended solids (TSS)."[29]

The Lower SGR Watershed will use these results, and continue to track future SGRRMP results to help target watershed control measures identified in the WMP.

2.2.5 Orange County Coyote Creek Source Control Plan

The Orange County NPDES Municipal Stormwater Permit (Order No. R8-2009-0030) requires Permittees with discharges tributary to Coyote Creek to develop and implement a constituent-specific source control plan to include a monitoring program to control the discharge of copper, lead and zinc into Coyote Creek and other tributaries in Orange County that discharge into the San Gabriel River.

The Coyote Creek Source Control Plan outlines the monitoring and source control strategy for jurisdictions within Orange County draining to Coyote Creek. This Plan identifies monitoring locations to be used in determining source control strategies and compliance with TMDL targets for Coyote Creek within the Orange County jurisdiction. According to this plan, stormwater discharges from Los Angeles County are contributed through North Fork Coyote Creek, and at the confluence with the San Gabriel River. All monitoring locations identified in this plan that are downstream of North Fork Coyote Creek

[18] Morris, K. et al.

[19] Only approximately 10% of the Lower SGR Watershed contributes discharge to San Jose Creek

are located on the Orange County side of the confluence with the Creek, and are meant to be representative of Orange County drainage. Therefore, data collected from these locations cannot be used to characterize Los Angeles County MS4 discharges at this time. The Watershed Group will continue to remain apprised of monitoring results collected through the Orange County Source Control effort, and revise this WMP should data suggest that the Los Angeles County MS4 may be contributing to exceedances of water quality objectives.

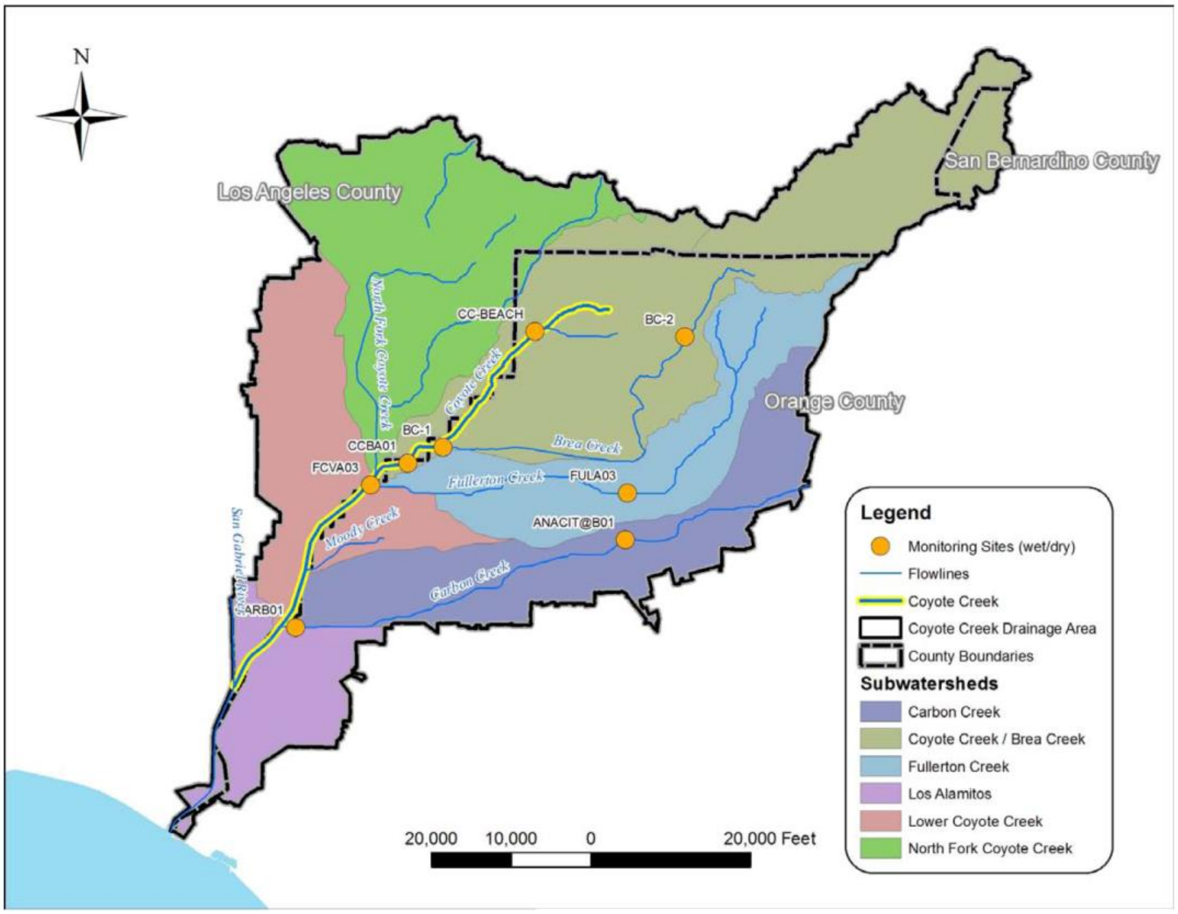


Figure 2-9: County of Orange, OC Watersheds Program Source Control Plan Monitoring Locations along Coyote Creek (*Coyote Creek Watershed Water Quality Monitoring Plan, Figure 2-1*)

2.3 SOURCE ASSESSMENT

This section identifies the potential sources of pollutants within the Lower LSGR Watershed for the waterbody-pollutants classified in section 2.2. Information was gathered from several water quality monitoring programs and special studies related to pollutant sources and conditions that contribute to the highest water quality priorities to identify known and suspected stormwater and non-stormwater pollutant sources to and from the MS4.

The pollutants addressed in this section are bacteria, nutrients, metals and sediment. In order to generally describe the potential sources in the Lower LSGR Watershed for these pollutants, pollutant sources have been divided into the following categories: NPDES discharges, road infrastructure, atmospheric deposition, and wastewater from sanitary sewer and SSOs.

2.3.1 NPDES SOURCES

Pollutant sources may be categorized as either point sources or non-point sources. Point source discharges are regulated through National Pollutant Discharge Elimination System (NPDES) permits. Point sources include those associated with the MS4 (stormwater and urban runoff) and other NPDES discharges. Stormwater runoff in the watershed is regulated through four types of permits including MS4 permits, a statewide stormwater permit for Caltrans; a statewide Construction General Permit (CGP); and a statewide Industrial General Permit (IGP). The NPDES IGP regulates stormwater discharges and authorized non-stormwater discharges from ten specific categories of industrial facilities, including manufacturing facilities, oil and gas mining facilities, landfills, and transportation facilities. The NPDES CGP regulates stormwater discharges from construction sites that result in land disturbances equal to or greater than one acre. Point source discharges from IGP, CGP, residential, commercial and transportation activities can be a significant source of pollutant loads.

Non-point sources by definition include pollutants that reach waters from a number of land uses and are not regulated through NPDES permits. Non-point sources include existing contaminated sediments within the watershed and direct air deposition to the waterbody surface.

The following provides additional discussion regarding the presence of pollutants in stormwater runoff within the watershed.

BACTERIA

Specific sources of bacteria are associated with categories such as, anthropogenic, non-anthropogenic, and environmental sources, which may include:

- Sanitary sewer overflows (SSOs), leaks and spills; illicit connections of sanitary lines to the storm drain system.
- Animal wastes – the bacteria indicators used to assess water quality are not specific to human sewage; therefore, natural influences of fecal matter from animals and birds can also be a source of elevated levels of bacteria.

- Organic debris from gardens, landscaping, parks, food waste and illegal dumping from recreational vehicle holding tanks among others, can be a source of elevated levels of total coliform bacteria[1].
- Environmental – soils, decaying vegetation
- Illegal connections and illicit discharges (IC/IDs) to the MS4 are also very likely sources of bacteria in stormwater discharges. The following table includes data based on annual reports submitted to the LA County DPW (previous principal permittee), for illicit connections and illicit discharges. Current data on the constituents for the IC/IDs recorded during this period is not available.

Table 2-13 Illicit Connections/Illicit Discharges 2001-2012

Agency	Illicit Discharges	Illicit Connections
Artesia	21	0
Bellflower	135	0
Cerritos	100	0
Diamond Bar	149	1
Downey	467	6
Hawaiian Gardens	41	0
La Mirada	121	0
Lakewood	162	0
Long Beach	-	-
Norwalk	219	1
Pico Rivera	-	-
Santa Fe Springs	82	2
Whittier	7	1
Total	1,504	11

Nutrients

Possible sources of nutrients include runoff from residential and commercial areas due to landscaping activities and use of fertilizer for lawns and gardens, this includes organic debris. Activities such as washing cars, parking lots and driveways can contribute to nutrients pollutants in the MS4 since most of the detergents used contain phosphorus. Other sources of nutrients include food wastes, domestic animal waste; and human waste from areas inhabited by the homeless. These pollutants build up and are then washed into the waterways through the storm drain system when it rains. These kinds of loads are typically highest during the first major storm flush and even after extended periods of dry weather when pollutants have accumulated. Other major categories of nutrients sources include:

Golf courses are a major source of nutrients since fertilization activities and watering rates are generally much greater than the residential and commercial areas. The excess nutrients accumulated in the soils can be transported to waterways through excess irrigation or stormwater runoff. There are approximately 23 golf courses within the watershed area.

Metals

Heavy metals including copper, lead, and zinc are Category 1 pollutants in the Lower SGR Watershed. Although naturally occurring, concentrations of these metals are a concern in many watersheds because of potential industrial and urban discharges. These types of sources include Industrial General

Permit (IGP) covered facilities, Construction General Permit (CGP) covered facilities, and other types of urban activities.

Industrial General Permit Activities

The types of facilities covered under the IGP have the potential for metal loads, in particular metal plating, transportation, scrap yards and recycling and manufacturing facilities.

According to the Storm Water Multiple Application and Report Tracking System (SMARTS) database, there are approximately 360 current active industrial permits within the watershed; and from 2002-2012 there have been approximately 471 combined, active/terminated, industrial permits. Approximately 204 violations were recorded on the SMARTS database for inspections conducted from 2002-2012. No further data is available to determine the kind of violations or the kind of pollutants these facilities contributed to.

Table 2-14 Active IGP Facilities as of May 1, 2014

Agency	Total
Artesia	3
Bellflower	1
Cerritos	8
Diamond Bar	0
Downey	22
Hawaiian Gardens	0
La Mirada	22
Lakewood	1
Long Beach	78
Norwalk	15
Pico Rivera	12
Santa Fe Springs	176
Whittier	22
Total	360

Construction General Permit Activities

Discharges covered under the CGP also have the potential to contribute metals loading from construction sites. Sediment delivered from construction sites can contain metals from construction materials and heavy equipment. Additionally, metals can leach out of building materials and construction waste exposed to stormwater[20].

Pollutants sources from construction activities are not considered a major concern since the watershed is mainly built-out. However, according to the SMARTS database, there are approximately 127 current active constructions permits within the watershed; and from 2002-2012 there have been approximately 470 combined, active/inactive, construction permits. Approximately 36 violations were recorded on the SMARTS database for inspections conducted from 2002-2012. No further data is available to determine the kind of violations or the kind of pollutants these facilities contributed to.

[20] Raskin, L., M.J. Singer, and A. DePaoli. 2004. Final Report to the State Water Resources Control Board Agreement number 01-269-250. University of California, Davis, CA.

Table 2-15 Active CGP Facilities as of May 1, 2014

Agency	Total
Artesia	1
Bellflower	5
Cerritos	5
Diamond Bar	10
Downey	7
Hawaiian Gardens	2
La Mirada	4
Lakewood	3
Long Beach	4
Norwalk	8
Pico Rivera	9
Santa Fe Springs	10
Whittier	18
Total	86

LAND USE ACTIVITIES

These include general wear and tear of automotive parts which can be a significant source of metals. For example, brake wear can release copper, lead, and zinc into the environment and this contributes to concentrations of metals in urban runoff. Motor oil and automotive coolants spills are another potential land use source of metals. Pesticides, algaecides, wood preservatives, galvanized metals, and paints used across the watershed can also contain these metals. In the watershed, sources for these heavy metals have been identified as automotive repair, maintenance, fueling, cleaning and painting locations, metal fabrication facilities, and transportation activities and facilities.

The fertilizers used for lawn and landscape maintenance are also a source of metals and organic chemicals. Fertilizers, herbicides, and pesticides contain metals such as cadmium, copper, mercury, zinc, lead, iron, and manganese, which are also distributed when applying fertilizers and pesticides.

2.3.2 ROAD INFRASTRUCTURE SOURCES

Runoff from highways and roads carries a significant load of pollutants. Pollutants originate from cars, roadway degradation, and surrounding landscape. Typical contaminants associated with these include sediment, heavy metals, oils and grease, debris, fertilizers, and pesticides, among others[21]. The use and wear of cars is one of the most prevalent sources of roadway pollutants. A study found that cars are the leading source of metal loads in stormwater, producing over 50 percent of copper, cadmium, and zinc loads[22]. Vehicle brake pads constitute the single largest source of copper[23]. Simultaneously, tires, and engine parts are also a significant source of metals pollutants; almost 50 percent of tire wear accounts

[21] Caltrans (California Department of Transportation). 2003. *Discharge characterization study report*. California Department of Transportation, Sacramento, CA.
[22] Schueler, T., and H.K. Holland. 2000. *The Practice of Watershed Protection*. Center for Watershed Protection, Ellicott City.
[23] TDC Environmental 2004, *Copper Sources in Urban and Shoreline Activities*. San Francisco, CA.

for over 50 percent of the total cadmium and zinc loads[24]. Roadways can also be a source of nutrients because nutrients are found in fertilizers that are commonly applied.

Table 2-16: Typical Sources of Pollutants from Road Infrastructure

Source	Cadmium	Chromium	Copper	Iron	Nickel	Lead	Zinc	PAHs	Nutrients	Synthetic Organic Chemicals
Gasoline	●		●			●	●			
Exhaust					●	●		●		●
Motor oil and grease				●	●	●	●	●		
Antifreeze	●	●	●	●		●	●	●		
Undercoating						●	●			
Brake Linings			●	●	●	●	●			
Tires	●		●			●	●	●		
Asphalt	●		●		●		●	●		
Concrete			●		●		●			
Diesel Oil	●	●				●	●			●
Engine wear				●	●	●	●			
Fertilizers, pesticides, and herbicides	●		●	●	●		●		●	●

2.3.3 ATMOSPHERIC DEPOSITION

Atmospheric deposition is the direct and indirect transfer of pollutants from the air to surface waters. Pollutants in the atmosphere deposit onto solid surfaces and can then be washed off by rain, becoming part of the stormwater runoff that reaches the MS4. Atmospheric deposition of pollutants can be a large source of contamination to surface waters. Typical pollutants associated with atmospheric deposition are metals, PAHs, PCBs, and, to a lesser extent, nutrients. These pollutants enter the atmosphere from point sources (i.e., industrial facility emitting metals into the air). A comparison of trace metals contributions from aerial deposition, sewage treatment plans, industrial activities, and power plants is shown in Table 2-17.

Table 2-17 Comparison of source annual loadings to Santa Monica Bay (metric tons/year)

Metal	Aerial Deposition	Non-Aerial Sources: Sewage Treatment Plants	Industrial	Power Plants
Chromium	0.5	0.6	0.02	0.14
Copper	2.8	16	0.03	0.01
Lead	2.3	<0.01	0.02	<0.01
Nickel	0.45	5.1	0.13	0.01
Zinc	12.1	21	0.16	2.4

[24] Davis A.P., M. Shokouhian, and S. Ni. 2001. Loading estimates of lead, copper, cadmium, and zinc in urban runoff from specific sources. *Chemosphere.*

In addition to the pollutants listed above, nutrients are also atmospherically deposited. The annual loading of nitrogen through atmospheric deposition in the neighboring Los Angeles River watershed is 5,559 tons per year, with 845 tons per year in the neighboring Ballona Creek watershed.[25]

2.3.4 SANITARY SEWERS AND SEPTIC SYSTEMS

Sanitary sewer systems and septic systems are potential sources of contaminants. Aging systems in need of repair or replacement, severe weather, improper system operation and maintenance (O&M), clogs, and root growth can contribute to sanitary sewer leaks and overflows. When sanitary sewers overflow or leak, they can release raw sewage into the environment, which can contain pollutants such as suspended solids, pathogenic organisms, toxic pollutants, oil and grease but in particular, high concentrations of bacteria and nutrients.[19]

According to the SSO database in the California Integrated Water Quality System (CIWQS) a total of 198 SSOs have been recorded within the watershed since 2006. Table 2-18 includes information on the total reported SSO discharges.

Table 2-18 SSO Total and Volume

Total SSOs	Total Volume (gal)
418	206,344

[25] Lu, R., K. Schiff, S. Solzenbach, and D. Keith. 2004. *Nitrogen Deposition on Coastal Watersheds in the Los Angeles Region*. Southern California Coastal Water Research Project Annual Report. 2003-2004. pp. 73– 81.

2.3.5 SUMMARY

Typical sources of these pollutants are summarized in Table 2-19.

Table 2-19 Typical Sources of Pollutants

Potential Source	Pollutants				Key References
	Bacteria	Nutrients	Metals	TSS/ Turbidity	
NPDES Sources					
Residential land areas	●	●		●	1, 2, 3, 4, 5, 6, 7, 8, 9
Agricultural activities (i.e., animal operations, land applications)	●	●		●	7,8,9
Metallurgical industries/activities			●		7, 10
Construction activities			●	●	7, 9
Industrial/municipal activities	●		●		6, 11
POTW discharges			●		12
Landscaping, fertilizers		●			7, 9
Homeless encampments	●				13
Pet waste	●	●			9,
Wildlife	●				7, 1
Native geology		●	●		7, 1
Land surface erosion			●	●	7
Detergents		●			9
Car washing				●	7, 9
Road Infrastructure					
Transportation sources (i.e., copper brake pads, tire wear)			●		7, 9, 14, 15
Pavement erosion			●	●	7, 16
Atmospheric Deposition					
Industrial activities			●		7, 10
Construction activities			●		7, 9
Roofing			●		7
Resuspension of historic emissions in road dusts and soil particles			●		17
Land surface erosion		●			18
Sanitary Sewer and sanitary sewer overflows (SSOs)					
Sewer Leaks, SSOs, illicit discharges, septic systems	●	●		●	7, 5, 19
POTW discharges		●	●		12

1. LARWQCB (Los Angeles Regional Water Quality Control Board). 2002 & 2006. Total Maximum Daily Load to Reduce Bacterial Indicator Densities at Santa Monica Bay Beaches During Wet Weather. California Regional Water Quality Control Board, Los Angeles Region, Los Angeles, CA.
2. City of San Diego. 2009. *Aerial Deposition Study, Phase III*. Source Evaluation of TMDL Metals in the Chollas Creek Watershed. Final Report. San Diego, CA.
3. Gregorio, D., and S.L. Moore, 2004. *Discharge into state water quality protection areas in southern California*. http://www.sccwrp.org/Homepage/RecentPublications.aspx
4. San Diego County. 2011. 2009-2010 *Urban Runoff Monitoring Annual Report*. January 2011.
5. SDRWQCB (San Diego Regional Water Quality Control Board). 2010. *Revised TMDL for Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region.* Resolution No. R9-2010-0001.
6. Lattin, G.L., C.J. Moore, A.F. Zelkers, S.L. Moore, S.B. Weisberg. 2004. A Comparison of Neustonic Plastic and Zooplankton at Different Depths near the Southern California Shore. *Marine Pollution Bulletin*

7: County of Los Angeles. 2010. *Multi-pollutant TMDL Implementation Plan for the Unincorporated County Area of Los Angeles River Watershed*. County of Los Angeles, Los Angeles, CA

8: City of San Diego. 2011. *Mission Bay and La Jolla Watershed Urban Runoff Management Program*. Fiscal Year 2010 Annual Report.

9: USEPA (U.S. Environmental Protection Agency). 2011. *Sanitary sewer overflows and peak flows*.

10: San Diego County. 2011. *2010 Air Toxics "Hot Spots" Program Report for San Diego County*. San Diego County, San Diego, CA

11: Gregorio, D., and S.L. Moore, 2004. *Discharge into state water quality protection areas in southern California*. http://www.sccwrp.org/Homepage/RecentPublications.aspx

12: Sabin, L.D., K.C. Schiff, J. Hee Lim, and K.D. Stolzenback. 2004. *Atmospheric dry deposition of trace metals in the Los Angeles coastal region*. Southern California Coastal Research Project, Costa Mesa, CA.

13: City of San Diego. 2009. *Tecolote Creek Microbial Source Tracking Study*. Phase II. Final. June 30, 2009. San Diego, CA.

14: Schueler, T., and H.K. Holland. 2000. *The Practice of Watershed Protection*. Center for Watershed Protection, Ellicott City, MD.

15: Stein, E.D., L.L. Tiefenthaler, and K. Schiff. 2006. Watershed-based Sources of Polycyclic Aromatic Hydrocarbons in Urban Stormwater. *Environmental Toxicology and Chemistry* 25(2):373–385

16: Caltrans (California Department of Transportation). 2003. *A Review of the Contaminants and Toxicity Associated with Particles in Stormwater runoff*. August 2003.

17: Sabin, L. and K. Schiff. 2007. *Metal Dry Deposition Rates along a Coastal Transect in Southern California*. Technical Report #509. Southern California Coastal Research Project, Costa Mesa, CA

18: Sutula, M., K. Kamer, and J. Cable. 2004. *Sediment as a nonpoint source of nutrients to Malibu Lagoon, California*. Southern California Coastal Research Project. Technical Report.

19: SWRCB (State Water Resources Control Board). 2011. NPDES Permits (including Stormwater). Excel spreadsheet download. Accessed December 6, 2011.

2.4 PRIORITIZATION

Section VI.C.5.a.iv of the MS4 Permit outlines factors that should be considered when developing the sequence of addressing pollutants of concern within the Lower SGR Watershed. Based on the source assessment analysis, Water Quality Priorities (WQPs) within the watershed have been determined based on the following:

- Highest WQPs: TMDLs
    - TMDL pollutants with past due interim or final limits
    - TMDL pollutants with interim and final limits that fall within the MS4 Permit term, or the time period: September 6, 2012 – October 25, 2017
    - Pollutants that are in the same class as a TMDL pollutant
- High WQPs: other receiving water considerations
    - Pollutants on the 303(d) List for which MS4 discharges are a suspected source based on findings from the source assessment
    - Pollutants that exceed receiving water limitations and the findings from the source assessment indicate the MS4 as a source (these pollutants will be evaluated based on monitoring data collected as part of the CIMP).
- All Category 1 pollutants with TMDL compliance deadlines that are past due, or that fall within the MS4 Permit term are prioritized as a Highest WQP. In addition, pollutants that fall within the same class (as defined in Section 2.1) as a TMDL pollutant with a compliance deadline that is past due or falls within the MS4 Permit term are prioritized as a Highest WQP. All other pollutants that are associated with the MS4 (based on the Source Assessment in Section 2.3) are prioritized as a High WQP. Table 2-20 summarizes the WQPs for the watershed based on the criteria described above.

Table 2-20: Priority Pollutants

Category	Class	Pollutant	Waterbody	Associated with MS4	Priority
1	Metals	Copper	San Gabriel Reach 1, Coyote Creek	Yes	Highest
		Lead	San Gabriel River Reach 2, Coyote Creek, and San Jose Creek Reach 1	Yes	Highest
		Zinc	Coyote Creek	Yes	Highest
		Selenium	San Jose Creek Reach 1	UTD[a]	Highest
2	Nutrients	Ammonia	San Jose Creek Reach 1 and Coyote Creek	Yes	High
	Metals	Copper	San Gabriel River Reach 2, North Fork Coyote Creek, San Jose Creek Reach 1	Yes	Highest
		Lead	Coyote Creek	Yes	Highest
		Mercury	North Fork Coyote Creek	UTD	Highest
		Nickel	Coyote Creek	UTD	Highest
		Selenium	North Fork Coyote Creek	UTD	Highest
		Zinc	San Gabriel River Reach 2, San Jose Creek Reach 1, Coyote Creek	Yes	Highest
	Bacteria	Coliform & Enterococcus	San Gabriel River Reach 1, San Gabriel River Reach 2, San Jose Creek Reach 1, North Fork Coyote Creek and Coyote Creek	Yes	High
	Pesticides	Diazinon	Coyote Creek	Yes	High
	SVOC	PAHs	San Gabriel River Reach 2, San Jose Creek Reach1	Yes	High
	Water Quality Indicators / General	Chloride	San Jose Creek Reach 1	UTD	High
		Cyanide	Coyote Creek, San Gabriel Reach 2	UTD	High
		pH	San Gabriel Reach 1, Coyote Creek, and San Jose Reach 1	UTD	High
		Total Dissolved Solids	San Jose Creek Reach 1	Yes	High
		Toxicity	Coyote Creek, San Jose Creek Reach 1	Yes	High
3	Metals	Copper	North Fork Coyote Creek	Yes	Highest
		Selenium	San Gabriel River Reach 1	UTD	Highest
	Water Quality Indicators / General	Chloride	San Gabriel River Reach 2, San Jose Creek Reach 1, Coyote Creek	UTD	High
		Cyanide	North Fork Coyote Creek, San Jose Creek Reach 1	UTD	High
		Dissolved Oxygen	San Gabriel River Reach 1 & 2, Coyote Creek, San Jose Creek Reach 1	UTD	High
		MBAS	Coyote Creek, San Gabriel River Reach 2	UTD	High
		Sulfates	San Gabriel River Reach 2, San Jose Creek Reach 1	UTD	High
		Total Dissolved Solids	San Gabriel River Reach 2	Yes	High
		pH	North Fork Coyote Creek	UTD	High
		Alpha-Endusulfan	Coyote Creek	UTD	High
	Pesticides	Lindane	San Gabriel River Reach 2	UTD	High

[a] UTD – Unable to Determine at this time

REFERENCES

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2. Environmental Protection Agency. Nickel Compounds, January 2000. Web. October 2013. <http://www.epa.gov/ttnatw01/hlthef/nickel.html>.
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5. Los Angeles Department of Public Works. Stormwater Monitoring Reports, 2002-2012. Web. October 2013. <http://dpw.lacounty.gov/wmd/NPDES/report_directory.cfm>.
6. Morris, K., Johnson, S., and Steele, N. San Gabriel River 2010 State of the Watershed Report, 2012. Council for Watershed Health. Los Angeles, CA.

3 SELECTION OF WATERSHED CONTROL MEASURES

This chapter identifies Watershed Control Measures (WCMs) to implement through the Participating Agencies' jurisdictional stormwater management programs, and collectively on a watershed scale. The WCMs are structural and/or nonstructural controls designed with the following objectives:

- Prevent or eliminate nonstormwater discharges to the MS4 that are a source of pollutants from the MS4 to receiving waters.
- Implement pollutant controls necessary to achieve all applicable interim and final water quality-based effluent limitations and/or receiving water limitations pursuant to corresponding compliance schedules.
- Ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations.

The goal is to create an efficient program that focuses individual and collective resources on water quality priorities (WQPs). The WCMs are categorized as

- Minimum Control Measures (MCMs),
- Nonstormwater Discharge (NSWD) Measures and
- Targeted Control Measures (TCMs), which are designed to achieve applicable water quality-based effluent limitations and receiving water limitations.

Each WCM category may be further categorized as either structural or nonstructural (nonstructural includes operation and maintenance procedures and pollution prevention measures) as well as either existing or proposed. Combined with Chapter 4 (RAA) and Chapter 5 (Compliance Schedules), the WMP includes the nature, scope and timing of implementation for each WCM and provides interim milestones for the WCMs to achieve TMDL compliance. Also included are the responsibilities of each Permittee.

3.1 STRATEGY FOR SELECTION AND IMPLEMENTATION OF WATERSHED CONTROL MEASURES

Pursuant to Part VI.C.1.a of the MS4 Permit (Part VII.C.1.a - LB Permit), the Watershed Group has developed customized strategies, control measures and BMPs to implement the requirements of the MS4 Permit. Addressing WQPs will be based on a multi-faceted strategy initially focused on source control, including total suspend solids (TSS) reduction and runoff reduction. If pollutants are not generated or released, they will not be available for transport to the receiving waters. In addition, if soils can be stabilized, sediment controlled, and dry-weather runoff and initial flushes of stormwater runoff eliminated or greatly reduced, the major transportation mechanisms will be eliminated or greatly reduced, and fewer pollutants will reach the receiving waters.

The Watershed Group is particularly focused on source control because major sources of many of the highest WQPs, such as copper, lead and zinc, are released into the atmosphere, resulting in widespread

aerial deposition onto impervious surfaces in the Watershed. In addition, these pollutants are discharged directly onto streets, highways, parking lots, and driveways from motor vehicle components such as brakes, wheel weights, and tires. The Participating Agencies have concluded that the most cost-effective and long-lasting way to address WQPs is to develop and support state-wide or regional measures that will encourage or require, if necessary, product or material substitution at the manufacturing stage. This can be a complex and time-consuming process, but the payoff in water quality improvement can be tremendous.

For example, the recent efforts of the California Stormwater Quality Association (CASQA) and Sustainable Conservation that led to the passage of the SB 346 legislation is a milestone that will significantly reduce the level of copper in metropolitan area waters throughout the state. SB 346 requires incremental reduction in the amount of copper in vehicle brake pads, which constitute the single largest source of copper in metropolitan environments. Based on available information, which was largely developed through a lengthy collaboration among brake pad manufacturers, government agencies, and environmental groups in the Brake Pad Partnership, a preliminary estimate of copper runoff reduction due to this piece of legislation was developed[1]. The estimate examined three scenarios and determined a 45- 60% reduction in copper in runoff could be attributed to reduction of its use in brake pads. Already in effect, new edge codes required on brake pads sold in California will provide information on copper content and a notice that on and after January 1, 2014 any motor vehicle brake friction materials sold in California must contain no more than 0.1 percent by weight of the following materials: cadmium and its compounds, chromium (VI) salts, lead and its compounds, mercury and its compounds, and asbestiform fibers.

In addition, the Department of Toxic Substances Control (DTSC) adopted new Safer Consumer Product Regulations that became effective October 1, 2013. These regulations contain a process for identifying and prioritizing Chemicals of Concern in Priority Products containing these constituents, as well as a process for eliminating or reducing the adverse impacts of Chemicals of Concern in Priority Products. It will apply to most consumer products placed into the stream of commerce in California. It specifically applies to adverse environmental impacts, including adverse water quality impacts, and it contains a petition process for identification and prioritization of chemicals and projects. CASQA, supported by Watershed Group, has started the process of conducting research and building a file of critical information to support the designation of zinc in tires as a future priority product/constituent combination.

As explained later in this chapter, many of the new requirements of the MS4 Permit also involve enhanced source control measures that will be implemented such as enhanced inspections programs and outfall screening measures. The *Targeted Control Measures* section of this chapter supplements these efforts with targeted source control measures such as incentives for irrigation control and upgraded street sweeping equipment, designed with the objective of achieving interim and final water quality-based effluent limitations and/or receiving water limitations.

[1] Based on the Los Cerritos Channel Watershed Group commissioned study, "Estimate of Urban Runoff Copper Reduction in Los Angeles County from the Brake Pad Copper Reductions Mandated by SB 346."

In concert with these initial source control efforts, which constitute 10% of the load reduction in the RAA (higher reductions may be realized), structural controls will also be implemented. The MS4 Permit mandates implementation of structural LID BMPs for certain classes of new developments and roadway projects. In addition, the *Targeted Control Measures* section of this chapter describes supplemental targeted structural BMPs. These structural controls are used to meet the load reduction requirements and structural BMP capacities for each participating agency as noted in Chapter 4 (the RAA) following the schedules provided for each agency in Chapter 5 (Compliance Schedules).

3.2 MINIMUM CONTROL MEASURES

The Minimum Control Measures (MCMs) are baseline WCMs required for all Permittees. The MCMs are defined in the MS4 Permit (excluding modifications set forth in an approved WMP) and are generally implemented individually by each Permittee. The objectives of the MCMs are to 1) result in a significant reduction in pollutants discharged into receiving waters and 2) satisfy the requirements of 40 CFR §122.26(d)(2)(iv). The MCMs are separate from Targeted Control Measures, which are developed by the Watershed Group and included in the WMP to specifically address WQPs.

The MS4 Permit allows the modification of several MCMs programs, so long as the modified actions are set forth in the approved WMP and are consistent with 40 CFR §122.26(d)(2)(iv). The modifications are based on an assessment to identify opportunities for focusing resources on WQPs. The term "modifications" refers only to instances where language from the MS4 Permit MCM provisions is removed and/or replaced. Any control measures that are strictly enhancements of the existing programs (i.e. do not conflict with the MS4 Permit MCM provisions) are included in the separate category of Targeted WCMs.

The following sections include a summary of the assessment of each MCM program as well as a determination as to whether each Participating Agency will implement the MCM provisions 1) as explicitly stated in the corresponding section of the MS4 Permit or 2) with modifications to focus resources on WQPs. Independent of the determinations made, the Agencies may consider additional MCM modifications through the Adaptive Management Process. Implementation of the MCMs will follow the approval of this WMP by the Regional Board Executive Officer following MS4 Permit §VI.D.1.b (LB Permit - §VII.D.1.ii).

3.2.1 LOS ANGELES COUNTY FLOOD CONTROL DISTRICT MINIMUM CONTROL MEASURES

The LACFCD will implement the MCMs as defined from §VI.D.1 to §VI.D.4 of the MS4 Permit.

3.2.2 Assessment of Minimum Control Measures (Cities Only)

Pursuant to MS4 Permit §VI.C.5.b.iv.(1).(a) (LB Permit - §VII.C.5.h.i), the following section is an assessment of the MS4 Permit MCMs, intended to identify opportunities for focusing resources on WQPs.

3.2.2.1 Development Construction Program

Assessment

Although controlling sediment is not a WQP, the reduction of sediment through an effective Development Construction Program will address WQPs. This is because sediment mobilizes other pollutants, including many of the WQP pollutants. As such the Development Construction Program is an integral component of each City's jurisdictional stormwater management program.

Compared to the prior MS4 Permit, the current Permit expands the provisions for the Development Construction Program. This expansion includes additional or enhanced requirements for plan review, site tracking, inspection frequencies, inspection standards, BMP implementation and employee training. If implemented effectively, these enhancements will aid in the control of sediment within the Watershed, and consequently, will address WQPs. As such, no modifications to the provisions of the Development Construction Program have been identified.

Determination

The Cities will implement the MCMs as defined in §VI.D.8 of the MS4 Permit (§VII.D.K of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.2 Industrial/Commercial Facilities Program

Assessment

The MS4 Permit provisions for the Industrial/Commercial Facilities Program provide opportunities for customization to address WQPs. Specifically, §VI.D.6.e.i.4 (§VII.D.G.5.i.4 - LB Permit) states that industrial inspection frequencies may be modified through the WMP development process. The Cities propose modifying the inspection frequencies of both industrial and commercial facilities based on a facility prioritization scheme that considers WQPs. For example, facilities that are deemed to have a high potential to discharge metals (a WQP pollutant) may be prioritized as "High" and inspected more frequently while facilities that have a small likelihood to adversely impact WQPs may be prioritized as "Low" and inspected less frequently.

DETERMINATION

Sections VI.D.6.d and VI.D.6.e of the MS4 Permit (Sections VII.D.G.4 and VII.D.G.5 of the LB Permit) will be replaced with the language in Table 3-3, which is located in the following *New Fourth Term Permit MCMs* section of this chapter and is identified as MCM-ICF-3.

In order to provide clarity to the Cities, one combined guidance document has been prepared for the Program, with the prioritization and revised inspection frequencies included – see Appendix A-3-1. The document is also intended to assist the Cities in the development and implementation of a jurisdictional program.

3.2.2.3 ILLICIT CONNECTION AND ILLICIT DISCHARGES ELIMINATION PROGRAM

ASSESSMENT

The purpose of the Illicit Connection and Illicit Discharges Elimination (ICID) Program is to detect, investigate and eliminate IC/IDs to the MS4. In order to address WQPs, a potential modification to MS4 Permit provisions would be the inclusion of a proactive approach for the detection of illicit discharges. However such an approach will be addressed through nonstormwater outfall based screening monitoring as outlined in the MRP. Also, such activities do not conflict with the MS4 Permit provisions for an IC/ID Program, and as such would be classified as a Targeted Control Measure. As such there is no need to modify the base provisions of the program.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.10 of the MS4 Permit (§VII.D.M of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.4 PLANNING AND LAND DEVELOPMENT PROGRAM

ASSESSMENT

Following MS4 Permit §VI.C.5.b.iv.1.a (LB Permit - §VII.C.5.h.i.), the Planning and Land Development Program was not assessed for potential modifications.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.7 of the MS4 Permit (§VII.D.J of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.5 PUBLIC AGENCY ACTIVITIES PROGRAM

ASSESSMENT

The Public Agency Activities Program is divided into several sub-programs. Many of the MS4 Permit provisions within the sub-programs consist of baseline BMPs that do not suggest modification. The sub-programs that do suggest a prioritized approach – such as street sweeping and catch basin cleaning frequencies – already provide this opportunity (frequencies are based on a City's assessment of trash and debris generation). The Public Facility Inventory sub-program also provides a prioritization opportunity, based on the tracking data obtained for each facility. However, since these facilities are not subject to regular "public agency" inspections as in the Industrial/Commercial Facilities Program, there is little utility in incorporating such a prioritization. The provisions of the public construction activities sub-program are considered an integral component of the jurisdictional stormwater program, for the reasons explained in the assessment of the Development Construction Program provisions. In summary there is no need to modify the MS4 Permit provisions of the program.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.9 of the MS4 Permit (§VII.D.L of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.2.6 PUBLIC INFORMATION AND PARTICIPATION PROGRAM

ASSESSMENT

The MS4 Permit allows a City to implement the requirements of the Public Information and Participation Program (PIPP) 1) by participating in a County-wide effort, 2) by participating in a Watershed Group effort, 3) individually within its jurisdiction or 4) through a combination of these approaches. The Cities will implement the PIPP following a combination of approaches. Consequently some clarifications of the MS4 Permit provisions are necessary.

In terms of modifications to address WQPs, the MS4 Permit provisions for the PIPP are not particularly prescriptive, thus allowing the Cities the flexibility to focus efforts on WQPs through the development of the program. As such, there is no need to modify the MS4 permit provisions of the program.

DETERMINATION

The table below provides clarification on elements of the MS4 Permit provisions for the PIPP:

Permit section	Clarification
§VI.D.5.c.(i) - MS4 Permit §VII.D.F.3.i - LB Permit Public Participation	Each City will participate in a County-wide sponsored PIPP to provide a means for public reporting of clogged catch basin inlets and illicit discharges/dumping, faded or missing catch basin labels, and general stormwater and nonstormwater pollution prevention information.
§VI.D.5.d - MS4 Permit §VII.D.F.4- LB Permit Residential Outreach Program	Each City will work in conjunction with a County-wide sponsored PIPP to implement the Residential Outreach Program. Elements of the program that will not be administered or implemented as a county-wide effort (currently the provision to provide educational materials to K-12 school children) will be addressed individually by each City or jointly on a watershed level. Through the adaptive management process, PIPP participation may develop into a watershed group or individual effort, or some combination of these approaches.

In order to provide clarity to the Cities, one combined guidance document has been prepared for the Program, with the approach for each provision (i.e. joint or individual effort) included – see Appendix A-3-1. The document is also intended to assist the Cities in the development and implementation of a jurisdictional program.

3.2.2.7 PROGRESSIVE ENFORCEMENT AND INTERAGENCY COORDINATION

ASSESSMENT

Following MS4 Permit §VI.C.5.b.iv.1.a (LB Permit - §VII.C.5.h.i), the Progressive Enforcement and Interagency Coordination Program was not assessed for potential modifications.

DETERMINATION

The Cities will implement the MCMs as defined in §VI.D.2 of the MS4 Permit (§VII.D.2 of the LB Permit). To assist the Cities in the development and implementation of a jurisdictional program, a guidance document is included in Appendix A-3-1.

3.2.3 THIRD TERM PERMIT MCMS

Until the WMP is approved by the Executive Officer of the Regional Board, the MCM provisions of the prior third term MS4 permit continue to be implemented by the participating agencies. Some of the MCMs of the current MS4 Permit are relatively unchanged carry-overs from the prior third term permit. The remaining MCMs are either enhancements of the third term MCMs or entirely new provisions. These new and enhanced fourth term MCMs are described in the following section.

3.2.4 NEW FOURTH TERM PERMIT MCMS (CITIES ONLY)

Part VI.D of the MS4 Permit and Part VII.D of the LB Permit (the MCM provisions) introduces many new provisions and program elements to be developed and incorporated within each participating agency's jurisdictional stormwater program. This section briefly describes the new and enhanced MCMs required for the Cities (City MCMs), excluding those required for the LACFCD in §VI.D.4. An MCM is considered new if it was not required by the prior MS4 Permit and is considered enhanced if it is an enhancement of a related provision of the prior MS4 Permit.

The details of each provision may be found in the relevant sections of the MS4 Permit, which are included. Unless an alternate date is provided in the MS4 Permit or in this section, the adoption date for the City MCMs coincides with the approval of the WMP by the Regional Board's Executive Officer.

3.2.4.1 STRUCTURAL CONTROLS

The new and enhanced MCMs consist primarily of nonstructural control measures, with the marked exception of the Planning and Land Development provisions, described as follows.

LID AND HYDROMODIFICATION

MS4 Permit §VI.D.7 (LB Permit §VII.D.J)

The LID and hydromodification provisions of the Planning and Land Development program are a significant enhancement from the prior MS4 Permit. The implementation of structural LID BMPs at new developments throughout the watershed will appreciably decrease the effective impervious area, reducing flow and, consequently, pollutant loads. The program is unique in that it will increase in effectiveness over time as more and more existing developments are redeveloped and bound to the LID/hydromodification requirements.

TRASH EXCLUDER INSTALLATION

MS4 Permit §VI.D.9.h.vii.(1) (LB Permit §VII.D.L.8. vii.(1))

In areas that are not subject to a trash TMDL, the Public Agency Activities Program includes a requirement to install excluders (or equivalent devices) on or in Priority A (MS4 Permit §VI.D.9.h.iii.(1)), LB Permit §VII.D.L.8. iii.(1)) area catch basins or outfalls to prevent the discharge of trash to the MS4. For LA MS4 Permittees, the deadline is no later than four years after the effective date of the Permit. This provision may be supplanted by the statewide trash amendments, which in their current draft iteration include the installation of full-capture devices in the priority land use areas of high density residential, industrial, commercial, mixed urban and public transportation stations as a compliance route.

3.2.4.2 NONSTRUCTURAL CONTROLS

Table 3-2 lists the new and enhanced nonstructural City MCMs as well as the new and enhanced NSWD measures. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's Comprehensive Load Reduction Plan (CLRP) for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The pages following Table 3-2 describe each of the listed controls.

Table 3-1 Pollutant Category versus Water Quality Classification

Waterbody-pollutant classification	Type of pollutant								
	Bacteria	Metals	Organics	Sediment	Pesticides	Nutrients	Oil and grease	Dissolved minerals	Trash
Category 1		✗						✗	
Category 2	✗	✗	✗	✗	✗	✗		✗	
Category 3			✗					✗	

Table 3.2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency												
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Planning and Land Development																		
1	MCM-PLD-1	Amend development regulations to facilitate LID implementation	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
2	MCM-PLD-2	Post-construction BMP tracking, inspections and enforcement	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Existing Development																		
3	MCM-ICF-1	Increase in facility types inspected and number of inspections conducted	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
4	MCM-ICF-2	Business assistance program and BMP notification	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
5	MCM-ICF-3 (TCM-ICF-1)	Prioritize facilities/inspections based on water quality priorities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Construction																		
6	MCM-DC-1	Enhanced plan review program	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
7	MCM-DC-2	Enhanced inspection standards and BMP requirements	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

Table 3.2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency												
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
8	MCM-DC-3	Increased inspection frequencies	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
9	MCM-TRA-1	Enhanced staff training program	◈	◈	◈	◆	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Illicit Discharge Detection/Elimination																		
10	MCM-ICID-1	Enhanced IC/ID enforcement and written procedures	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
11	NSWD-1	Outfall screening and source investigations	◈	◈	◈	◈	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
12	MCM-TRA-1	Enhanced staff/contractor training	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Dry weather runoff reduction																		
13	NSWD-1	Outfall screening and source investigations	◈	◈	◈	◈	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
14	NSWD-2	Enhanced conditions for NSWDs, including irrigation reduction	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Public Information and Participation																		

Table 3.2 New Fourth Term MS4 Permit Nonstructural MCMs (Cities only) and NSWD Measures

			BMP effectiveness with respect to WQPs					Agency												
#	WCM Category/ID	WCM	Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
15	MCM-PIP-1	Stormwater resources on City website	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Public Agency Activities																		
16	MCM-PAA-1	Enhanced BMP requirements for fixed facility/field activities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
17	MCM-PAA-2	Reprioritization of catch basins and clean-out frequencies	◆	◆	◇	◆	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
18	MCM-PAA-3	Integrated Pest Management Program	◈	◈	◈	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
19	MCM-PAA-4	Enhanced measures to control infiltration from sanitary sewers	◇	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
20	MCM-PAA-5	Inspection and maintenance of Permittee owned treatment controls	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
21	MCM-TRA-1	Enhanced inspector/staff training	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

✗ – To be implemented by agency within current MS4 Permit term. MCM – Minimum Control Measure. NSWD – Nonstormwater discharge measure.

◆ Primary pollutant reduction ◈ Secondary pollutant reduction ◇ Pollutant not addressed

BMP effectiveness ratings based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012.

ENHANCED STAFF/CONTRACTOR TRAINING PROGRAMS

MCM-TRA-1

MS4 Permit §VI.D.7.d.iv.(b), §VI.D.8.l, §VI.D.9.k, §VI.D.10.f (LB Permit §VII.D.J.5.iv.(b), §VII.D.K.xiv, §VII.D.L.11, §VII.D.M.6)

Measures introduced:

- Prescriptive staff training requirements to the Development Construction, Illicit Connections and Illicit Discharges Elimination and Public Agency Activities Programs. For example, relevant staff involved with the Construction Program must be knowledgeable in procedures consistent with the State Water Board sponsored Qualified SWPPP Practitioner/Developer (QSP/QSD) program.
- Inspections of structural BMPs under the Planning and Land Development Program must be conducted by trained personnel.
- Outside contractors are bound to the same training standards as in-house staff

These new and enhanced provisions will increase the overall effectiveness of the JSWMPs.

AMEND DEVELOPMENT REGULATIONS TO FACILITATE LID IMPLEMENTATION

MCM-PLD-1

MS4 Permit §VI.C.4.c.i, §VI.D.7.d.i (LB Permit §VII.C.4.c.i, §VII.D.J.5.i)

The participating agencies have developed and adopted LID ordinances and Green Street Policies. These measures will facilitate LID implementation.

POST-CONSTRUCTION BMP TRACKING, INSPECTIONS AND ENFORCEMENT

MCM-PLD-2

MS4 Permit: §VI.D.7.d.iv (LB Permit §VII.D.J.5.iv)

The Cities must track post-construction BMPs, conduct BMP verification and maintenance inspections and follow the Progressive Enforcement Policy in cases of non-compliance. This will improve the effectiveness of the Planning and Land Development program.

INCREASE IN FACILITY TYPES INSPECTED AND NUMBER OF INSPECTIONS CONDUCTED

MCM-IFC-1

MS4 Permit: §VI.D.6.d, §VI.D.6.e (LB Permit §VII.D.G.4, §VII.D.G.5), also affected by NPDES No. CAS000001, the State Water Resources Control Board's (SWRCB) Industrial General Permit (IGP)

Measures introduced:

- Inspect nurseries and nursery centers
- Perform follow-up *No Exposure Verification* inspections for at least 25% of industries that have filed a *No Exposure Certification (NEC)*
- Inspect light industrial facilities. Under the SWRCB's IGP adopted in April 1, 2014, light industries previously excluded from coverage under the IGP must now obtain coverage. Light industry is defined as SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39 and 4221-4225. This includes facilities ubiquitous

in industrial zones such as warehouses and machine shops. Although many of these facilities will likely qualify for the NEC, the type and number of facilities requiring inspection under the MS4 Permit will still increase.

These new and enhanced measures will increase the effectiveness of the Industrial/Commercial Facilities Program.

BUSINESS ASSISTANCE PROGRAM AND BMP NOTIFICATION — *MCM-IFC-2*

MS4 Permit: §VI.D.6.c (LB Permit §VII.D.G.3)

Measures introduced:

- Notify industrial/commercial owner/operators of applicable BMP requirements.
- Implement a Business Assistance Program to provide technical information to businesses to facilitate their efforts to reduce the discharge of pollutants in stormwater. The business assistance program described in the prior LA MS4 Permit was an optional provision.

These new and enhanced measures will increase the effectiveness of the Industrial/Commercial Facilities Program.

PRIORITIZE FACILITIES/INSPECTIONS BASED ON WATER QUALITY PRIORITIES — *MCM-IFC-3 (TCM-ICF-1)*

MS4 Permit: Modified MCM (replaces §VI.D.6.d, §VI.D.6.e), LB Permit: (replaces §VII.D.G.4, §VII.D.G.5)

A program has been developed to prioritize industrial/commercial facilities based on their potential to adversely impact WQPs. The resulting prioritization scheme determines the inspection frequency, replacing the uniform inspection frequency provided in the MS4 Permit. This allows Cities to concentrate efforts on WQPs. Sections VI.D.6.d and VI.D.6.e of the MS4 Permit (Sections VII.D.G.4 and VII.D.G.5 of the LB Permit) will be replaced with the language presented in Table 3-3.

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT ***REPLACES §VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT***

MS4 PERMIT VI.D.6.d (LB Permit VII.D.G.4) Prioritize Critical Industrial/Commercial Sources

MS4 Permit VI.D.6.d.i (LB Permit VII.D.G.4.i) Prioritization Method

Prioritizing facilities by potential water quality impact provides an opportunity to optimize the effectiveness of the Industrial/Commercial Facilities Program and to focus efforts on water quality priorities. The inventory fields in Part VI.D.6.b.ii (VII.D.G.2.i) provide information that allows for such a facility prioritization. Based on these fields, Figure ICF-1 establishes a method for each City to prioritize all industrial/commercial facilities into three tiers – High, Medium and Low. A City may follow an alternative prioritization method provided it is based on water quality impact and results in a similar three-tiered scheme.

Prioritization factors

Factor	Description
A	Status of exposure of materials and industrial/commercial activities to stormwater
B	Identification of whether the facility is tributary to a waterbody segment with impairments[2] for pollutants that are also generated by the facility
C	Other factors determined by the City, such as size of facility, presence of exposed soil or history of stormwater violations

Utilizing these factors, follow steps 1, 2 and 3 below:

1. Collect necessary information to evaluate factors

Factor	Initial method	Subsequent method
A	Satellite imagery	Results of stormwater inspection
B	Cross reference Table 4 or Table 5* with tributary TMDL/ 303(d) pollutants	Cross reference inspection results with tributary TMDL/ 303(d) pollutants
C	Varies	

* See pages 9 and 10 of Appendix A-3-1 ICF (guidance for the Industrial/Commercial Facilities Program)

2. Evaluate factors

Factor	Result	Score
A	Low or no exposure	0
	Moderate exposure	½
	Significant exposure	1
B	No*	0
	Yes**	1
C	Low	0
	Medium	½
	High	1

** No pollutant generation/impairment matches
*** ≥ 1 pollutant generation/impairment matches

3. Prioritize facilities

		C Score		
		0	½	1
A×B Score	0	Low	Medium	High
	½	Medium	High	High
	1	High	High	High

This method serves only as a guide to prioritization. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C.

Figure ICF-1: Industrial/Commercial Facility Prioritization Scheme

Step 3 in Figure ICF-1 may also be expressed by the relationships A·B + C ≥ 1 → High, 1 > A·B + C > 0 → Medium and A·B + C = 0 → Low. The purpose of multiplying A and B is to scale the impact of the presence of the

[2] CWA §303(d) listed or subject to a TMDL

pollutants at a facility (B) by the likelihood that they will be discharged to the MS4 (A). Factor C quantifies water quality concerns that are independent of A or B and as such is incorporated through addition. The purpose of this numerical approach is to provide consistency to the prioritization process. It is intended solely as a guide. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C as listed in Figure ICF-1.

MS4 Permit VI.D.6.d.i.(1), (LB Permit VII.D.G.4.(1)), Prioritization Condition

The following condition will be met during the prioritization process: ***The total number of low priority facilities is less than or equal to 3 times the number of high priority facilities***. This condition is applied to maintain a minimum inspection frequency as explained in Section VI.D.6.e.i.

MS4 Permit VI.D.6.d.i.(2), (LB Permit VII.D.G.4.(2)), Prioritization Frequency

The default priority for a facility is Medium. Facilities will be reprioritized as necessary following the results of routine inspections. The City may also use any readily available information that clarifies potential water quality impacts (e.g., satellite imagery) in order to prioritize a facility before the initial inspection. Reprioritization may also be conducted at any time as new water quality based information on a facility becomes available. During reprioritization, the ratio of low priority to high priority facilities will remain at 3:1 or lower. Figure ICF-2 is a flowchart of the prioritization process.

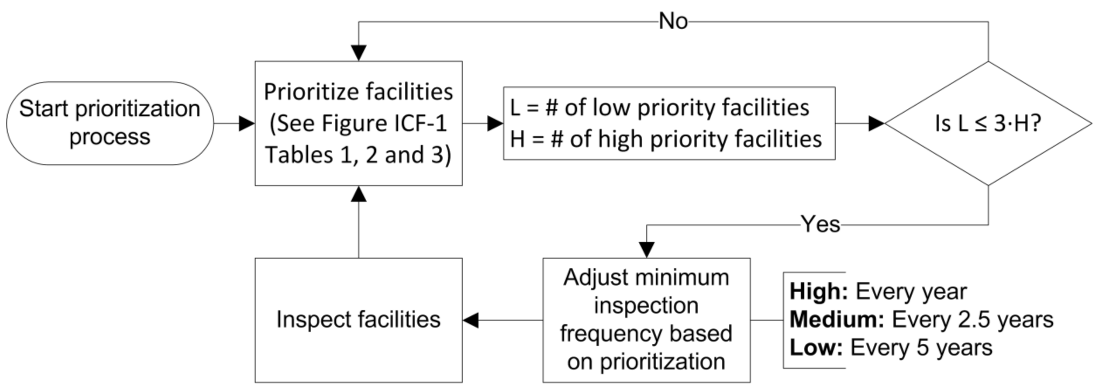

Figure ICF-2

MS4 Permit VI.D.6.e (LB Permit VII.D.G.5) Inspect Critical Industrial/Commercial Sources

MS4 Permit VI.D.6.e.i (LB Permit VII.D.G.5.i) Frequency of Industrial/Commercial Inspections

Following the facility prioritization method in Part VI.D.6.d.i, each City will inspect high priority facilities annually, medium priority facilities semi-quinquennially (once every 2.5 years) and low priority facilities quinquennially (once every five years). The frequencies may be altered by the exclusions defined in Part VI.D.6.e.i.(1). The condition in Part VI.D.6.d.i.(1) ensures at least the same average number of inspections conducted per year as the semi-quinquennial frequency defined in the MS4 Permit.

Each City will conduct the first compliance inspection for all industrial/commercial facilities within one year of the approval of their Watershed Management Program by the Executive Officer. A minimum interval of six months between the first and the second mandatory compliance inspection is required.

MS4 Permit VI.D.6.e.i.(1) (LB Permit VII.D.G.5.i(1)) Exclusions to the Frequency of Industrial Inspections

TABLE 3-3

REPLACES §VI.D.6.D AND §VI.D.6.E OF THE MS4 PERMIT *REPLACES §VII.D.G.4 AND §VII.D.G.5 OF THE LB PERMIT*
MS4 Permit VI.D.6.e.i.(1).(a) (LB Permit VII.D.G.5.i(1).(a)) Exclusion of Facilities Previously Inspected by the Regional Water Board Each City will review the State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS) database at defined intervals to determine if an industrial facility has recently been inspected by the Regional Water Board. The first interval will occur approximately 2 years after the effective date of the Order. The City does not need to inspect the facility if it is determined that the Regional Water Board conducted an inspection of the facility within the prior 24 month period. The second interval will occur approximately 4 years after the effective date of the Order. Likewise, the City does not need to inspect the facility if it is determined that the Regional Water Board conducted an inspection of the facility within the prior 24 month period. **MS4 Permit VI.D.6.e.i.(1).(b) (LB Permit VII.D.G.5.i(1).(b)) No Exposure Verification** As a component of the first mandatory inspection, each City will identify those facilities that have filed a No Exposure Certification with the State Water Board. Approximately 3 to 4 years after the effective date of the Order, each City will evaluate its inventory of industrial facilities and perform a second mandatory compliance inspection at a minimum of 25% of the facilities identified to have filed a No Exposure Certification. The purpose of this inspection is to verify the continuity of the no exposure status. **MS4 Permit VI.D.6.e.ii (LB Permit VII.D.G.5.ii) Scope of Industrial/Commercial Inspections** **MS4 Permit VI.D.6.e.ii.(1) (LB Permit VII.D.G.5.ii.(1) Scope of Commercial Inspections** Each City will inspect all commercial facilities to confirm that stormwater and nonstormwater BMPs are being effectively implemented in compliance with municipal ordinances. At each facility, inspectors will verify that the operator is implementing effective source control BMPs for each corresponding activity. Each City will require implementation of additional BMPs where stormwater from the MS4 discharges to a significant ecological area (SEA), a water body subject to TMDL provisions in Part VI.E, or a CWA §303(d) listed impaired water body. Likewise, for those BMPs that are not adequately protective of water quality standards, a City may require additional site-specific controls. **MS4 Permit VI.D.6.e.ii.(2) (LB Permit VII.D.G.5.ii.(2) Scope of Industrial Inspections** Each City will confirm that each industrial facility: a) Has a current Waste Discharge Identification (WDID) number for coverage under the Industrial General Permit, and that a Stormwater Pollution Prevention Plan (SWPPP) is available on-site; or b) Has applied for, and has received a current No Exposure Certification for facilities subject to this requirement; c) Is effectively implementing BMPs in compliance with municipal ordinances. Facilities must implement the source control BMPs identified in Table 10, unless the pollutant generating activity does not occur. The Cities will require implementation of additional BMPs where stormwater from the MS4 discharges to a water body subject to TMDL Provisions in Part VI.E, or a CWA §303(d) listed impaired water body. Likewise, if the specified BMPs are not adequately protective of water quality standards, a City may require additional site-specific controls. For critical sources that discharge to MS4s that discharge to SEAs, each City will require operators to implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards. d) Applicable industrial facilities identified as not having either a current WDID or No Exposure Certification will be notified that they must obtain coverage under the Industrial General Permit and will be referred to the Regional Water Board per the Progressive Enforcement Policy procedures identified in Part VI.D.2 of the MS4 Permit (Part VII.D.2 of the LB Permit).

Enhanced plan review program

MCM-DC-1

MS4 Permit: §VI.D.8.h, §VI.D.8.i (LB Permit: §VII.D.K.x, §VII.D.K.xi)

In general the MS4 Permit introduces provisions that conform to the SWRCB's Construction General Permit. For construction sites one acre or greater, measures include the following:

- Construction activity operators must submit Erosion and Sediment Control Plans (ESCPs) prior to grading permit issuance, developed and certified by a QSD to SWPPP standards.
- Operators must propose minimum BMPs that meet technical standards. The cities must provide these standards.
- Develop procedures and checklists to review and approve relevant construction plans.

These new and enhanced measures will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

Enhanced inspection standards/BMP requirements at construction sites

MCM-DC-2

MS4 Permit: §VI.D.8.d, §VI.D.8.i, §VI.D.8.j (LB Permit: §VII.D.K.vi, §VII.D.K.xi, §VII.D.K.xii)

Measures introduced:

- Ensure BMPs from the ESCPs are properly installed and maintained.
- Ensure the minimum BMPs for sites less than one acre are installed and maintained.
- Develop and implement standard operating procedures for City stormwater inspections of construction sites.
- Require activity-specific BMPs for paving projects.

These new and enhanced measures will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

Increased inspection frequencies

MCM-DC-3

MS4 Permit: §VI.D.8.j (LB Permit: §VII.D.K.xii)

The inspection frequency for construction sites one acre or more has significantly increased. The prior LA MS4 Permit required a minimum of one inspection during the rainy season. The current MS4 Permit requires monthly inspections year-round, as well as mandatory inspections based on the phase of construction. This enhanced measure will increase the effectiveness of the Development Construction Program, which in turn is expected to reduce TSS loading into the MS4. TSS reduction is an integral component in addressing WQPs.

Enhanced IC/ID enforcement and written program procedures

MCM-ICID-1

MS4 Permit: §VI.D.2, §VI.D.10; LB Permit: §VII.D.2 , §VII.D.M

Measures introduced:

- Develop and implement a Progressive Enforcement Policy that applies to the IC/ID Elimination, Development Construction, Planning and Land Development and Industrial/Commercial Facilities Programs. The Progressive Enforcement Policy is an augmentation of the policy listed in the prior LA MS4 Permit, which was restricted to the Industrial/Commercial Facilities Program.
- Maintain written procedures for receiving complaints, conducting investigations and responding to spills.

These new and enhanced measures will increase the effectiveness of the IC/ID Elimination program, as well as the related enforcement components of the Development Construction, Planning and Land Development and Industrial/Commercial Facilities Programs.

STORMWATER RESOURCES ON CITY WEBSITE — *MCM-PIP-1*

MS4 Permit: §VI.D.5.d.i.(4) (LB Permit: §VII.D.F.4.i.(4))

Measures introduced:

- The MS4 Permit introduces a requirement to maintain a stormwater webpage or provide links to stormwater websites via the City's website. The website (in-house or linked) will include:
  - Educational material and
  - Opportunities for the public to participate in stormwater pollution prevention and clean-up activities.

ENHANCED BMP REQUIREMENTS FOR FIXED FACILITY/FIELD ACTIVITIES — *MCM-PAA-1*

MS4 Permit: §VI.D.9.e (LB Permit: §VII.D.L.5)

Measures introduced:

- Implement effective source control BMPs for 65 specific pollutant-generating activities such as mudjacking, shoulder grading and spall repair.
- Contractually require hired contractors to implement and maintain the activity specific BMPs. Conduct oversight of contractor activities to ensure the BMPs are implemented and maintained.

These new and enhanced measures will increase the effectiveness of the Public Agency Activities program.

REPRIORITIZATION OF CATCH BASINS AND CLEAN-OUT FREQUENCIES — *MCM-PAA-2*

MS4 Permit: §VI.D.9.h.iii (LB Permit: §VII.D.L.8.iii)

In areas not subject to a trash TMDL, measures introduced include the following:

- Determine priority areas and update the map of catch basins with GPS coordinates and priority.

- Include the rationale or data to support the priority designations.

These new and enhanced measures will increase the effectiveness of the Public Agency Activities program.

INTEGRATED PEST MANAGEMENT PROGRAM — *MCM-PAA-3*

MS4 Permit: §VI.D.9.g (LB Permit: §VII.D.L.7)

The MS4 Permit introduces entirely new, prescriptive requirements to implement an Integrated Pest Management (IPM) Program for public agency activities and at public facilities. These requirements include adopting and verifiably implementing policies, procedures and/or ordinances that support the IPM program. Intertwined with the IPM provisions are additional requirements to control and minimize the use of fertilizers. These new and expansive measures will increase the effectiveness of the Public Agency Activities program and address WQPs.

ENHANCED MEASURES TO CONTROL INFILTRATION FROM SANITARY SEWERS — *MCM-PAA-4*

MS4 Permit: §VI.D.9.ix (LB Permit: §VII.D.L.ix)

The MS4 Permit introduces specific requirements to control infiltration from the sanitary sewer into the MS4. The measures include adequate plan checking, preventative maintenance, spill response, enforcement, interagency coordination and staff/contractor education. The requirements may be fulfilled through implementation of a Sewer System Management Plan in accordance with the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.

INSPECTION AND MAINTENANCE OF PERMITTEE OWNED TREATMENT CONTROLS — *MCM-PAA-5*

MS4 Permit: §VI.D.9.x (LB Permit: §VII.D.L.x)

The MS4 Permit introduces requirements to implement an inspection and maintenance program for all Permittee owned treatment control BMPs, including post-construction treatment control BMPs. This measure will increase the effectiveness of the Public Agency Activities program.

3.3 NONSTORMWATER DISCHARGE MEASURES

The Participating Agencies will require dischargers that drain to their respective MS4s to implement the Nonstormwater Discharge (NSWD) Measures as defined in §III.A of the MS4 Permit (§IV.B of the LB Permit). If the Participating Agencies identify nonstormwater discharges from the MS4 as a source of pollutants that cause or contribute to exceedances of receiving water limitations, the WCMs will be modified and implemented – subject to the adaptive management process – to effectively eliminate the source of pollutants consistent with MS4 Permit §III.A and §VI.D.10 (LB Permit §IV.B and §VII.D.M). In these instances, potential WCMs may include prohibiting the nonstormwater discharge to the MS4, requiring the responsible party to 1) incorporate additional BMPs to reduce pollutants in the nonstormwater discharge or conveyed by the nonstormwater discharge or 2) divert to a sanitary sewer for treatment, or strategies to require the nonstormwater discharge to be separately regulated under a general NPDES permit.

It is important to note that the nonstormwater Outfall Based Screening and Monitoring Program (MRP §IX) introduces additional NSWD measures through the intensive procedures required for the identification of NSWDs from MS4 outfalls.

3.3.1 NEW FOURTH TERM PERMIT NONSTORMWATER DISCHARGE MEASURES

Parts III.A and VI.B (MRP IX) of the MS4 Permit (Parts IV.B and VII.B (MRP IX) of the Long Beach Permit introduce new provisions and program elements that address NSWDs. This section briefly describes these new and enhanced NSWD measures. A NSWD measure is considered new if it was not required by the prior MS4 Permit and is considered enhanced if it is an enhancement of a related provision of the prior MS4 Permit.

Table 3-2 from the previous section lists the new and enhanced nonstructural NSWD measures as well as the City MCMs. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The following pages describe each of the listed controls. The details of each provision may be found in the relevant sections of the MS4 Permit, which are included. Unless an alternate date is provided in the MS4 Permit or in this section, the adoption date for the NSWD measures coincides with the approval of the WMP by the Regional Board's Executive Officer.

NSWD-1 OUTFALL SCREENING AND SOURCE INVESTIGATIONS

NSWD-1

MS4 Permit: §VI.B (MRP §IX) (LB Permit: MRP §IX)

The outfall screening and source investigation provisions of the MS4 Permit constitute an entirely new, expansive addition to each City's JSWMP. Implementing these new provisions will significantly support the control of unauthorized nonstormwater discharges.

ENHANCED CONDITIONS FOR EXEMPT NONSTORMWATER DISCHARGES ***NSWD-2***

MS4 Permit: §III.A (LB Permit: §IV.B)

The NSWD prohibitions of the MS4 Permit, which include specific measures to reduce irrigation runoff, are a significant enhancement from the prior LA MS4 Permit. Measures introduced include the following:

- Require the implementation of BMPs following established BMP manuals for discharges from non-emergency fire fighting activities and drinking water supplier distribution systems. Require specific BMPs for lake dewatering, landscape irrigation, pool and fountain discharges and non-commercial car washing.
- Require notification, monitoring (i.e. sampling) and reporting for drinking water supplier discharges and lake dewatering greater than 100,000 gallons.
- Require advance notification for any discharge of 100,000 gallons or more into the MS4.
- Minimize discharge of landscape irrigation through implementation of an ordinance specifying water efficient landscaping standards.
- Promote water conservation programs to minimize the discharge of landscape irrigation water into the MS4. This includes the following, where applicable:
    - Coordinate with local water purveyor(s) to promote:
        - Landscape water efficiency requirements for existing landscaping,
        - Drought tolerant, native vegetation, and
        - Less toxic options for pest control and landscape management.
    - Develop and implement a coordinated outreach and education program to minimize the discharge of irrigation water and pollutants associated with irrigation water.
- If monitoring results indicate that a conditionally exempt NSWD is a source of pollutants that causes or contributes to exceedances of applicable receiving water limitations and/or water quality-based effluent limitations, the Permittee must either:
    - Effectively prohibit the nonstormwater discharge to the MS4, or
    - Impose additional conditions, subject to approval by the Regional Water Board Executive Officer, or
    - Require diversion of the NSWD to the sanitary sewer, or
    - Require treatment of the NSWD prior to discharge to the receiving water.

Implementing these enhanced provisions will significantly support the control of unauthorized nonstormwater discharges.

3.4 TARGETED CONTROL MEASURES

Targeted Control Measures (TCMs) are additional control measures beyond the baseline MCMs and NSWD measures of the MS4 Permit that are intended to target the Watershed Group's WQPs. TCMs may be divided into two categories: nonstructural and structural. The selection of structural and nonstructural control measures to address WQPs within the Watershed Group is a vital component of the WMP planning process.

The Participating Agencies have already proposed and implemented a number of structural and nonstructural control measures in the watershed that collectively may contribute to considerable pollutant load reductions. These existing and planned BMPs provide a head start in the planning process to address WQPs within the Watershed Group. There are many different types of structural and nonstructural control measures that provide varying benefits from their implementation. The following sections describe Planned TCMs to be implemented, Potential TCMs that may be implemented (implementation is conditional upon factors such as site constraints, governing body approval, etc.) as well types of structural BMPs available to the Watershed Group.

3.4.1 NONSTRUCTURAL TARGETED CONTROL MEASURES

3.4.1.1 CONTROL MEASURES IDENTIFIED IN TMDLS/IMPLEMENTATION PLANS

There are no control measures identified in the San Gabriel River Metals TMDL. Planned and potential control measures to address the Metals TMDL are incorporated within the WCMs identified in this Chapter.

As recognized by the footnote in Attachment K of the Permit, the Participating Agencies have entered into an Amended Consent Decree with the United States and the State of California, including the Regional Board. The footnote specifically states: "The requirements of this Order to implement the obligations of [the Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL] do not apply to a Permittee to the extent that it is determined that the Permittee has been released from that obligation pursuant to the Amended Consent Decree entered in *United States v. Montrose Chemical Corp.*, Case No. 90-3122 AAH (JRx)." The submission of this WMP and its associated CIMP and any action or implementation taken pursuant to it shall not constitute a waiver of any such release of obligations established by that Amended Consent Decree.

3.4.1.2 TOTAL SUSPENDED SOLIDS REDUCTION

As explained in the introduction to this chapter, emphasis is placed on source control as a cost-effective measure to reduce pollutant loads. In this WMP, the chief approach is controlling Total Suspended Solids (TSS) at the source, as explained in the following section. Combining this approach with true source control, low impact development, green streets, and the MCMs constitutes a strong and effective initial implementation of the WMP, providing time for funding measures to be put in place to pay for the design, construction, and operation of stormwater capture and low flow diversion facilities and to develop working relationships with water and wastewater agencies.

BACKGROUND

TSS is the governing pollutant for metals. This is consistent with that found within the USEPA approved San Gabriel River Metals TMDL which represents metals (copper, lead, and zinc) through their associations with sediment. Reducing TSS in the receiving waters is anticipated to result in a significant reduction of metals in the receiving waters since both pollutant groups adhere to sediment; therefore initial implementation will focus on TSS reduction. Initial emphasis on TSS reduction should reduce the volume of water that ultimately needs to be captured and infiltrated or used to achieve standards for the Category 1 pollutants being addressed by the WMP – namely metals. This would make implementation of the WMP more cost-efficient.

Documentation is not available for the LSGR watershed; however it is available for the adjacent Los Cerritos Channel (LCC) Watershed, of which many LSGR cities drain to in part. For that watershed, Table 3-4 below provides a summary of TSS concentrations at the Stearns Street monitoring site over a 13-year period based on 74 wet-weather observations and 25 dry-weather observations.

Table 3-4: TSS statistics measured at LCC TMDL Monitoring Site

Statistic	Wet Weather (mg/L)	Dry Weather (mg/L)
No. of observations	74	25
Minimum	17	2
Maximum	1700	128
1st Quartile	96	7.5
Median	155	13
3rd Quartile	260	41
Mean	227	27
Standard deviation (n-1)	256	30

Although the RAA is only assuming a 5% pollutant load reduction through implementation of the TSS Reduction Strategy, the Watershed Group is targeting greater reductions. In an analysis performed by the Los Cerritos Channel WMP Group, it was determined that the expected reduction in the mean concentration of TSS at Stearns Street from 227 mg/l to 150 mg/l, which would be a 34% reduction in the mean concentration of TSS. The reduced value is consistent with those found in other watersheds with similar land uses. A quantification of the program's potential effectiveness is included in Section 4.3.1.

TSS REDUCTION STRATEGY

The core of the TSS Reduction Strategy is the Group's soil stabilization/sediment control. Two key components of this strategy are implementation of enhanced erosion and sediment control at construction sites, in accordance with each city's Development Construction Program, and stabilization of exposed soil not associated with construction sites. Initial assessments conducted by the LCC Watershed Group have indicated that vacant lots, Caltrans rights-of-way and transmission line rights-of-way are the primary areas of exposed soil not associated with construction sites. Specific control measures for these areas are explained in the following section.

3.4.1.3 LIST OF NONSTRUCTURAL TCMS

Table 3-5 lists planned and potential nonstructural TCMs for each participating agency. The BMP effectiveness from Table 3-2 is based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012. The correlation of BMP effectiveness with WQPs is based on Table 3-1. The pages following Table 3-5 describe each of the listed controls.

The responses for each agency under Table 3-5 are defined as follows:

✗ *Planned TCM*. Under the presumption that 1) the TCM will likely not require approval of the governing body and 2) the governing body approves adequate staff/budget (if necessary), the TCM will be implemented.

P *Potential TCM*. The TCM is under consideration by the agency, however implementation is contingent upon yet to be determined factors. These factors include approval by the governing body, additional time needed to inform the governing body and/or relevant staff and approval of service contracts. As such implementation cannot be assured at this time. If the Potential TCM is not adopted by the agency within the first two years of the implementation of the WMP, it will be reconsidered through the adaptive management process.

C *Completed TCM*. The TCM is preexisting (has been in effect for several years or more).

It is important to note that Caltrans and the LACFCD are operating regional stormwater programs and consequently incorporating localized institutional TCMs may not be feasible. As such their exclusion from such TCMs is justified.

The schedule of implementation for the TCMs is provided in Chapter 5.

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Planning and Land Development																			
1	TCM-PLD-1	Train staff/councils to facilitate LID and Green Streets implementation	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
2	TCM-PLD-2	Ordinance requiring LID BMPs for projects below MS4 Permit thresholds	◈	◆	◈	◆	◆					✗	N/A				✗				P
		Existing Development																			
3	TCM-ICF-1 (MCM-ICF-3)	Prioritize facilities/inspections based on water quality priorities	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
4	TCM-TSS-1	Exposed soil ordinance	◈	◆	◈	◆	◇		P			C	N/A				P	P	P		✗
5	TCM-TSS-2	Erosion repair and slope stabilization on private property	◈	◆	◈	◆	◇		P				N/A				P	P	P		✗
6	TCM-TSS-3	Private parking lot sweeping ordinance	◆	◆	◈	◆	◇					✗	N/A				P				P
7	TCM-TSS-4	Sweeping of private roads and parking lots	◆	◆	◈	◆	◇					✗	N/A				P				P
8	TCM-TSS-5	Negotiations with regulated utilities for erosion control within R.O.W.	◈	◆	◈	◆	◇	**Watershed Group**													

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs					Agency													
			Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
9	TCM-RET-1	Encourage retrofitting of downspouts (downspout disconnect)	◈	◈	◈	◈	◆					✗	N/A				P		✗		P
		Dry weather runoff reduction																			
10	TCM-NSWD-1	Incentives for irrigation reduction practices	◈	◆	◈	◆	◆	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
		Public Information and Participation																			
11	TCM-PIP-1	Refocused outreach to target audiences and water quality priorities	◆	◆	◆	◆	◆	**Watershed Group**													
		Public Agency Activities																			
12	TCM-PAA-1	Upgraded sweeping equipment (e.g. regenerative)	◆	◆	◈	◆	◇	C	✗	C	C	✗	N/A	C	C	C	P	C	C	C	✗
13	TCM-PAA-2	Adopt Sewer System Management Plan (SSMP)	◇	◆	◇	◇	◇	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
14	TCM-PAA-3	Adopt (nonstructural) statewide trash amendments	◈	◈	◈	◇	◇	✗	✗	✗	✗	✗	N/A	✗	✗	✗	✗	✗	✗	✗	✗
15	TCM-PAA-4	Increased street sweeping frequency or routes	◆	◆	◈	◆	◇		P			P	N/A								P
16	TCM-TSS-6	Erosion repair and slope stabilization on public property and right of way	◈	◆	◈	◆	◇					✗	N/A				✗				✗

Table 3-5 Nonstructural TCMs

#	WCM Category/ID	WCM	BMP effectiveness with respect to WQPs: Category I	Category II	Category III	Sediment reduction	Volume or flow reduction	Agency: Artesia	Bellflower	Cerritos	Diamond Bar	Downey	LACFCD	Hawaiian Gardens	Lakewood	La Mirada	Long Beach	Norwalk	Pico Rivera	Santa Fe Springs	Whittier
		Reporting/Adaptive Management																			
17	TCM-MRP-1	Enhanced tracking through use of online GIS MS4 Permit database	◈	◈	◈	◈	◈		P	✗	P	✗		✗	✗		P	✗	P	✗	✗
		Jurisdictional SW Management																			
18	TCM-SWM-1	Prepare guidance documents to aid in implementation of MS4 Permit MCMs	◈	◈	◈	◈	◈	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
		Initiatives																			
19	TCM-INI-1	Copper reduction through implementation of SB 346	◆	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
20	TCM-INI-2	Lead reduction through implementation of SB 757	◆	◆	◇	◇	◇	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
21	TCM-INI-3	Support zinc reduction in tires through safer consumer product regulations	◆	◆	◇	◇	◇	**Watershed Group**													
22	TCM-INI-4	Apply for grant funding for stormwater quality/capture projects	◈	◆	◈	◆	◆					✗	✗				✗	✗	✗	✗	✗

✗ – Planned TCM. **P** – Potential TCM. **C** – Completed/implemented TCM.

◆ Primary pollutant reduction ◈ Secondary pollutant reduction ◇ Pollutant not addressed

BMP effectiveness ratings based on similar BMPs listed in Tetra Tech's CLRP for Chollas Creek Watershed in San Diego County, 2012.

ENHANCED TRACKING THROUGH USE OF ONLINE GIS MS4 PERMIT DATABASE *TCM-MRP-1*

Measures:

- Enter the enhanced tracking requirements of the fourth term MS4 Permit on an online GIS database management system dedicated to Phase I MS4 Permit compliance. Program elements addressed include all the MCMs (Development Construction, Planning and Land Development, Industrial/Commercial Facilities, Public Agency Activities, Public Information and Participation and Illicit Connection/Discharge Elimination) and the Monitoring and Reporting Program.
- Use the consolidated tracking data to:
    - Improve the effectiveness of the JSWMP (e.g. examine geospatial trends in IC/IDs, which could be used to strategically distribute public education materials) and WMP.
    - Assess the JSWMP and improve the annual reporting process.
    - Guide the adaptive management process through this assessment.

Many of the cities are implementing the measures through the use of *MS4Front*, a propriety online GIS MS4 Permit database management system.

TRAIN STAFF TO FACILITATE LID AND GREEN STREETS IMPLEMENTATION *TCM-PLD-1*

Measures:

- Conduct training for relevant staff in LID and Green Streets implementation prior to the onset of the programs. The elements of the training follow the provisions listed in MS4 Permit §VI.D.7.
- Educate governing bodies in LID and Green Streets implementation (optional).

Several cities have already accomplished these measures, which facilitate LID implementation and address WQPs.

ORDINANCE REQUIRES LID BMPS FOR PROJECTS BELOW MS4 PERMIT THRESHOLDS *TCM-PLD-2*

Measures:

- Adopt an ordinance requiring LID BMPs for smaller development projects that are below the thresholds for inclusion under the Planning and Land Development MCM Program.

Downey, South Gate and Signal Hill have already accomplished this measure, which facilitates LID and addresses WQPs.

PRIORITIZE FACILITIES/INSPECTIONS BASED ON WATER QUALITY PRIORITIES *TCM-ICF-1 (MCM-ICF-3)*

MS4 Permit: Modified MCM (replaces §VI.D.6.d, §VI.D.6.e)

A program has been developed to prioritize industrial/commercial facilities based on their potential to adversely impact WQPs. The resulting prioritization scheme determines the inspection frequency,

replacing the uniform inspection frequency provided in the MS4 Permit. This allows Cities to concentrate efforts on WQPs.

The complete program is detailed in the Minimum Control Measures section of this chapter – see MCM-ICF-3.

Exposed soil ordinance

TCM-TSS-1

This TCM is an element of the TSS Reduction Strategy.

- Adopt ordinances that require landscaping, erosion control, and sediment control on vacant lots and other significant sources of exposed dirt.
- These efforts are distinct from construction activity control measures, which are addressed under the Development Construction MCM program.

The City of Whittier has successfully adopted and implemented such an ordinance. The ordinance also requires drought tolerant landscaping/xeriscaping. The ordinance language may be used as a template to develop similar ordinances for the other participating agencies, and as such is included in Appendix A-3-3.

Erosion repair and slope stabilization on private property

TCM-TSS-2

This TCM is an element of the TSS Reduction Strategy. Measures include:

- If adopted, enforce the ordinances from TCM-TSS-1.
- Proactively enforce the existing stormwater ordinance regarding TSS-laden stormwater discharges (or potential discharges) from significant sources of exposed dirt and follow the Progressive Enforcement Policy. This may include observing site conditions prior to rain events and visual monitoring of stormwater discharges.

The City of Whittier has successfully implemented an ordinance in conformance with TCM-TSS-1. Pictures of some of the landscaped lots are included.

Wardman St and Philadelphia St, NW corner (1)

Wardman St and Philadelphia St, NW corner (2)

Greenleaf Ave and Philadelphia St, east side

Bailey St and Comstock Ave, NW corner

PRIVATE PARKING LOT SWEEPING ORDINANCE — *TCM-TSS-3*

This TCM is an element of the TSS Reduction Strategy.

- Adopt an ordinance that requires sweeping of private parking lots. An example ordinance from the City of Signal Hill is included in Appendix A-3-3.

SWEEPING OF PRIVATE ROADS AND PARKING LOTS — *TCM-TSS-4*

This TCM is an element of the TSS Reduction Strategy.

- If adopted, enforce the ordinance from TCM-TSS-3.
- Proactively enforce the existing stormwater ordinance regarding TSS-laden stormwater discharges (or potential discharges) for private roads and parking lots and follow the Progressive Enforcement Policy. This may include observing site conditions prior to rain events and visual monitoring of stormwater discharges.

NEGOTIATIONS WITH REGULATED UTILITIES FOR EROSION CONTROL WITHIN R.O.W. — *TCM-TSS-5*

This TCM is an element of the TSS Reduction Strategy.

- As a Watershed Group, pursue agreements between cities and utilities regarding erosion and sediment control in rights-of-way.

Since Caltrans is a participant in the Watershed Group, the cities will work with Caltrans to ensure that its rights-of-way are stabilized in a timely manner. However, since the public and private utilities whose rights-of-way must be stabilized are not members of the Watershed Group, negotiations with the utilities on how best to keep sediment from their rights-of-way out of the storm drain system will be necessary.

EROSION REPAIR AND SLOPE STABILIZATION ON PUBLIC PROPERTY — *TCM-TSS-6*

This TCM is an element of the TSS Reduction Strategy.

- Implement landscaping, erosion control, and sediment control on significant sources of exposed dirt on public property.

ENCOURAGE RETROFITTING OF DOWNSPOUTS (DOWNSPOUT DISCONNECT) ***TCM-RET-1***

Measures:

- Encourage owners/operators of existing developments to disconnect existing downspouts from the MS4.

INCENTIVES FOR IRRIGATION REDUCTION PRACTICES ***TCM-NSWD-1***

Measures:

- Provide incentives such as rebates for irrigation reduction (i.e. runoff reduction) practices such as xeriscaping and turf conversion.

All cities are currently involved in this effort through the Metropolitan Water District's water conservation rebate program.

- Incentive programs include:
  - Metropolitan Water District of Southern California's "On-site Retrofit Pilot Program Incentives for Recycled Water Use". This program provides financial incentives to public or private owners to convert potable water irrigation or industrial water systems to recycled water service.
  - Metropolitan Water District of Southern California's "Water Savings Incentive Program". This program provides financial incentives for commercial, industrial, institutional, agricultural or large landscape customers to customize was efficiency projects that include installation of high-efficiency equipment, process improvements, water efficiency improvements, and water management services
  - Metropolitan Water District's "Turf Rebate Program." The program offers at least $2.00 per square foot of turf removed or replace by California-friendly drought-resistant plants.
  - Metropolitan Water District's "Rain Barrel" rebate program. This program offers at least $75 per barrel installed on location. The purpose is to collect rainwater from gutters and downspouts for lawn and garden irrigation purposes.
  - Metropolitan Water District's "Soil Moisture Sensor System." This program offers a rebate for installation of a Soil Moisture Sensor System or a Weather Based Irrigation Controller.
  - Metropolitan Water District's "Rotating Nozzles" program. This program offers rebates to both residential and commercial entities to switch to high-efficiency nozzles.

There are two cities in this Watershed Management Group that have incentive programs beyond the programs offered by Metropolitan Water District. The following City programs are supplemental to MWD rebate programs:

- **Lakewood** has rebate programs for turf removal and water-wise re-landscaping and for installing water-wise irrigation devices (while funds last).
http://www.lakewoodcity.org/services/request/water/rebates.asp

- **Long Beach** has the "Lawn-to-Garden" program, which provides financial incentives (while funds last) for converting water-thirsty lawns to water-smart lawns.
http://www.lblawntogarden.com/.

  In addition, the Synthetic Turf Pilot Program that offers an incentive for removing grass lawns and replacing them with synthetic turf (while fund last).
  http://www.lbwater.org/sites/default/files/file_attach/pdf/STPP%20Flyer%20FINAL_online.pdf

REFOCUSED OUTREACH TO TARGET AUDIENCES AND WATER QUALITY PRIORITIES — *TCM-PIP-1*

Measures:

- Within the Public Information and Education Program, elements such as material use/development and advertisements will address WQPs. The development of this effort will be ongoing throughout the MS4 Permit term, and may be regarded as a Watershed Group effort.

UPGRADED SWEEPING EQUIPMENT (E.G. REGENERATIVE) — *TCM-PAA-1*

Measures:

- Upgrade street sweeping equipment to regenerative or other high-efficiency new technology.

Most of the Cities contract street sweeping to private companies. These companies have already phased in regenerative sweepers. The City of Whittier has been phasing in regenerative sweepers and expects to be 100% regenerative by the end of the MS4 Permit term. The City of Long Beach operates vacuum sweepers over regenerative due to maintenance concerns. However the City is considering contracting this service in the near future. If this occurs, the vacuum sweepers will likely be replaced with regenerative sweepers provided by the contractor.

ADOPT SEWER SYSTEM MANAGEMENT PLAN MEASURES: *TCM-PAA-2*

All agencies are enrolled in the statewide Waste Discharge Requirements for Sanitary Sewer Systems, which required the development and implementation of a Sewer System Management Plan (SSMP in mid 2009. The goal of the SSMP is to reduce and prevent sanitary sewer overflows (SSOs), as well as mitigate any SSOs that do occur. This goal also addresses WQPs. Elements of the SSMP include:

- Sanitary sewer system operation and maintenance program
- Design and performance provisions
- Overflow emergency response plan
- FOG Control Program
- System Evaluation and Capacity Assurance Plan

Following these SSMP elements will address WQPs.

ADOPT (NONSTRUCTURAL) STATEWIDE TRASH AMENDMENTS *TCM-PAA-3*

Measures:

- Any mandatory nonstructural control measures required by the statewide Trash Amendments (currently in draft form) will result in trash load reductions. Since pollutants such as organics can adhere to plastic trash, secondary reductions for non-trash pollutants may be expected.

INCREASED STREET SWEEPING FREQUENCY OR ROUTES *TCM-PAA-4*

Measures:

- Increase the street sweeping frequency, jurisdiction-wide or in high trash-generating areas and/or include additional routes (e.g. center medians and intersections).

PREPARE GUIDANCE DOCUMENTS TO AID IMPLEMENTATION OF MS4 PERMIT MCMS *TCM-SWM-1*

This WMP includes in Appendix A-3-1 guidance documents and template forms to aid the Agencies in implementation of the MS4 Permit MCMs. These documents were developed to address two issues: 1) the MS4 Permit introduces many new and enhanced MCM provisions that do not have preexisting guidance documentation and 2) the model Stormwater Quality Management Program (SQMP) – which was required in the prior LA MS4 Permit and served as a guide to permit implementation – is now obsolete. Unlike the SQMP, the Agencies are not bound to the guidance and forms provided. They are provided as a resource to improve the effectiveness of the JSWMPs.

COPPER REDUCTION THROUGH IMPLEMENTATION OF SB 346 *TCM-INI-1*

This initiative TCM has been completed recently. The impact of the TCM over time has been incorporated into the RAA.

LEAD REDUCTION THROUGH IMPLEMENTATION OF SB 757 — *TCM-INI-2*

This initiative TCM has been completed recently.

SUPPORT ZINC REDUCTION IN TIRES THROUGH SAFER CONSUMER PRODUCT REGULATIONS — *TCM-INI-3*

Measures:

- As a Watershed Group, plan to work with others to use the Department of Toxic Substances Control's Safer Consumer Product Regulations to reduce the zinc in tires, which one of the greatest sources of zinc in urban areas.

APPLY FOR GRANT FUNDING FOR STORMWATER CAPTURE PROJECTS — *TCM-INI-4*

Measures:

- Initiate Individual or multi-jurisdictional efforts to apply for grant funding for stormwater quality/capture projects.

In April 2014, The Gateway Water Management Authority received grant funding of $1.3 million for LID projects in the Cities of Downey, Norwalk, Pico Rivera, Santa Fe Springs and Whittier (as well as Lynwood, Paramount, Signal Hill and South Gate).

3.4.2 STRUCTURAL TARGETED CONTROL MEASURES

Structural TCMs are Structural BMPs, in addition to MCMs, designed with the objective to achieve interim and final water quality-based effluent limitations and/or receiving water limitations. Structural TCMs are an important component of the Watershed Group's load reduction strategy. These BMPs are constructed to capture runoff and filter, infiltrate, or treat it. If properly maintained, these BMPs can have high pollutant removal efficiencies (see the *Performance Evaluation of Structural BMPs* element of this section); however, they tend to be more expensive than nonstructural BMPs. The two prevailing approaches for implementing Structural BMPs are regional and distributed approaches. Both serve important purposes and should be considered in combination to determine the best possible implementation strategy to meet the Watershed Group's water quality goals.

DISTRIBUTED BMPS

Distributed Structural BMPs are generally built at the site-scale. They are intended to treat stormwater runoff at the source and usually capture runoff from a single parcel or site.

Figure 3-1: Distributed BMP Schematic

REGIONAL BMPS

Regional BMPs refer to large structural BMPs that receive flows from neighborhoods or large areas and may serve dual purposes for flood control or groundwater recharge[3].

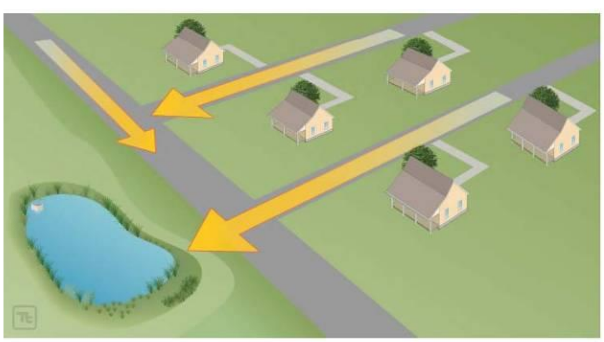

Figure 3-2: Regional BMP Schematic

[3] San Diego River Watershed Comprehensive Load Reduction Plan (2012)

3.4.2.1 STRUCTURAL BMP SUBCATEGORIES

Structural BMPs fall under a variety of subcategories that correspond to their function and water quality benefit. Some of the most common of these subcategories are described below. These subcategories will be used throughout the WMP to describe existing, planned, and potential regional and distributed BMPs.

INFILTRATION BMPS

Infiltration BMPs allow for stormwater to percolate through the native soils and recharge the underlying groundwater table, subsequently decreasing the volume of water discharged to the downstream waterbodies. These BMPs must be constructed in areas where the native soils have percolation rates and groundwater levels sufficient for infiltration.

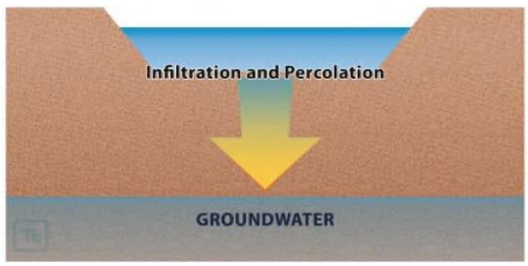

Figure 3-3: Infiltration BMP Schematic

INFILTRATION BASIN

An infiltration basin consists of an earthen basin with a flat bottom. An infiltration basin retains stormwater runoff in the basin and allows the retained runoff to percolate into the underlying soils. The bottom of an infiltration basin is typically vegetated with dryland grasses or irrigated turf grass.

INFILTRATION TRENCH

An infiltration trench is a long, narrow, rock-filled trench with no outlet other than for overflow. Runoff is stored in the void space between stones and infiltrates through the bottom and sides of the trench. Infiltration trenches provide the majority of their pollutant removal benefits through volume reduction. Pretreatment is important for limiting amounts of coarse sediment entering the trench which can clog and render the trench ineffective.

BIORETENTION WITH NO UNDERDRAIN

Bioretention facilities with no underdrain are landscaped shallow depressions that capture and infiltrate stormwater runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. The facilities normally consist of a ponding area, mulch layer, engineered media, and vegetation. As stormwater passes down through the media, pollutants are filtered, adsorbed, and biodegraded by the soil and vegetation.

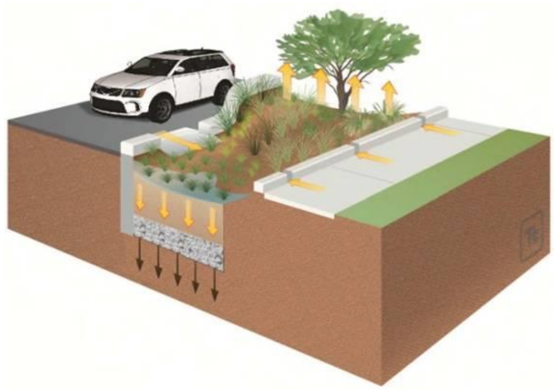

Figure 3-4: Bioretention without underdrain schematic

DRYWELL

Drywells are similar to infiltration trenches in their design and function; however, drywells generally have a greater depth to footprint area ratio and can be installed at relatively deep depths. A drywell is a subsurface storage facility designed to temporarily store and infiltrate runoff. A drywell may be either a small excavated pit filled with aggregate or a prefabricated storage chamber or pipe segment.

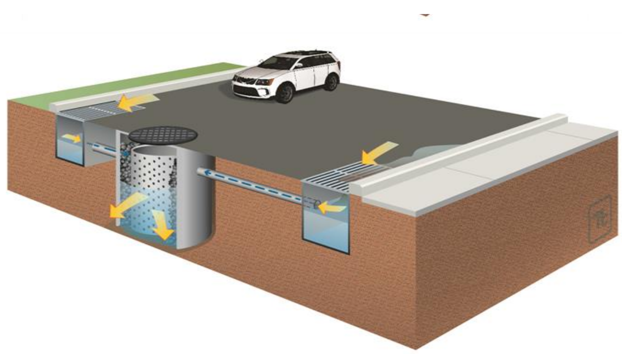

Figure 3-5: Drywell schematic

POROUS PAVEMENT

Porous pavement (concrete, asphalt, and pavers) contain small voids that allow water to pass through to a gravel base. They come in a variety of forms; they may be a modular paving system (concrete pavers, grass-pave, or gravel-pave) or poured in place pavement (porous concrete, permeable asphalt). Porous pavements treat stormwater and remove sediments and metals within the pavement pore space and gravel base. While conventional pavement results in increased rates and volumes of surface runoff, properly constructed and maintained porous pavements allow stormwater to percolate through the pavement and enter the soil below. This facilitates groundwater recharge while providing the structural and functional features needed for the roadway, parking lot, or sidewalk. The paving surface, subgrade, and installation requirements of porous pavements are more complex than those for conventional asphalt or concrete surfaces.

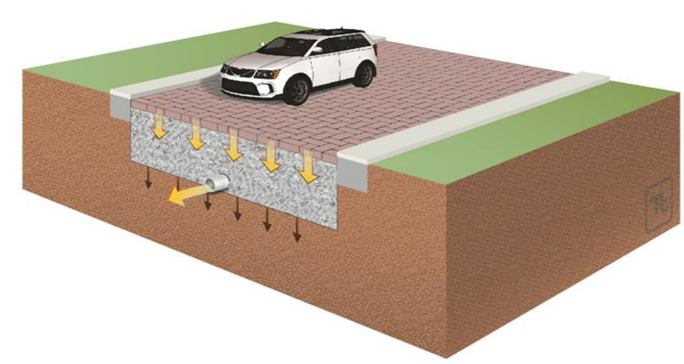

Figure 3-6: Porous pavement schematic

BIOTREATMENT BMPS

Biotreatment BMPs treat stormwater through a variety of physical, chemical, and biological processes prior to being discharged to the MS4 system. These BMPs should be considered where Infiltration BMPs are infeasible.

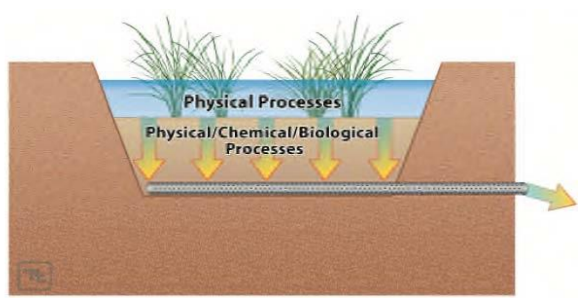

Figure 3-7: Biotreatment BMP schematic

BIORETENTION WITH UNDERDRAINS

Bioretention stormwater treatment facilities are landscaped shallow depressions that capture and filter stormwater runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. The facilities normally consist of a ponding area, mulch layer, engineered media, and vegetation. As stormwater passes down through the media, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and vegetation. Bioretention with underdrain systems are utilized for areas containing native soils with low permeability or steep slopes, where the underdrain system routes the treated runoff to the storm drain system.

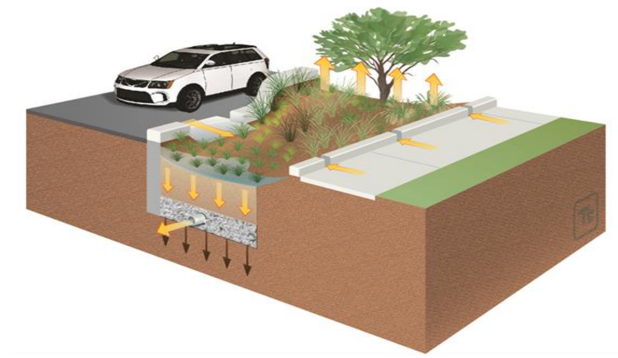

Figure 3-8: Bioretention with Underdrains schematic

Vegetated Swales

Vegetated swales are open, shallow channels with low-lying vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. Vegetated swales provide pollutant removal through settling and filtration in the vegetation (usually grasses) lining the channels. In addition, although it is not their primary purpose, vegetated swales also provide the opportunity for volume reduction through subsequent infiltration and evapotranspiration and reduce the flow velocity. Where soil conditions allow, volume reduction in vegetated swales can be enhanced by adding a gravel drainage layer underneath the swale allowing additional flows to be retained and infiltrated. Where slopes are shallow and soil conditions limit or prohibit infiltration, an underdrain system or low flow channel for dry weather flows may be required to minimize ponding and convey treated and/or dry weather flows to an acceptable discharge point. An effective vegetated swale achieves uniform sheet flow through a densely vegetated area for a period of several minutes (depending on design standard used).

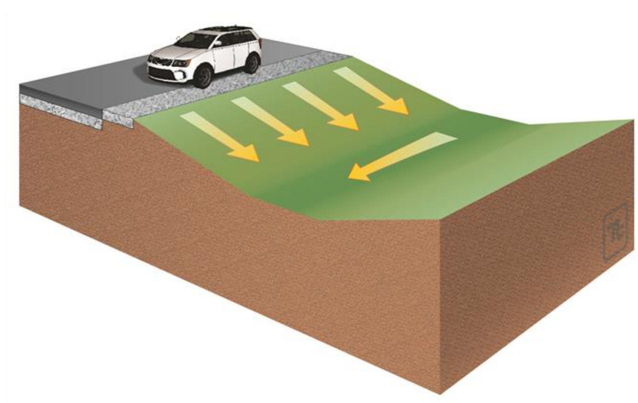

Figure 3-9: Vegetated swale schematic

Wet Detention Basin

Wet detention basins are constructed, naturalistic ponds with a permanent or seasonal pool of water (also called a “wet pool” or “dead storage”). Aquascape facilities, such as artificial lakes, are a special

form of wet pool facility that can incorporate innovative design elements to allow them to function as a stormwater treatment facility in addition to an aesthetic water feature. Wet ponds require base flows to exceed or match losses through evaporation and/or infiltration, and they must be designed with the outlet positioned and/or operated in such a way as to maintain a permanent pool. Wet ponds can be designed to provide extended detention of incoming flows using the volume above the permanent pool surface.

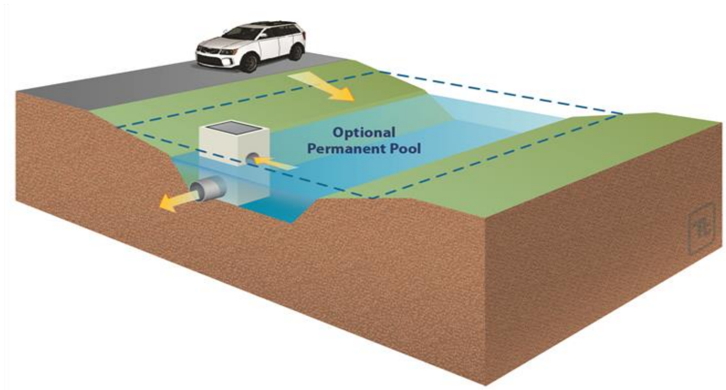

Figure 3-10: Wet detention basin schematic

Dry Extended Detention Basin

Dry extended detention basins are basins whose outlets have been designed to detain the stormwater runoff to allow particulates and associated pollutants to settle out. Dry extended detention basins do not have a permanent pool; they are designed to drain completely between storm events. They can also be used to provide hydromodification and/or flood control by modifying the outlet control structure and providing additional detention storage. The slopes, bottom, and forebay of Dry extended detention basins are typically vegetated.

Figure 3-11: Dry extended detention basin schematic

PRE TREATMENT BMPS

Pre-treatment BMPs are typically not used as primary treatment; however, they are highly recommended for preliminary treatment in order to prolong the life and prevent clogging of the downstream system in a treatment train.

MEDIA FILTERS

Media filters are usually designed as multi-chambered stormwater practices; the first is a settling chamber, and the second is a filter bed filled with sand or another filtering media. As stormwater flows into the first chamber, large particles settle out, and then finer particles and other pollutants are removed as stormwater flows through the filtering medium. They can also be used as pre-treatment, with their location prior to any infiltration or biotreatment BMP.

CATCH BASIN INSERTS

Catch basins inserts typically include a grate or curb inlet and a sump to capture sediment, debris, and pollutants. Filter fabric can also be included to provide additional filtering of particles. The effectiveness of catch basins, their ability to remove sediments and other pollutants, depends on its design and maintenance. Some inserts are designed to drop directly into existing catch basins, while others may require retrofit construction. Similar to media filters, catch basin filters can also be used as a pre-treatment BMP for infiltration and biotreatment BMPs.

Figure 3-12: Pre-treatment BMP schematic

RAINFALL HARVEST

Rainfall Harvest BMPs capture rainwater to be reused in lieu of discharging directly to the MS4.

ABOVE GROUND CISTERNS

Cisterns are large above ground tanks that store stormwater collected from impervious surfaces for domestic consumption. Above ground cisterns are used to capture runoff. Mesh screens are typically used to filter large debris before the stormwater enters the cistern. The collected stormwater could potentially be used for landscape irrigation and some interior uses, such as toilets and washing machines. The collection and consumption of the stormwater results in pollution control, volume reduction, and peak flow reduction from the site.

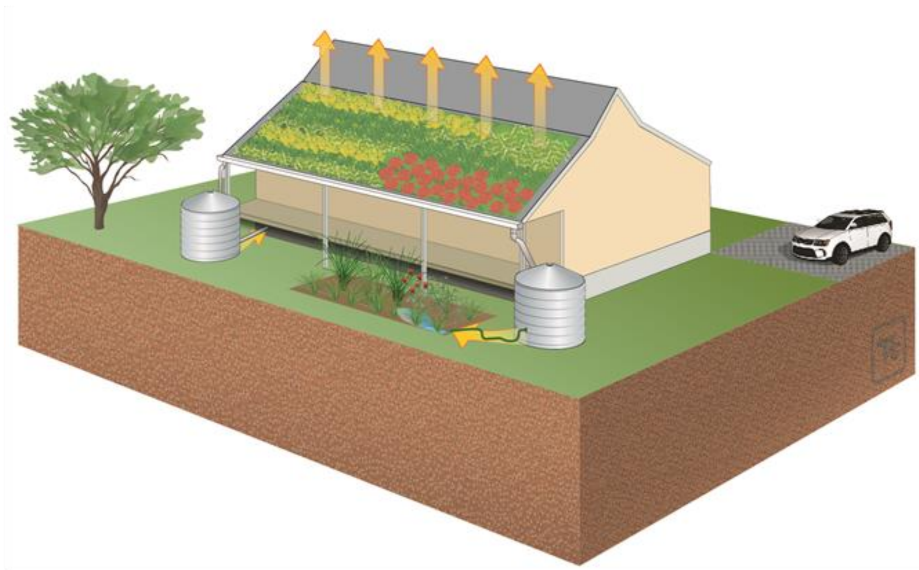

Figure 3-13: Above ground cisterns schematic

UNDERGROUND DETENTION

Underground detention systems function similarly to above ground cisterns in that they collect and use stormwater from impervious surfaces. These systems are concealed underground and can allow for larger stormwater storage and capture additional impervious surfaces not easily captured in an above ground system (e.g. parking lots and sidewalks).

Figure 3-14: Underground detention schematic

Diversion Systems

Low Flow Diversion

Flow diversion systems collect and divert runoff. Flow diversion structures can primarily be used in two ways. First, flow diversion structures may be used to direct dry weather flows to a treatment facility, preventing the runoff from reaching a receiving water body. This is typically done with low flow runoff, which occurs during periods of dry weather. Second, flow diversion structures can also be modified by incorporating them into other BMPs. For example, diverted flow can be fed into a regional BMP. Properly designed stormwater diversion systems are very effective for preventing stormwater from being contaminated and for routing contaminated flows to a proper treatment facility.

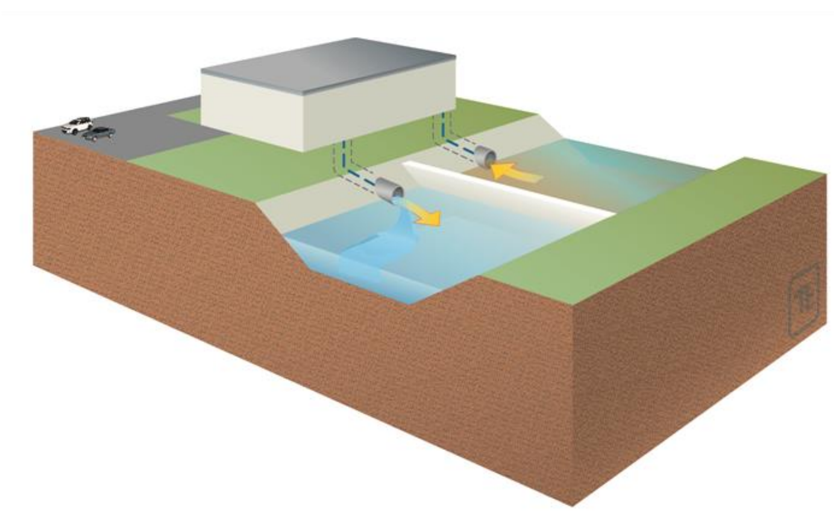

Figure 3-15: Low flow diversion schematic

3.4.2.2 PERFORMANCE EVALUATION OF STRUCTURAL BMPS

It is important to take the performance of stormwater BMPs into consideration during the planning and implementation process. This section provides an analysis of specific BMPs to determine the pollutant removal effectiveness of those BMPs. The International Stormwater BMP Database[4] (BMP Database) project website was used to analyze different BMP types for their effectiveness in removing specific pollutants. The website features a database of over 530 BMP studies, performance analysis results, BMP performance tools, monitoring guidance and other study-related publications. Performance studies relevant to BMPs matching the criteria for an effective regional or distributed application were analyzed to include the following:

- Bioretention
- Bioswale
- Detention Basin
- Grass Strip
- Porous Pavement
- Retention Pond
- Wetland Basin
- Wetland Channel

The average influent and effluent concentrations for the 95th percentile confidence interval were analyzed for pollutants of concern for the Lower Los Angeles River (LSGR) watershed available through the BMP Database. The following pollutants were analyzed:

- Arsenic (Dissolved)
- Arsenic (Total)
- Cadmium (Dissolved)
- Cadmium (Total)
- Chromium (Dissolved)
- Chromium (Total)
- Copper (Dissolved)
- Copper (Total)
- E. coli
- Enterococcus
- Fecal Coliform
- Lead (Dissolved)
- Lead (Total)
- Nickel (Dissolved)
- Nickel (Total)
- TSS
- Zinc (Dissolved)
- Zinc (Total)

The majority of the BMPs analyzed by the BMP Database project are located in major transportation corridors. Land use categories such as residential, commercial, and industrial are not heavily represented in the analysis. The BMP effectiveness may also vary with regional conditions. Many BMPs were monitored in areas where a higher intensity and volume of rainfall than LA County is observed. Additionally, some of the BMPs monitored were designed in the 1990s, 1980s, or earlier. These are expected to have been designed with less stringent guidelines resulting in a more conservative analysis. Although the conditions noted above may result in a slight variance in BMP effectiveness, the pollutant removal efficiencies are considered to be applicable.

It is important to note that the majority of pollutant load reduction is achieved using infiltration BMPs which result in an overall volume reduction. The analysis emphasizes reduction in concentrations of constituents, rather than volume or load reduction. Flow reduction analyses were not performed due to the dependence on rainfall intensity, soil types, and other site-specific conditions. The RAA has determined the volume reduction needed to meet compliance goals.

RESULTS

The analysis can be used to evaluate BMPs and support assumptions made in the RAA regarding effluent concentrations from specific BMPs. The required pollutant reductions determined through the RAA will be used to prioritize the BMPs to maximize effectiveness. The results of the BMP Database analysis are presented in a comparison format to easily visualize the pollutant removal efficiencies of each BMP type.

Each pollutant analyzed is a pollutant of concern for the LSGR WMP watersheds, with the exception of Total Suspended Solids (TSS). The reason for its inclusion is that studies have shown that there is a direct correlation between sediment concentration and various pollutants for which the watersheds are impaired. The data compiled from the BMP Database was used to determine the percent removal of each BMP for each pollutant. Each BMP was ranked in terms of pollutant removal efficiency for each pollutant type (see the *BMP Pollutant Removal Effectiveness Comparison Charts* Below). Data for specific pollutants was not available for each BMP; therefore, only available data is presented.

The next analysis included taking the data and grouping the removal efficiencies under each BMP type. The pollutants were then ranked in terms of pollutant removal efficiency for each BMP type (see the *BMP Type Comparison Charts for Pollutant Removal* below). Data for specific pollutants was not available for each BMP; therefore, only available data is presented.

[4] Geosyntec Consultants, Wright Water Engineers. International Stormwater Best Management Practices (BMP) Database Pollutant Category Summary Statistical Addendum: TSS, Bacteria, Nutrients, and Metals. July 2012.

BMP Pollutant Removal Effectiveness Comparison Charts

Bioretention	
TSS	78%
Total Zinc	75%
E. coli	71%
Enterococcus	61%
Total Copper	55%
Total Lead	33%
Total Cadmium	5%

Bioswale	
Total Nickel	66%
Dissolved Nickel	59%
Dissolved Zinc	54%
Total Chromium	49%
Total Lead	49%
Dissolved Cadmium	43%
Total Copper	40%
Total Cadmium	38%
TSS	37%
Total Zinc	37%
Total Arsenic	30%
Dissolved Copper	27%
Dissolved Lead	22%
Dissolved Chromium	10%
Dissolved Arsenic	0%
E. coli	-5%
Fecal Coliform	-6%

Detention Basin	
E. coli	67%
TSS	64%
Total Zinc	58%
Total Lead	49%
Total Copper	47%
Total Chromium	41%
Total Nickel	41%
Dissolved Copper	37%
Fecal Coliform	30%
Dissolved Zinc	29%
Total Cadmium	21%
Total Arsenic	19%
Dissolved Lead	16%
Dissolved Chromium	14%
Dissolved Nickel	10%
Dissolved Arsenic	0%
Dissolved Cadmium	-233%

Grass Strip	
Total Lead	78%
Total Zinc	76%
Total Copper	70%
Total Cadmium	65%
Dissolved Zinc	61%
Dissolved Lead	59%
TSS	56%
Dissolved Copper	54%
Total Chromium	50%
Dissolved Cadmium	31%
Fecal Coliform	28%
Dissolved Nickel	22%
Dissolved Chromium	21%
Total Arsenic	10%
Dissolved Arsenic	-5%

Porous Pavement	
TSS	80%
Total Zinc	74%
Total Lead	57%
Total Nickel	53%
Dissolved Zinc	52%
Dissolved Nickel	51%
Total Copper	40%
Dissolved Cadmium	33%
Total Cadmium	11%
Total Arsenic	0%
Dissolved Lead	0%
Total Chromium	-4%
Dissolved Copper	-7%
Dissolved Chromium	-464%

Retention Pond	
E. coli	95%
TSS	81%
Enterococcus	75%
Total Lead	67%
Total Chromium	67%
Fecal Coliform	63%
Total Zinc	60%
Dissolved Zinc	57%
Total Cadmium	53%
Total Nickel	51%
Total Copper	48%
Dissolved Cadmium	41%
Total Arsenic	38%
Dissolved Lead	37%
Dissolved Copper	35%
Dissolved Chromium	15%
Dissolved Nickel	-26%

Wetland Basin	
Enterococcus	75%
TSS	56%
Total Zinc	54%
Fecal Coliform	53%
Total Cadmium	42%
Total Lead	40%
Total Copper	36%
E. coli	19%

Wetland Channel	
Dissolved Lead	84%
Total Zinc	32%
TSS	29%
Total Nickel	22%
Dissolved Zinc	18%
Total Chromium	18%
Total Lead	15%
Total Cadmium	2%
Total Copper	-6%

BMP Type Comparison Charts for Pollutant Removal

Influent/Effluent Summary Statistics for Dissolved Arsenic (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	0.6	0.6	0%
Detention Basin	1.04	1.04	0%
Grass Strip	0.61	0.64	-5%
Media Filter	0.53	0.62	-17%

Influent/Effluent Summary Statistics for Total Arsenic (µg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	1.36	0.85	38%
Bioswale	1.68	1.17	30%
Detention Basin	2.21	1.78	19%
Grass Strip	1.04	0.94	10%
Porous Pavement	2.5	2.5	0%

Influent/Effluent Summary Statistics for Dissolved Cadmium (ug/L)

BMP Type	In	Out	Percent Removal
Bioswale	0.21	0.12	43%
Retention Pond	0.17	0.1	41%
Porous Pavement	0.06	0.04	33%
Grass Strip	0.13	0.09	31%
Detention Basin	0.15	0.5	-233%

Influent/Effluent Summary Statistics for Total Cadmium (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	0.52	0.18	65%
Retention Pond	0.49	0.23	53%
Wetland Basin	0.31	0.18	42%
Bioswale	0.5	0.31	38%
Detention Basin	0.39	0.31	21%
Porous Pavement	0.28	0.25	11%
Bioretention	0.99	0.94	5%
Wetland Channel	0.5	0.49	2%

Influent/Effluent Summary Statistics for Dissolved Chromium (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	2.13	1.68	21%
Retention Pond	1.18	1	15%
Detention Basin	1.25	1.08	14%
Bioswale	1.53	1.38	10%
Porous Pavement	0.5	2.82	-464%

Influent/Effluent Summary Statistics for Total Chromium (µg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	4.09	1.36	67%
Grass Strip	5.49	2.73	50%
Bioswale	4.53	2.32	49%
Detention Basin	5.02	2.97	41%
Wetland Channel	1.72	1.41	18%
Porous Pavement	3.6	3.73	-4%

Influent/Effluent Summary Statistics for Dissolved Copper (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	11.66	5.4	54%
Detention Basin	5.56	3.52	37%
Retention Pond	6.57	4.24	35%
Bioswale	11.01	8.02	27%
Porous Pavement	5.37	5.75	-7%

Influent/Effluent Summary Statistics for Total Copper (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	24.52	7.3	70%
Bioretention	17	7.67	55%
Retention Pond	9.57	4.99	48%
Detention Basin	10.62	5.67	47%
Porous Pavement	13.07	7.83	40%
Bioswale	10.86	6.54	40%
Wetland Basin	5.61	3.57	36%
Wetland Channel	4.52	4.81	-6%

Influent/Effluent Summary Statistics for E. coli (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	2800	150	95%
Bioretention	150	44	71%
Detention Basin	1300	429	67%
Wetland Basin	785	632	19%
Bioswale	3990	4190	-5%

Influent/Effluent Summary Statistics for Enterococcus (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	615	153	75%
Retention Wetland Ba	615	153	75%
Bioretention	605	234	61%

Influent/Effluent Summary Statistics for Fecal Coliform (#/100 mL)

BMP Type	In	Out	Percent Removal
Retention Pond	1920	707	63%
Wetland Basin	13000	6140	53%
Detention Basin	1480	1030	30%
Grass Strip	32000	23200	28%
Bioswale	4720	5000	-6%

Influent/Effluent Summary Statistics for Dissolved Lead (µg/L)

BMP Type	In	Out	Percent Removal
Wetland Channel	3.26	0.52	84%
Grass Strip	0.64	0.26	59%
Retention Pond	0.76	0.48	37%
Bioswale	1.39	1.08	22%
Detention Basin	0.79	0.66	16%
Porous Pavement	0.5	0.5	0%

Influent/Effluent Summary Statistics for Total Lead (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	8.83	1.96	78%
Retention Pond	8.48	2.76	67%
Porous Pavement	4.3	1.83	57%
Detention Basin	6.08	3.1	49%
Bioswale	3.93	2.02	49%
Wetland Basin	2.03	1.21	40%
Bioretention	3.76	2.53	33%
Wetland Channel	2.94	2.49	15%

Influent/Effluent Summary Statistics for Dissolved Nickel (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	4.93	2.04	59%
Porous Pavement	0.88	0.43	51%
Grass Strip	2.68	2.09	22%
Detention Basin	2.82	2.55	10%
Retention Pond	1.68	2.11	-26%

Influent/Effluent Summary Statistics for Total Nickel (µg/L)

BMP Type	In	Out	Percent Removal
Bioswale	9.26	3.16	66%
Porous Pavement	3.64	1.71	53%
Retention Pond	4.46	2.19	51%
Grass Strip	5.41	2.92	46%
Detention Basin	5.64	3.35	41%
Wetland Channel	2.8	2.18	22%

Influent/Effluent Summary Statistics for TSS (mg/L)

BMP Type	In	Out	Percent Removal
Retention Pond	70.7	13.5	81%
Porous Pavement	65.3	13.2	80%
Bioretention	37.5	8.3	78%
Detention Basin	66.8	24.2	64%
Grass Strip	43.1	19.1	56%
Wetland Basin	20.4	9.06	56%
Bioswale	21.7	13.6	37%
Wetland Channel	20	14.3	29%

Influent/Effluent Summary Statistics for Dissolved Zinc (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	36.1	14	61%
Retention Pond	22.5	9.6	57%
Bioswale	52.7	24.5	54%
Porous Pavement	13.5	6.5	52%
Detention Basin	15.6	11.08	29%
Wetland Channel	11.6	9.5	18%

Influent/Effluent Summary Statistics for Total Zinc (µg/L)

BMP Type	In	Out	Percent Removal
Grass Strip	103.3	24.3	76%
Bioretention	73.8	18.3	75%
Porous Pavement	57.6	15	74%
Retention Pond	53.6	21.2	60%
Detention Basin	70	29.7	58%
Wetland Basin	48	22	54%
Bioswale	36.2	22.9	37%
Wetland Channel	23	15.6	32%

RESULTS ANALYSIS SUMMARY

The statistical analysis presented has many applications, including supporting BMP prioritization and the RAA analysis. As future applications are undertaken, the results can be analyzed in more detail. For this analysis, the following observations were discovered:

- Overall, the retention pond returned the best results in terms of pollutant removal efficiency for several pollutants, with more than 60% removal for E. coli, TSS, Enterococcus, total lead, fecal coliform, and total zinc.
- Among the constituents analyzed, the percent removals were often the highest for metals, lead and zinc in particular.
- The poorest performance was often observed for nutrients and bacteria, with concentrations increasing for some BMP types. Leaching of nutrients from soils/planting media and resuspension of captured pollutants may be a cause of the increases observed in these BMPs[5].

It is important to note that the majority of pollutant removal associated with stormwater BMPs will be due to infiltration and overall volume reduction. Although this is the case, a small component may be associated with inflow to outflow pollution concentration reduction and the analysis focuses on this percent reduction. Percent reduction is easily understandable and convenient for reporting; therefore, the method seems to be appropriate for this analysis. Refer to the article "Voodoo Hydrology" in the July 2006 article of Stormwater Magazine[6] for further information on caveats to this method. Although the analysis does not cover volume reduction, the RAA analysis has estimated the pollutant reduction necessary to meet compliance.

3.4.2.3 EXISTING TARGETED STRUCTURAL BMPS

The existing structural BMPs in place within the Watershed Group area have been included in the RAA model. Figure 3-16 indicates the locations of these existing BMPs. Refer to Chapter 4 for more details.

3.4.2.4 CONTROL MEASURES IDENTIFIED IN TMDLS, IMPLEMENTATION PLANS AND STATE AMENDMENTS

There are no control measures identified in the San Gabriel River Metals TMDL. Planned and potential control measures to address the Metals TMDL are incorporated within the WCMs identified in this Chapter.

The State Water Resources Control Board is expected to adopt the statewide trash amendments in late 2014. The current draft amendments include as a compliance route the installation of full-capture devices in the priority land use areas of high density residential, industrial, commercial, mixed urban and public transportation stations. These structural control measures are expected to result in significant reductions in trash loading. Also, since pollutants such as organics can adhere to plastic trash, secondary reductions for non-trash pollutants may be expected.

[5] Stormwater: BMP Effectiveness for Nutrients, Bacteria, Solids, Metals, and Runoff Volume (2012). Retrieved online at: http://www.stormh2o.com/

[6] http://www.stormh2o.com/SW/Editorial/Voodoo_Hydrology_37.aspx

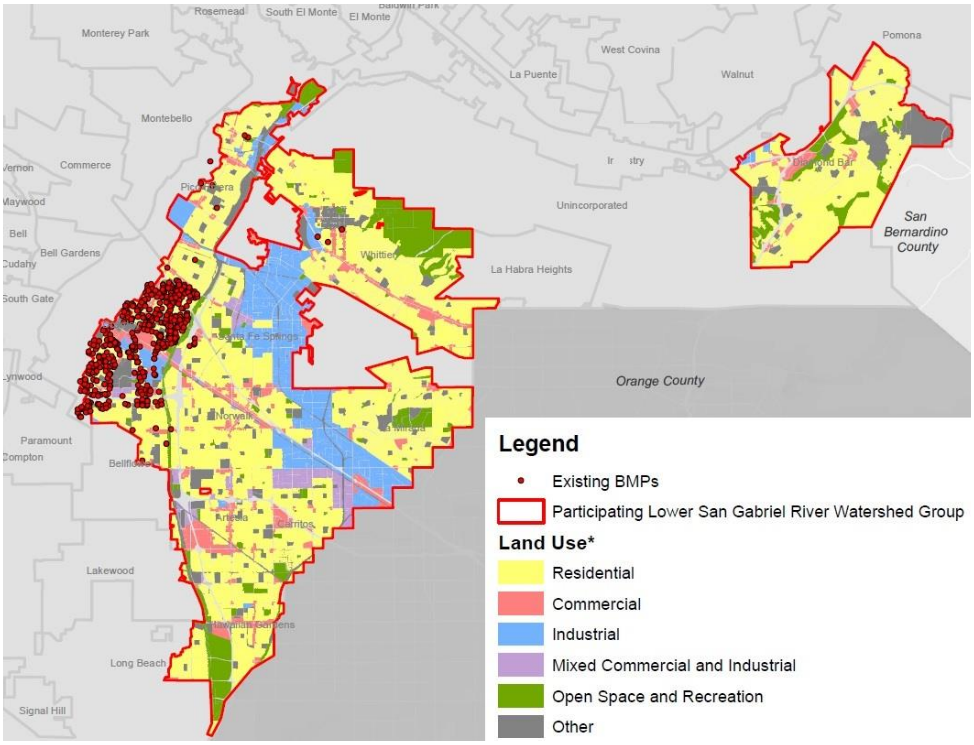

Figure 3-16: Locations of Existing Structural BMPs

3.4.2.5 PLANNED TARGETED CONTROL MEASURES

The projects listed below have been planned to some extent by the Participating Agencies. A literature review was conducted of existing TMDL Implementation Plans, the existing IRWMP, and other planning documents to collect data. The extent of planning of these projects ranges from a roundtable discussion to being in preliminary phases of design.

GATEWAY MULTI-AGENCY, MULTI-WATERSHED PROJECT TO INCORPORATE LOW IMPACT DEVELOPMENT (LID) BMPS INTO MAJOR TRANSPORTATION CORRIDORS IN THE GATEWAY REGION OF LOS ANGELES (GATEWAY PROP 84 PROJECT - GRANT APPLICATION APPROVED)

This project is a planned regional project within multiple cities to include the cities of Downey, Norwalk, Santa Fe Springs, and Whittier. The Gateway Water Management Authority (GWMA) applied for funds through the Prop 84 Grant Round 2 program to put towards this project, which was approved in May 2014. The project is in the preliminary design phase and the information provided is subject to change.

The project seeks to prevent stormwater contamination of surface waters in three watersheds, to include the San Gabriel River. This will be accomplished by installing LID BMPs to treat stormwater runoff, and its associated pollutants. Table 3-6 lists the BMPs to be implemented within the Cities and Figures 3-18 to 3-22 show the project locations within each city.

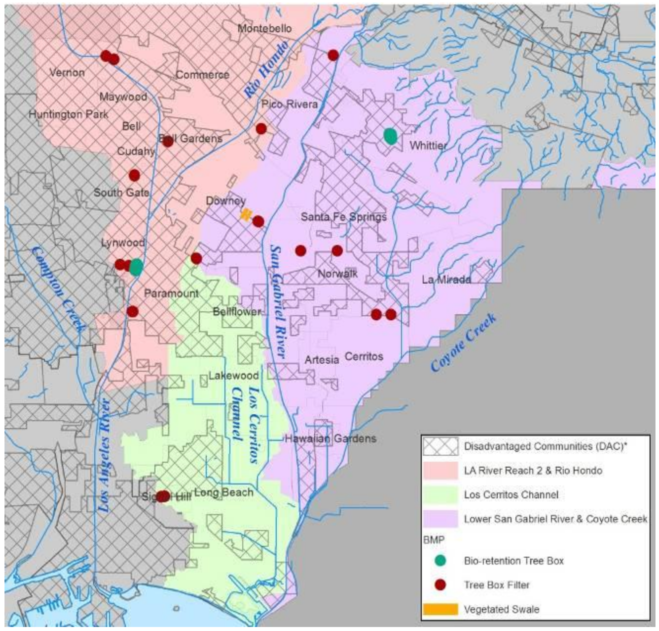

Figure 3-17: BMP Locations within the Gateway Prop 84 Project

Table 3-6: Proposed BMPs within the Gateway Prop 84 Project

City	LID BMPs	Location	Anticipated treatment[7]
Downey	(2) Tree box filters	(1) NEC Pangborn Ave & Firestone Blvd, (1) NWC Pangborn Ave & Firestone Blvd	29,032 cf
	(1) Bioswale	(1) Firestone Blvd. at Stonewood Mall	11,741 cf
Norwalk	(2) Tree box filters	(1) Imperial Highway & Volunteer Ave, (1) Firestone Blvd & Imperial Highway	14,516 cf
Pico Rivera	(1) Tree box filter	(1) Beverly Boulevard and Tobias Avenue	7, 258 cf
Santa Fe Springs	(2) Tree box filters	(1) Alondra Blvd and Shoemaker Ave, (1) Alondra Blvd and Marquardt Ave	14,516 cf
Whittier	(10) Bioretention Tree Wells	Locations to be determined	5,870 cf

[7] Treatment volume calculations based on a 24-hour, 0.75 in storm, 6x6 tree box filter units and a 1200 LF swale.

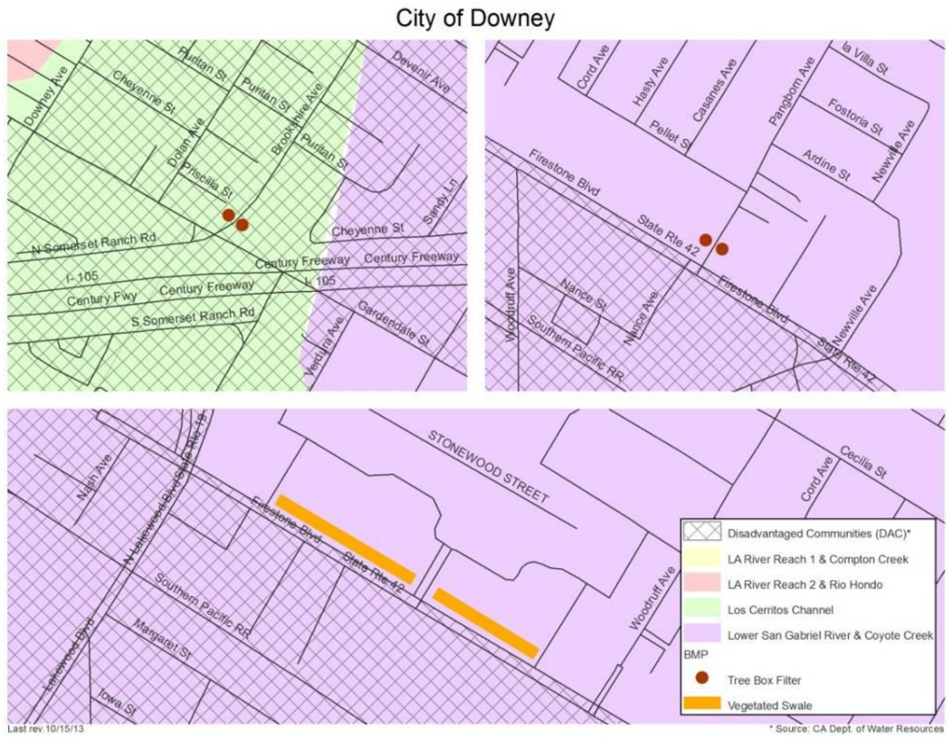

Figure 3-18: Gateway Prop 84 Project BMP locations proposed for the city of Downey

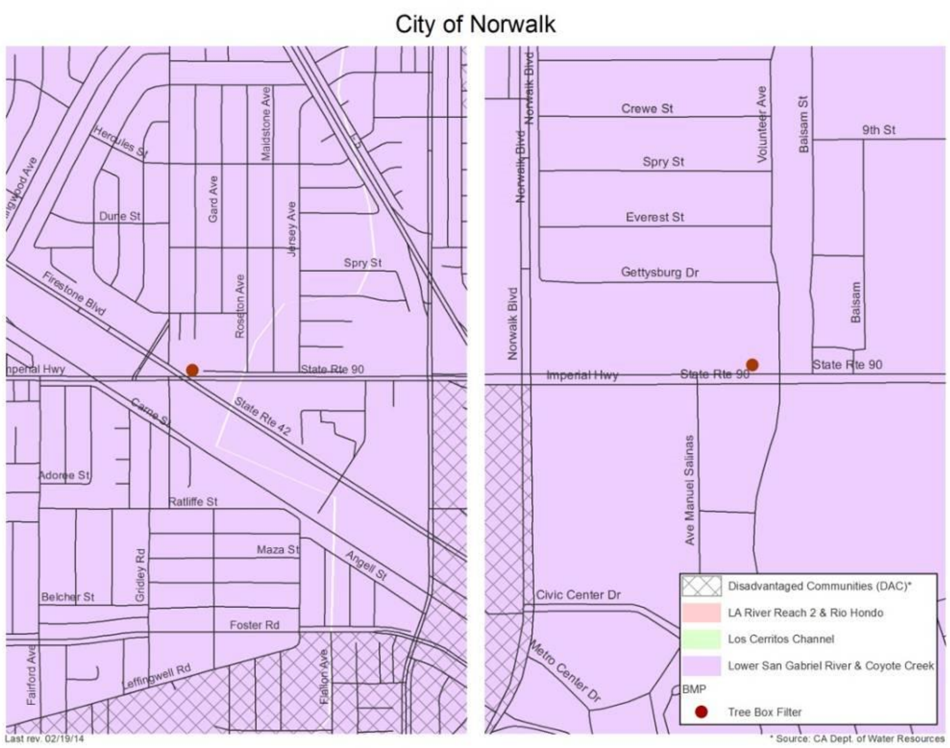

Figure 3-19: Gateway Prop 84 Project BMP locations proposed for the city of Norwalk

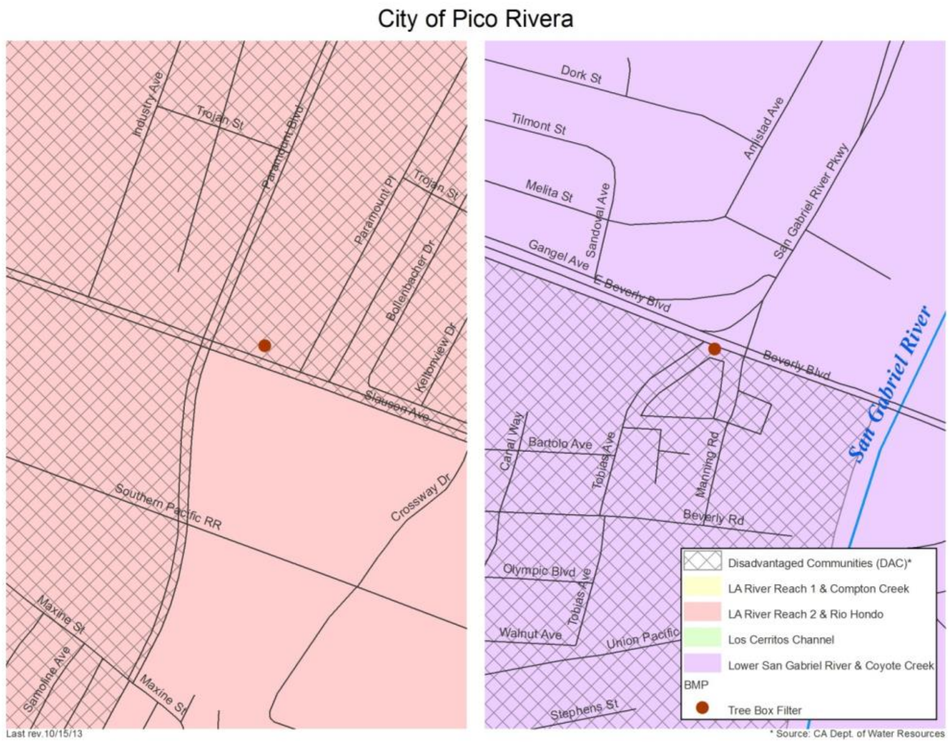

Figure 3-20: Gateway Prop 84 Project BMP locations proposed for the city of Pico Rivera

Figure 3-21: Gateway Prop 84 Project BMP locations proposed for the city of Santa Fe Springs

Figure 3-22: Gateway Prop 84 Project BMP locations proposed for the city of Whittier

IRWMP PROJECTS

The following project descriptions are from the Gateway Integrated Regional Watershed Management Plan (IRWMP). These projects have been discussed in detail with the Gateway Water Management Authority (GWMA) and are likely to be implemented once the required funding is acquired. Further details about each project can be found in the Gateway IRWMP documents.

BELLFLOWER NPDES PERMIT AND TMDL COMPLIANCE STORMWATER IMPROVEMENTS

This project will consist of installing catch basin automatic retractable screens (ARS), vegetated swales, bioretention systems, infiltration basins, porous pavement, and covered trash receptacles at various locations within the city of Bellflower.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

CONSTRUCT BIOSWALES/LANDSCAPING IN VARIOUS LOCATIONS IN LONG BEACH

This project will be located in the city of Long Beach and is planned to construct and/or reconstruct new and existing medians to capture and treat stormwater runoff.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

The Los Cerritos, San Gabriel River and Alamitos Bay Low Flow Diversion System

This project will serve the cities of Long Beach, Bellflower, Norwalk, and Cerritos. The project plans to investigate sites along three waterbodies, to include the Lower San Gabriel River, to determine the feasibility of constructing Low Flow Diversion (LFD) Devices in locations that have high levels of metals and bacteria. This work will include the design and construction of four (4) LFDs that will be identified in the feasibility report.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

Pump Station Vortex Separation System (VSS) Devices

This project will serve the cities of Long Beach, Bellflower, Norwalk, Cerritos and proposes to investigate sites upstream of the storm drain pump station along the Lower San Gabriel River to determine the feasibility of constructing Pre Filter Vortex Separation System Structural BMPs to capture trash, metals, and sediment possibly containing bacteria in five (5) locations. This project would provide a large amount of treatment in the San Gabriel River.

The specific locations have not yet been identified; therefore, as this project progresses the RAA results will be taken into consideration in order to place the BMPs in locations with the highest potential for pollutant loading reduction.

3.4.2.6 Potential Sites for Future Targeted Control Measures

A preliminary assessment has been performed for the Lower San Gabriel River Watershed to determine potential areas to locate regional BMPs. This was done with a preliminary GIS approach by screening areas within 660 feet (1/8 mile) of a waterbody and currently designated as open space as well as other potentially useful zoning designations. The overall size of each site was used to calculate the maximum amount of volume which could be stored at the site and the maximum amount of area that could be diverted to the site assuming the entire site were redeveloped to incorporate infiltration.

The equations used were derived from the Orange County Technical Guidance Document (OC TGD)[8] and can be found below:

$$\mathbf{DCV=CdA_{TRIBUTARY}\times\left(\frac{43560}{12}\right)}$$

Driving Equation No. 1

$$D_{MAX}=K_{DESIGN}T\times\left(\frac{1}{12}\right)$$

Assume K_{DESIGN} = 0.3 in/hr

0.3 in/hr is the lowest infiltration rate where infiltration is deemed feasible per the MS4 Permit.

$$D_{MAX}=0.3\times48\times\frac{1}{12}=1.2\text{ feet}$$

$$A_{BMP}=\frac{DCV}{D_{MAX}}$$

$$\mathbf{A_{TRIBUTARY}=\frac{A_{BMP}\times1.2}{Cd\times\left(\frac{43560}{12}\right)}}$$

Driving Equation No. 2

$$C=(0.75\times IMP)+0.15=0.9$$

Assume 100% imperviousness

Assume d=1.1

1.1 inches is the highest depth on the LA County 85th Percentile Isohyetal Map for the LSGR watershed.

$$\mathbf{A_{TRIBUTARY}=\frac{A_{BMP}\times1.2}{0.9\times1.1\times\left(\frac{43560}{12}\right)}}$$

Final Equation No. 1

$$\mathbf{DCV=A_{BMP}\times1.2}$$

Final Equation No. 2

A_{BMP} has been assumed to be the total site area to determine the maximum tributary area that can be diverted to the site and the maximum volume the site can treat.

Where:

DCV:	Design Capture Volume	$A_{TRIBUTARY}$:	Area Tributary to BMP	T:	Drawdown Time
C:	Runoff Coefficient	D_{MAX}:	Maximum Effective Depth	A_{BMP}:	Footprint Area of BMP
d:	Rainfall Depth	K_{DESIGN}:	Design Infiltration Rate	IMP:	Percent Impervious

[8] Orange County. *Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs).* May 19, 2011.

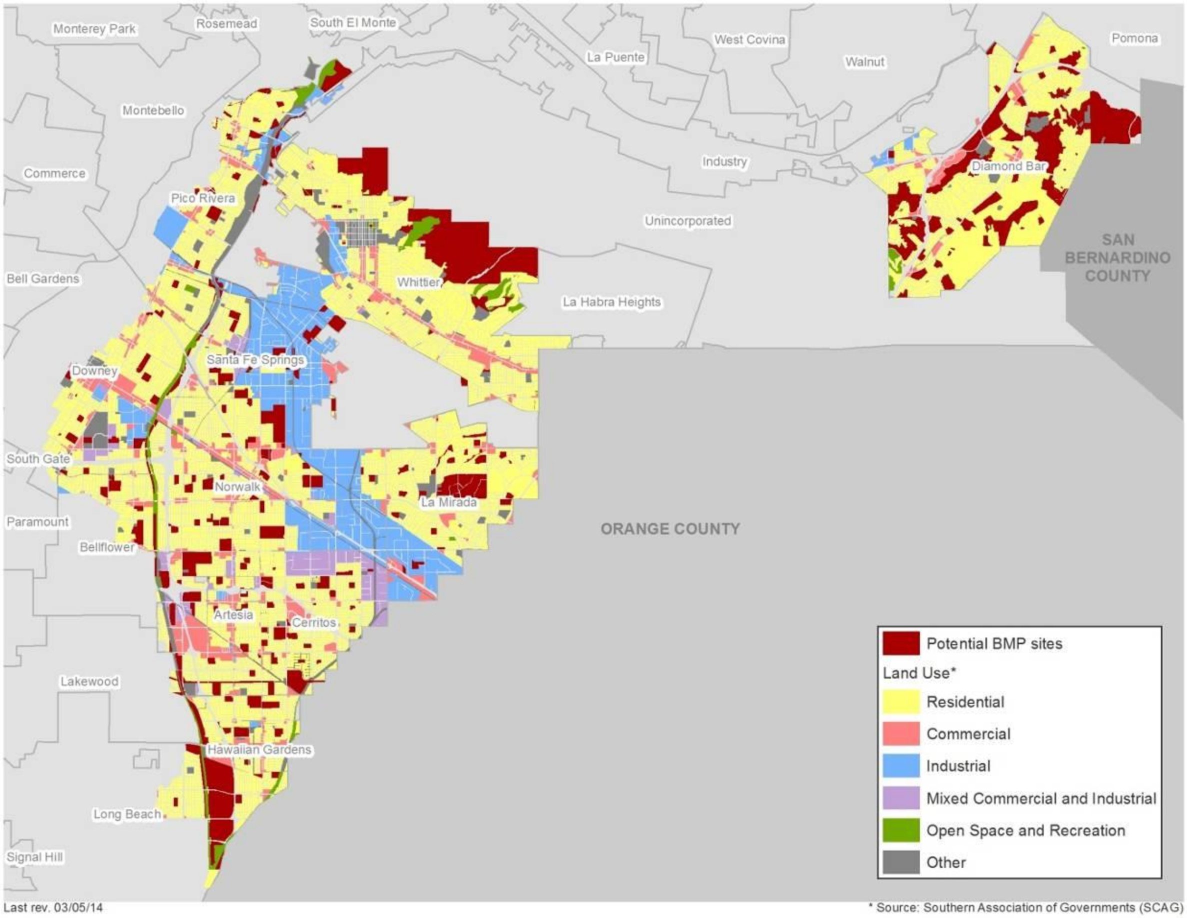

Figure 3-23: Potential Sites for Future Structural BMPs

Figure 3-23 indicates the locations of sites potentially available for future regional BMPs. Additionally, Table 3-7 and Table 3-8 indicate the locations of sites potentially available for future regional BMPs within the Coyote Creek Watershed and the San Gabriel River Watershed, respectively. These locations can serve as a starting point during the implementation phase of the WMP. They have been grouped by jurisdiction and listed in order by land use. The land use with the highest accessibility is listed first. Within each land use designation, the sites have been listed from largest to smallest. Note that with regional BMPs there are opportunities for multiple agencies to benefit from the same site. The land uses are ranked as follows:

Open Space and Recreation: Sites designated for open space, parks, and recreational activities were ranked with the highest potential for future regional BMPs. The reasoning being that these types of areas have the highest likeliness to be publically owned and not require land acquisition, generally have a high percentage of landscaped area available, and have a high opportunity for multiple benefits.

Educational Use: Sites designated for educational use were ranked with the second highest potential for future regional BMPs. The reasoning being that these types of areas although not city-

owned could have an easier land acquisition process than privately owned land, generally have a high percentage of landscaped area available, and have a high opportunity for multiple benefits.

Government Institution: Sites designated for educational use were ranked with the third highest potential for future regional BMPs. This is due to the institution being government owned presenting a higher chance of collaboration than a privately owned facility. Although this may be the case, many government institutions may not be willing to take on maintenance responsibilities which would result in the necessity of land acquisition or maintenance agreements.

Golf Courses/ Country Clubs: Sites designated for golf courses or country clubs were ranked with the fourth highest potential for future regional BMPs. The reasoning being that these types of areas generally have a high percentage of landscaped area available and have a high opportunity for multiple benefits. Although this may be the case, land acquisition for these sites is expected to be a difficult accomplishment.

Commercial Use: Sites designated for commercial areas were ranked with the fifth highest potential for future regional BMPs. The reasoning being that these types of areas generally have a high percentage of parking area available which could potentially be retrofitted for infiltration opportunities. Although this may be the case, land acquisition for these sites is expected to be a difficult accomplishment.

The available sites will be further assessed to determine the best location for a regional BMP. Note that the sites presented do not represent the only sites available for the Watershed Group. The ultimate site selection process should take into account the following characteristics:

Location in relation to RAA results: The RAA provides an estimation of runoff reduction to be provided in each area in order to meet the water quality objectives. The sites should be selected taking this into consideration.

GIS Data: GIS data should be further analyzed to screen projects based on criteria such as land use, topography, hydrologic features, streets and roads, existing storm drain infrastructure, and storm drain invert depth.

Project benefits: It is preferred that a project contains multiple benefits in order to increase the overall benefit and support for the project. Benefits to take into consideration include, but are not limited to, the following:

- Water quality benefits
- Water supply benefits
- Recreational use
- Multi-agency benefits
- Publically owned
- Storage availability
- Funding available

- Project readiness
- Flood control benefits
- Proximity to pollutant sources or impaired waters
- Adjacent to existing storm drain

Project constraints: Not every project will be feasible; therefore, it is important to take into consideration any constraints that may result in project infeasibility. These constraints include, but are not limited to, the following:

- High groundwater
- Low infiltration rates
- Existing soil contamination/proximity to existing soil contamination
- Brownfields[9]
- Existing groundwater contamination/proximity to existing groundwater contamination
- Potential for soil instability (liquefaction zones, hillside areas)
- Existing private ownership (requires land acquisition)
- Cost Effectiveness
- Historical landmarks

[9] With certain legal exclusions and additions, the term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant (*Environmental Protection Agency*).

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Artesia	Open Space and Recreation	Artesia Park	18750 Clarkdale Ave.	33.8598	-118.0781	13.7	200	16.5
		Padelford Park	11870 169th Street	33.8769	-118.0788	1.3	19	1.6
	Educational Use	Middle School	Excluded for privacy			18.1	263	21.7
		Elementary School	Excluded for privacy			9.2	134	11.1
		Elementary School	Excluded for privacy			7.0	102	8.4
		Elementary School	Excluded for privacy			5.4	79	6.5
	Commercial Use	Lot	Excluded for privacy			1.0	14	1.1
Cerritos	Open Space and Recreation	Cerritos Park East	13234 E. 166th St.	33.8787	-118.0498	26.9	390	32.2
		Heritage Park	19211 Studebaker Rd.	33.8632	-118.0616	12.5	181	14.9
		Gridley Park	18600 Bloomfield Ave.	33.8499	-118.09	10.4	151	12.4
		Jose A. Gonsalves Park	Gridley Rd. and Yearling	33.8814	-118.0414	9.5	138	11.4
		Frontier Park	13611 E. 166th St.	33.8776	-118.0599	6.2	90	7.4
		El Rancho Verde Park	16910 Maria Ave.	33.8501	-118.0525	5.8	84	6.9
		Jacob Park	7815 Denni St.	33.8499	-118.0744	5.2	75	6.2
		Sunshine Park	19310 Vickie Ave	33.8557	-118.0528	4.1	60	4.9
		Friendship Park	13650 Acoro St.	33.8716	-118.0405	3.8	56	4.6
		Pat Nixon Park	12340 South St.	33.8577	-118.0683	2.8	40	3.3
		Brookhaven Park	13101 Brookhaven St.	33.8661	-118.0508	2.6	38	3.1
		Satellite Park (Residential Mixed Density)	12412 Mountain Creek Rd.	33.8828	-118.0678	1.9	28	2.3
		Saddleback Park	13037 Acoro St.	33.8723	-118.0539	1.5	22	1.8
		Cerritos Regional Park	19700 Bloomfield Ave.	33.8486	-118.0581	79.7	1160	95.7
		Loma Park	17503 Stark Ave.	33.8718	-118.068	0.8	12	1.0
	Government Institution	Cerritos Sculpture Garden and City Hall	18125 Bloomfield Ave.	33.8663	-118.0666	1.4	21	1.7

[10] These numbers were generated using the Los Angeles County GIS Data Portal website (http://egis3.lacounty.gov/dataportal/) and the LA County Department of Public Works Spatial Information Library website (http://dpw.lacounty.gov/general/spatiallibrary/index.cfm?agree=agree). All areas may not be usable space for BMP retrofits.

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area (ATRIBUTARY, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Cerritos	Educational Use	High School	Excluded for privacy			29.0	422	34.8
		Middle School	Excluded for privacy			21.5	313	25.8
		Adult School	Excluded for privacy			18.4	267	22.1
		Middle School	Excluded for privacy			15.6	226	18.7
		High School	Excluded for privacy			12.5	182	15.0
		High School	Excluded for privacy			10.6	155	12.8
		Elementary School	Excluded for privacy			9.6	139	11.5
		Elementary School	Excluded for privacy			8.7	126	10.4
		Middle School	Excluded for privacy			8.6	125	10.3
		Elementary School	Excluded for privacy			8.5	124	10.2
		Elementary School	Excluded for privacy			8.5	123	10.2
		Elementary School	Excluded for privacy			7.9	115	9.5
		Elementary School	Excluded for privacy			7.9	115	9.5
		Elementary School	Excluded for privacy			7.9	114	9.4
		Elementary School	Excluded for privacy			7.3	106	8.8
		Elementary School	Excluded for privacy			6.6	97	8.0
		Elementary School	Excluded for privacy			4.1	59	4.9
Diamond Bar	Open Space and Recreation	County park	-	33.9820	-117.8188	149.5	2174	179.4
		open space	896 Terrace Ln W	34.0011	-117.8215	123.6	1798	148.3
		Pantera Park and Diamond Bar City Parkland	738 Pantera Dr.	34.0077	-117.7895	108.4	1577	130.1
		Maple Hill Park	1355 Maple Hill Rd.	33.9962	-117.8265	5.5	79	6.5
		Paul C. Grow Park	23281 E. Forest Canyon Rd.	33.9949	-117.8111	3.5	51	4.2
		Summit Ridge Park	1425 Summitridge Dr.	34.0000	-117.7958	1.1	15	1.3
	Educational Use	High School	Excluded for privacy			32.5	473	39.0
		Elementary School	Excluded for privacy			2.5	37	3.0
		Elementary School	Excluded for privacy			8.7	127	10.5
		Elementary School	Excluded for privacy			8.2	120	9.9
		Elementary School	Excluded for privacy			8.0	116	9.6

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area (ATRIBUTARY, Acres)	Max Design Capture Volume (DCV, Ac-ft)
		Elementary School	Excluded for privacy			7.2	104	8.6
Hawaiian Gardens	Educational Use	Middle School	Excluded for privacy			15.9	231	19.1
		Elementary School	Excluded for privacy			8.0	116	9.6
		Elementary School	Excluded for privacy			6.0	87	7.2
La Mirada	Open Space and Recreation	La Mirada Regional Park	Alicanted Rd. & Adelfa Dr.	33.9083	-118.006	81.1	1179	97.3
		La Mirada Creek Park	12021 Santa Gertrudes Ave.	33.9211	-117.998	15.6	227	18.7
		Behringer Park	15900 Alicante Dr.	33.9017	-117.9883	11.1	161	13.3
		La Mirada Pool	13701 Adelfa Dr.	33.9053	-118.0089	9.7	141	11.7
		Neff Park	14300 San Cristobal Dr.	33.8981	-118.0259	9.0	130	10.7
		park	15635 Yellowbrook Ln.	33.9151	-117.9986	1.9	28	2.3
		Anna J. Martin Park	16135 Avenida San Martin	33.9134	-117.9863	1.9	27	2.3
	Educational Use	University	Excluded for privacy			53.8	782	64.5
		High School	Excluded for privacy			31.5	458	37.8
		Middle School	Excluded for privacy			18.4	267	22.0
		Elementary School	Excluded for privacy			11.8	171	14.1
		Elementary School	Excluded for privacy			8.3	121	10.0
		Middle School	Excluded for privacy			7.6	110	9.1
		Middle School	Excluded for privacy			7.3	106	8.7
		Elementary School	Excluded for privacy			7.2	105	8.7
		School	Excluded for privacy			7.0	102	8.4
		Elementary School	Excluded for privacy			6.9	101	8.3
		Elementary School	Excluded for privacy			6.5	95	7.8
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			127.4	1853	152.9
	Commercial Use	Lot	Excluded for privacy			1.5	22	1.8
Lakewood	Open Space and Recreation	Palms Park	12305 207th St.	33.8433	-118.0703	19.1	278	22.9
		Bloomfield Park	21420 Pioneer Blvd.	33.8355	-118.0807	13.7	200	16.5
	Educational Use	Elementary School	Excluded for privacy			5.8	84	6.9
		High School	Excluded for privacy			30.5	443	36.6

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
		Elementary School	Excluded for privacy			11.9	173	14.3
Long Beach	Open Space and Recreation	El Dorado East Regional Park	7550 E. Spring St.	33.8229	-118.087	651.1	9470	781.3
	Government Institution	LACSD lot	-	33.798	-118.0884	7.3	107	8.8
	Educational Use	Academy	Excluded for privacy			10.3	149	12.3
	Commercial Use	Church	Excluded for privacy			4.4	63	5.2
Norwalk	Open Space and Recreation	John Zimmerman Park	13031 Shoemaker Ave.	33.9122	-118.0569	13.2	192	15.9
		Hermosillo Park	11959 162nd St.	33.885	-118.0772	8.7	126	10.4
		Norwalk Park	1300 Clarkdale Park	33.9097	-118.0719	6.8	100	8.2
		Holifield Park[11]	15021 Bloomfield Ave.	33.8932	-118.0665	22.7	331	27.3
	Government Institution	Norwalk City Hall	12700 Norwalk Blvd.	33.9158	-118.0712	9.5	139	11.4
	Educational Use	High School and Elementary School	Excluded for privacy			28.5	414	34.1
		High School	Excluded for privacy			27.1	395	32.6
		Junior High School	Excluded for privacy			8.1	117	9.7
		Middle School	Excluded for privacy			14.4	209	17.2
		Middle School	Excluded for privacy			10.5	153	12.6
		Elementary School	Excluded for privacy			9.7	140	11.6
		Elementary School	Excluded for privacy			8.2	119	9.8
		Elementary School	Excluded for privacy			6.1	88	7.3
		Elementary School	Excluded for privacy			5.6	82	6.7
	Golf Courses/ Country Clubs	Golf Center	Excluded for privacy			11.5	167	13.7

[11] Holifield Park may have soil and groundwater contamination. Proof of this contamination has not yet been provided; therefore, it was not removed from the list, but ranked accordingly.

Table 3-7: Potential site list for Coyote Creek Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[10]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
	Commercial Use	lot	Excluded for privacy			5.3	77	6.4
Santa Fe Springs	Educational Use	High School	Excluded for privacy			12.6	183	15.1
		Elementary School	Excluded for privacy			12.3	178	14.7
Whittier	Open Space and Recreation	Arroyo Pescadero Park (Puente Hills Preserve)	7531 Colima Rd.	33.9843	-118.0088	1247.6	18146	1,497.1
		Parnell Park	15390 Lambert Rd.	33.9364	-118.0021	11.2	163	13.5
		Michigan Park	8228 Michigan Ave.	33.9642	-118.0215	10.0	145	12.0
		York Field Park	9110 Santa Fe Springs Rd.	33.9574	-118.0509	8.8	128	10.6
		Founders Memorial Park	6755 Newlin Ave.	33.9868	-118.0468	5.9	86	7.1
		Leffingwell Ranch Park	10537 Saint Gertrudes	33.9396	-117.9945	4.1	59	4.9
		John Greenleaf Whittier Park	7211 Whittier Ave.	33.9763	-118.0438	2.0	30	2.4
		Central Park	13212 Park St.	33.9813	-118.0344	1.7	25	2.0
		Kennedy Park	8530 Painter Ave.	33.9599	-118.0352	1.5	22	1.8
		Anaconda Park	14575 Anaconda St.	33.9507	-118.0131	1.0	15	1.2
		Laurel Park	8825 Jacmar Ave.	33.9562	-118.0288	0.8	12	1.0
	Educational Use	High School	Excluded for privacy			34.5	501	41.3
	Golf Courses/ Country Clubs	Country Club	Excluded for privacy			140.1	2038	168.1

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Bellflower	Open Space and Recreation	T. Mayne Thompson Park	14001 Bellflower Blvd.	33.905	-118.1265	11.3	164	13.5
		Caruthers Park North	East of 16804 View Park Ave.	33.8822	-118.1089	6.1	88	7.3
		Byron Zinn Park	13600 Carfax Ave.	33.9070	-118.1101	3.2	46	3.8
		utility corridor	19706 Studebaker Rd.	33.8901	-118.1094	35.5	516	42.5
		Caruthers Park	10500 Flora Vista St.	33.8788	-118.1101	20.0	291	24.0
		Vacant lot	10525 Trabuco	38.8875	-118.1105	1.0	15	1.2
	Educational Use	Middle School and High School	Excluded for privacy			40.1	584	48.2
		High School	Excluded for privacy			24.6	357	29.5
		Elementary School	Excluded for privacy			7.4	107	8.8
		Elementary School	Excluded for privacy			5.5	79	6.6
		Elementary School	Excluded for privacy			3.7	54	4.5
Cerritos	Open Space and Recreation	Liberty Park	19211 Studebaker Rd.	33.8550	-118.1013	17.6	256	21.2
		Reservoir Hill Park	16733 Studebaker Rd.	33.8788	-118.1007	4.6	67	5.6
		Westgate Park	18830 San Gabriel Ave.	33.8594	-118.1039	4.5	66	5.5
	Educational Use	College	Excluded for privacy			118.6	1725	142.3
		High School	Excluded for privacy			35.2	511	42.2
		High School and Junior High School	Excluded for privacy			21.5	313	25.8
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			31.2	454	37.5
Diamond Bar	Open Space and Recreation	Sycamore Canyon Park	22930 E. Golden Springs Dr	34.0058	-117.8088	47.0	683	56.4
		Diamond Bar Pony Baseball Fields	22601 Sunset Crossing Rd.	34.0315	-117.8205	12.7	185	15.2

[12] These numbers were generated using the Los Angeles County GIS Data Portal website (http://egis3.lacounty.gov/dataportal/) and the LA County Department of Public Works Spatial Information Library website (http://dpw.lacounty.gov/general/spatiallibrary/index.cfm?agree=agree). All areas may not be usable space for BMP retrofits.

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area (ATRIBUTARY, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Diamond Bar	Open Space and Recreation	Carlton J. Peterson Park	24142 E. Sylvan Glen Rd.	34.0288	-117.7945	8.4	122	10.1
		Ronald Reagan Park	2201 Peaceful Hills Rd.	33.9823	-117.853	5.8	85	7.0
	Educational Use	Middle School	Excluded for privacy			25.5	371	30.6
		Middle School	Excluded for privacy			13.3	194	16.0
		Elementary School	Excluded for privacy			11.2	163	13.5
		Elementary School	Excluded for privacy			6.7	97	8.0
		Elementary School	Excluded for privacy			6.6	96	7.9
		Elementary School	Excluded for privacy			6.1	88	7.3
	Golf Courses/ Country Clubs	Golf Course	Excluded for privacy			170.6	2482	204.7
	Commercial Use	Church	Excluded for privacy			3.8	56	4.6
Downey	Open Space and Recreation	Wilderness Park	10999 Little Lake Rd.	33.9359	-118.1013	20.6	300	24.7
		Rio San Gabriel Park	9612 Ardine St.	33.9312	-118.1092	15.7	228	18.8
		Independence Park	12334 Bellflower Blvd.	33.9196	-118.1231	11.7	171	14.1
		Dennis The Menace Park	9125 Arrington Ave.	33.9558	-118.1115	6.5	94	7.8
		utility corridor	9073 Gardendale St.	33.9157	-118.1122	3.5	51	4.2
		Brookshire Childrens Park	10050 Imperial Hwy.	33.9212	-118.1424	1.2	18	1.5
	Educational Use	High School	Excluded for privacy			19.4	282	23.3
		Middle School	Excluded for privacy			17.9	261	21.5
		Adult School	Excluded for privacy			15.5	226	18.6
		Middle School	Excluded for privacy			14.3	207	17.1
		Elementary School	Excluded for privacy			11.5	167	13.8
		High School	Excluded for privacy			8.2	119	9.8
		Elementary School	Excluded for privacy			7.6	110	9.1
		Elementary School	Excluded for privacy			6.4	92	7.6
		Elementary School	Excluded for privacy			5.4	78	6.4
Lakewood	Open Space	Rynerson Park	20711 Studebaker Rd.	33.8416	-118.0952	58.5	851	70.2

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
	and Recreation							
Lakewood	Open Space and Recreation	Boyar Park	4936 Stevely Ave.	33.8468	-118.1003	4.1	59	4.9
		Open Space Trail	5104 Stevely Ave.	33.8503	-118.101	3.5	51	4.2
Long Beach	Open Space and Recreation	utility corridor	3506 Stevely Ave.	33.8211	-118.0924	20.9	304	25.1
		Camp Fire Long Beach Area Council	7070 Carson St.	33.8315	-118.0966	6.1	89	7.4
	Educational Use	High School	Excluded for privacy			18.7	272	22.5
		Elementary School	Excluded for privacy			6.5	94	7.8
Norwalk	Open Space and Recreation	Arthur Gerdes Park	14700 Gridley Rd.	33.897	-118.0899	8.1	117	9.7
		New River Park	13432 Halcourt Ave.	33.9083	-118.1017	4.5	66	5.5
		Orr Park	12130 S. Jersey Ave.	33.921	-118.0845	3.5	51	4.2
		Glazier Park	10801 Fairton St.	33.8951	-118.1039	1.9	28	2.3
	Educational Use	High School	Excluded for privacy			19.2	280	23.1
		Middle School	Excluded for privacy			14.1	205	16.9
		Elementary School	Excluded for privacy			8.5	123	10.2
		Elementary School	Excluded for privacy			3.2	46	3.8
		Elementary School	Excluded for privacy			6.6	96	8.0
		Elementary School	Excluded for privacy			3.1	44	3.7
		Elementary School	Excluded for privacy			6.6	96	7.9
		Elementary School	Excluded for privacy			5.6	81	6.7
		Elementary School	Excluded for privacy			5.5	80	6.6
		Elementary School	Excluded for privacy			5.4	79	6.5
Pico Rivera	Open Space and Recreation	Pico Rivera Bicenntenial Park	11003 Rooks Rd.	34.0243	-118.0468	98.7	1436	118.4
		Smith Park	6016 Rosemead Blvd.	33.9904	-118.0897	15.7	228	18.8
		Streamland Park	3539 Durfee Ave.	34.02	-118.0718	14.1	206	17.0
		Pico Park	9528 Beverly Blvd.	34.0074	-118.0739	10.8	157	12.9
		Park	8717 E. Beverly Blvd.	34.0122	-118.0854	0.2	3	0.3
	Government Institution	Whittier Pumping Plant	4128 San Gabriel River Pkwy	34.0106	-118.0678	6.5	94	7.8

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Pico Rivera	Educational Use	High School	Excluded for privacy			20.5	298	24.6
		Continuation School	Excluded for privacy			12.1	176	14.6
		Elementary School	Excluded for privacy			11.1	162	13.3
		Elementary School	Excluded for privacy			8.3	120	9.9
		Elementary School	Excluded for privacy			7.8	113	9.3
		Elementary School	Excluded for privacy			6.5	95	7.8
		Elementary School	Excluded for privacy			6.4	94	7.7
		Elementary School	Excluded for privacy			6.3	92	7.6
		Elementary School	Excluded for privacy			4.8	70	5.8
	Educational Use	Elementary School	Excluded for privacy			4.7	68	5.6
		Middle School	Excluded for privacy			3.6	52	4.3
		School	Excluded for privacy			3.3	48	3.9
		Elementary School	Excluded for privacy			2.7	40	3.3
		Library	Excluded for privacy			1.3	19	1.6
	Commercial Use	Church	Excluded for privacy			1.3	20	1.6
Santa Fe Springs	Open Space and Recreation	Santa Fe Springs Park	10068 Cedardale Dr.	33.9454	-118.0976	13.8	200	16.5
		Lake Center Park	11641 Florence Ave.	33.936	-118.0853	11.4	166	13.7
		Los Nietos Park	11143 Charlesworth Rd.	33.9558	-118.0835	9.9	145	11.9
		utility corridor	Next to San Gabriel River freeway	33.9642	-118.0863	9.0	131	10.8
		Little Lake Park	10900 Pioneer Blvd.	33.9331	-118.0775	8.8	128	10.6
		Santa Fe Springs City Baseball	9730 Pioneer Blvd.	33.9518	-118.0824	6.4	94	7.7
		utility corridor	Next to San Gabriel River mid trail	33.9543	-118.0898	5.2	76	6.3
		utility corridor	Next to San Gabriel River mid trail	33.9610	-118.0865	3.1	44	3.7
		Lakeview Park	10225 S. Jersey Ave.	33.943	-118.0898	2.1	30	2.5
		park	9918 Cedardale Dr.	33.9497	-118.0926	2.0	30	2.4

Table 3-8: Potential site list for San Gabriel River Sub-watershed

City Name	Land Use Designation	Site Name	Address	Latitude	Longitude	Approx. Site Area (Acres)[12]	Max Tributary Area ($A_{TRIBUTARY}$, Acres)	Max Design Capture Volume (DCV, Ac-ft)
Santa Fe Springs	Educational Use	High School	Excluded for privacy			23.6	343	28.3
		High School	Excluded for privacy			9.3	136	11.2
		Elementary School	Excluded for privacy			9.3	135	11.1
		Elementary School	Excluded for privacy			6.0	87	7.2
	Educational Use	Elementary School	Excluded for privacy			5.0	73	6.0
	Commercial Use	Plaza	Excluded for privacy			5.6	81	6.7
Whittier	Open Space and Recreation	Hellman Wilderness Park	5700 Greenleaf Ave.	34.0005	-118.0333	282.2	4104	338.6
		Palm Park	5703 Palm Ave.	33.9909	-118.0572	11.9	173	14.3
		Amigo Park	5700 Juarez Ave.	33.9993	-118.0691	3.9	56	4.6
		park	10559 Whittier Blvd.	33.9913	-118.0655	2.5	37	3.0

3.4.3 Right-of-Way BMPs

Right-of-way BMPs are systems of multiple distributed BMPs placed within a street right-of-way. These BMPs are designed to reduce the volume of stormwater discharge into the MS4 and treat stormwater runoff from adjacent streets and developments. Common right-of-way BMPs include bioretention, biofiltration, and permeable pavement. See the previous section for BMP descriptions. These BMPs can be implemented alone or in conjunction with one another.

A preliminary assessment has been performed to assess areas potentially available for right-of-way BMPs. This was done with a preliminary GIS approach by screening highways, arterial roads, and secondary (collector) roads located in non-residential areas within 200 feet of a catch basin location. The potential locations are indicated with grey circles on **Figure 3-24** below.

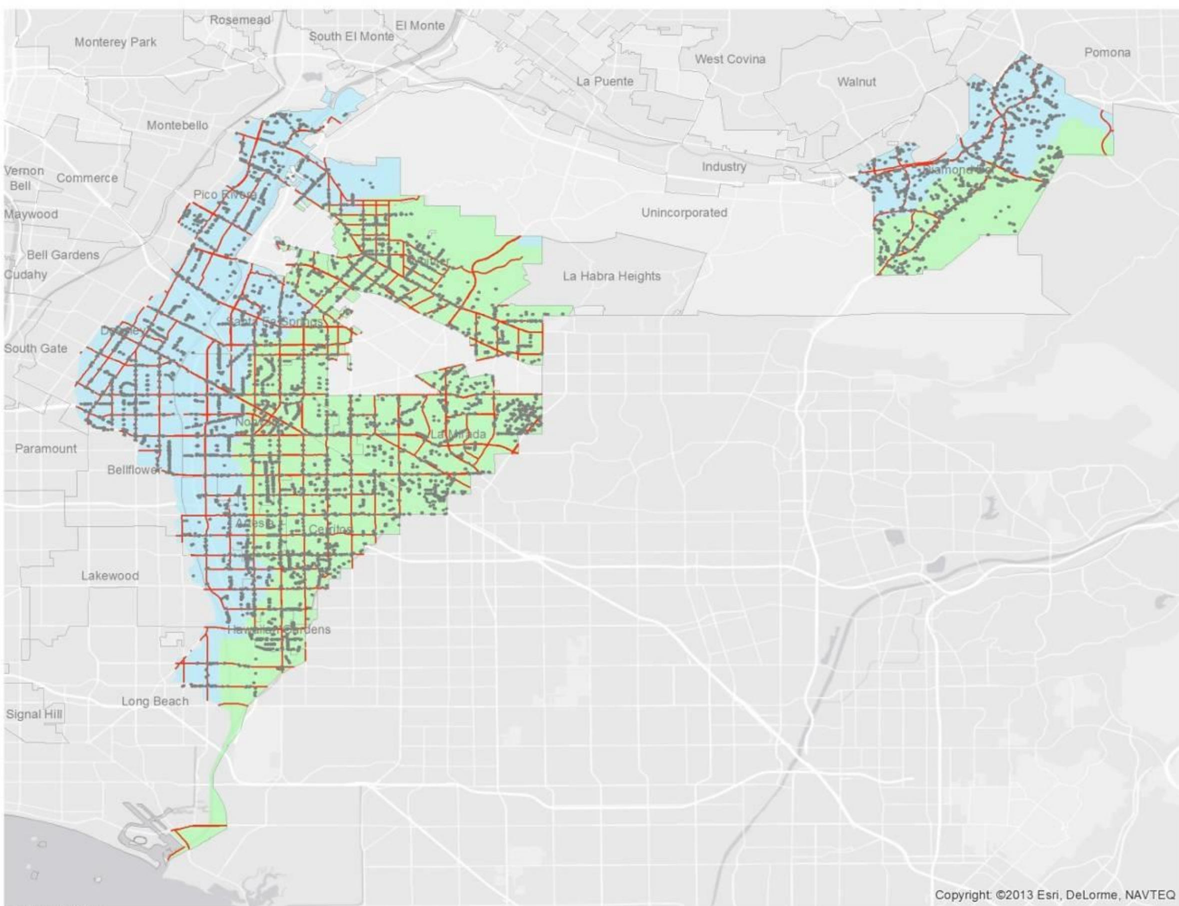

Figure 3-24: Areas potentially available for right-of-way BMPs

4 Reasonable Assurance Analysis

4.1 Executive Summary

A required element the WMP is the Reasonable Assurance Analysis (RAA). The MS4 Permit specifies the RAA use a watershed based computer modeling system to demonstrate:

"that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term".

There are three computer modeling systems approved by the MS4 Permit and the Watershed Management Modeling System (WMMS) was selected to develop this RAA. The Los Angeles County Flood Control District (LACFCD), through a joint effort with U.S. Environmental Protection Agency (USEPA), developed WMMS specifically to support informed decisions associated with managing stormwater.

While the Permits prescribes the RAA as a quantitative demonstration that control measures will be effective, the RAA also promotes a modeling process to identify and prioritize potential control measures to be implemented by the WMP. In other words, the RAA not only demonstrates the cumulative effectiveness of BMPs to be implemented, it also supports their selection. Furthermore, the RAA incorporates the applicable compliance dates and milestones for attainment of the WQBELs and RWLs, and therefore supports BMP scheduling. The ultimate goal of WMMS is to identify cost-effective water quality improvement projects through an integrated, watershed-based approach.

On March 25, 2014, the Los Angeles Regional Water Quality Control Board (Regional Board) issued "RAA Guidelines" (LARWQCB 2014) to provide information and guidance to assist permittees in development of the RAA. Appendix 4-1 provides appropriate documentation on the modeling assumptions that meet the RAA Guidelines.

The RAA describes the process for identifying milestones the current and next Permit periods, as well as final milestones to meet applicable TMDLs. Modeling was performed to quantify necessary load reductions to achieve the milestones. Based on these load reduction targets, a pollutant reduction plan was established that outlines the types and sequencing of BMPs for each jurisdiction to achieve milestones throughout the schedule. The RAA provides a detailed list of the capacities needed for BMPs over time, incorporating the existing BMPs and control measures identified in the WMP. These recommendations serve as goals for each jurisdiction to seek opportunities for implementation over time, but strategies may change as opportunities for more cost-effective BMPs are identified throughout the schedule.

The RAA has determined that the metal zinc will be the primary or "limiting" pollutant and that by implementing the structural and non-structural measures in Chapter 3 to reduce zinc, the remaining pollutant goals will be achieved for the Water Quality Priorities defined in Chapter 2. The rationale for this modeling approach is included Section 5.3.1 of the RAA (Appendix 4-1).

Over the entire Lower San Gabriel River Watershed, the RAA projects a need for structural controls be sized to capture and or treat 118.6 acre -feet.

4.2 Reasonable Assurance Analysis

The Reasonable Assurance Analysis for the Lower San Gabriel River Watershed is included in Appendix 4-1. As data is collected through the monitoring program the model will be re-calibrated during the adaptive management process, which allow for improved simulation of physical processes such as flow volumes and volume retention BMPs.

4.2.1 Irrigation Reduction

There is sufficient information available to justify a 25% reduction in irrigation through specific controls.

- **"Landscape Water Conservation Programs: Evaluation of Water Budget Based Rate Structures" (1997).**[1] This study was prepared for The Metropolitan Water District of Southern California to evaluate the effects of customer outreach programs and adjustment of water-budget based rate structures on landscape water use. Communities that installed these water conservation programs saw landscape irrigation water use reduced 20-37%.
- **"The Residential Runoff Reduction Study" (2004).**[2] This study was produced for the Municipal Water District of Orange County to determine the effects of certain interventions on water savings. This study used a control or baseline site, an educational only site, and a retrofit site that installed weather-based controller technology and public education. The observed reduction at the retrofit site was 50% from pre- to post-intervention, and a reduction of 71% when comparing to the control group (which had no intervention). The education site also saw a reduction of 21% when compared to the control group.
- **"20x2020 Water Conservation Plan" (2010).**[3] This water conservation plan was prepared by a host of California agencies in response to the Californian Governor's Delta plan initiative that mandates California to have to achieve a 20 percent reduction per capita water use statewide by 2020. This study demonstrated that, for the South Coast specifically (which includes Greater Los Angeles, Long Beach and Orange County), potential conservation savings from current actions—basic measures, such as regulatory activities and reinforcing codes related to plumbing and appliance efficiency—are 3% per capita, or 6 gallons per capita per day (GPCD). Potential conservation savings for "cost effective measures" (such as BMPs and new technologies) are 7% per capita at 80% compliance (13 GPCD at 80% compliance and 17 GPCD at 100% compliance). Total "basic measure" savings are 24 GPCD. Baseline water use level for the South Coast region

[1] Pekelney, D., & Chestnutt, T. (1997). Landscape Water Conservation Programs: Evaluation of Water Budget Based Rate Structures. *The Metropolitan Water District of Southern California*. P vi of the Summary.

[2] The Municipal Water District of Orange County & The Irvine Ranch Water District. (2004). The Residential Runoff Reduction Study. *The Municipal Water District of Orange County.* P ES1 and ES6.

[3] California Department of Water Resources, State Water Resources Control Board, California Bay-Delta Authority, California Energy Commission, California Department of Public Health, California Public Utilities Commission, California Air Resources Board, California Urban Water Conservation Council, & U.S. Bureau of Reclamation. (2010). 20x2020 Water Conservation Plan.

is 180 GPCD, which means with basic measures in place there is potential for 13.3% conservation savings. The study further demonstrates that with additional measures (such as residential weather-based irrigation controllers, landscape practices, recycled water, etc.) potential conservation savings are 29 GPCD, or 16% for the South Coast Region. While this study evaluates the effects of interventions on a *per capita* basis, the results of this study have implications on water reductions and water savings for watersheds as a whole.

- **"Landscape Management for Water Savings" (1998).**[4] This study resulted in a "43% increase in landscape water efficiency (water savings) from 1990-1997" after instituting conservation pricing, financial incentives, and education programs for customers and landscape professionals. The author makes a strong conclusion that most irrigation systems need to be recalibrated to only provide the amount of water necessary for the plants within the landscape to grow. Furthermore, the author provides several specific cases that demonstrate that when water resources are mismanaged by outdated irrigation systems or uninformed landscape professionals, this wastes precious water resources and costs the landscape owners excess money.

In addition, on July 28, 2014, an emergency regulatory action went into effect in response to the ongoing drought conditions within California[5]. This emergency regulatory action prohibits: 1) The application of water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures; 2) The use of a hose to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or similar; and 3) The application of water to driveways and sidewalks. These mandatory regulations are expected to reduce landscape and water runoff.

The study results show a strong nexus between public education (leading to an increased awareness of water conservation and usage) and a reduction in irrigation use. The Participating Agencies will develop an outreach and education program focusing on water conservation and landscape water use efficiency.

Based on study results and the initiation of regulations aimed to reduce irrigation water use, a 25% reduction of irrigation water utilized in the RAA is considered reasonable and conservative.

As part of the adaptive management process the Participating Agencies will evaluate these assumptions during Program implementation and develop alternate controls if it becomes apparent that the assumption is not supported.

4.3 NON-MODELED CONTROLS

Currently there is insufficient information to accurately model the implementation of the controls listed in Section 3.2.3 through 3.4.1. These non-modeled controls were instead assigned a modest fraction of

[4] Ash, T. (1998). How to Profit from a Water Efficient Future. In *Landscape Management for Water Savings*. Tustin, CA: Municipal Water District of Orange County. P 8.

[5] Title 23, California Code of Regulations. Government Code Sections 11346.1 and 11349.6. OAL File No. 2014-0718-01 E.

10% for their cumulative load reduction. As part of the adaptive management process the Participating Agencies will evaluate this assumption during Program implementation and develop alternate controls if it becomes apparent that the assumption is not supported. However, despite the uncertainty surrounding the specific load reductions for these controls, there is support to suggest that the assumption is in fact a modest one.

Chapter 3 provides qualitative assessments of potential pollutant reductions for new non-modeled, nonstructural and structural controls required by the 2012 MS4 Permit (Sections 3.2.4 and 3.3.1) as well as new non-modeled controls developed as part of this WMP (i.e., the "targeted" control measures of Section 3.4.1). The nonstructural measures are summarized in Tables 3-2 and 3-5. As explained in detail in Sections 3.2.4 and 3.3.1, the number and scope of the new and modified (i.e. enhanced) minimum provisions under the Permit is substantial. Of particular note are the Low Impact Development (LID) provisions—which replace prior SUSMP provisions—for new developments. Potential load reductions from future LID projects were not incorporated into the RAA and as such contribute to the 10% non-modeled assumption. Also, pollutant reductions may be expected from continued, preexisting minimum controls with an educational component, such as public education, inspections of industrial/commercial and construction sites, and illicit discharge detection and elimination. Such programs can benefit from a continued increase in behavior change over time. Finally, the TSS Reduction Program—one of the non-modeled targeted control—does allow for a rough estimate of potential load reductions, as outlined in the following subsection.

4.3.1 TSS Reduction Program Quantification

Although expected pollutant reductions resulting from the TSS Reduction Strategy are not modeled empirically within WMMS, a simplified quantification of the program's potential effectiveness may be calculated through the application of the Revised Universal Soil Loss Equation (RUSLE). The RUSLE is defined as

$$A = RKLS$$

where

$A =$ Spatially and temporally averaged soil loss per unit area per unit time. The result is expressed in the units elected for K and R.
$R =$ Rainfall-runoff erosivity factor (per unit time, generally one year),
$K =$ Soil erodibility factor (mass per unit area – an area density – generally tons per acre),
$L =$ Slope length factor and
$S =$ Slope steepness factor.

Using local values of R, K and LS obtained through maps available on the State Water Resources Control Board's website for the Construction General Permit[6],

[6] http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

$R \approx 40\ year^{-1}$
$K \approx 0.32\ \frac{tons}{acre}$ and
$LS \approx 0.45$

giving

$$A = (40\ year^{-1})\left(0.32\ \frac{tons}{acre}\right)0.45$$
$$A = 5.76\ \frac{tons}{acre\ year}.$$

Following the CGP Risk assessment procedures, 5.76 tons per acre year is within the "low sediment risk" designation.

During the preparation of this WMP, several participating agencies provided estimates of exposed soil within their jurisdiction that were not related to construction activities. The City of Bellflower field-verified these estimates, which totaled approximately 18 acres or about 0.5% of the City. Following the calculated value for A, this equates to approximately 100 tons of soil loss per year within the City.

Extrapolating this tonnage to the Lower SGR Watershed,

$$M_{TSS} = fWA = 0.005(50{,}240\ acres)\left(5.76\ \frac{tons}{acre\ year}\right)$$
$$M_{TSS} = 251\ acres\left(5.76\ \frac{tons}{acre\ year}\right)$$
$$M_{TSS} \approx 1{,}500\ \frac{tons}{year}$$

where

$M_{TSS} =$ Estimated annual soil loss within the LSGR watershed in tons,
$f =$ Estimated fraction of exposed soil (non-construction) within a given urbanized area and
$W =$ Watershed area.

Historical monitoring results from the adjacent Los Cerritos Watershed suggest that approximately 1.8 grams of zinc adheres to every kilogram of TSS, so that the zinc discharge M_{Zn} associated with M_{TSS} is

$$M_{Zn} \approx \left(\frac{1.8}{1000}\right)M_{TSS}$$
$$M_{Zn} \approx \left(\frac{1.8}{1000}\right)\left(1{,}500\ \frac{tons}{year}\right)\left(\frac{2000\ lbs}{1\ ton}\right)$$
$$M_{Zn} \approx 5{,}400\ \frac{lbs}{year}\ or\ 2{,}400\ \frac{kg}{year}.$$

The RAA predicts an annual zinc loading of 7,962 kg within the Lower SGR Watershed for the average storm year. Assuming that within the term of the MS4 Permits the TSS Reduction Strategy approaches an effectiveness goal of 10% (240 kg/year), this would equate to a load reduction of **3.0%**. Reductions of this magnitude provide support for the 10% load reduction assumed for non-modeled controls. Further development of the TSS Reduction program is anticipated to meaningfully aid in the achievement of targeted load reductions.

4.4 Synchrony of Non-modeled and Modeled Controls

Although the Compliance Schedule Chapter indicates that a 10% reduction is sufficient for near-term pollutant reductions to achieve early interim milestones, it should be noted that the Group expects some targeted structural BMPs to be in place prior to these milestones. For example, implementation of the Prop 84 Grant is scheduled for completion in 2017. As such, the Group need not rely solely on the veracity of the 10% assumption to meet the interim milestones.

5 Compliance Schedule

This Chapter provides the compliance schedule for each Participating Agency. The compliance schedule will be used to measure progress toward addressing the highest WQPs and achieving interim and final WQBELs and RWLs. Where deadlines are not specified within the MS4 Permit term, interim milestones are provided. The schedule is expressed as the needed structural BMP capacities over space and time. The Reasonable Assurance Analysis (RAA, Chapter 4) refines the capacity over space to the subwatershed level. The BMP capacities assume a 10% reduction over the MS4 Permit term through implementation of the nonstructural BMPs described in Chapter 3. The following section of this chapter includes the nonstructural BMP schedule.

Meeting the load reductions determined by the RAA results in an aggressive compliance schedule in terms of the technological, operational, and economic factors that affect the design, development, and implementation of the necessary control measures. Notably, as described in Chapter 6, there is currently no funding source to pay for these controls. Assuming finances are available, conversion of available land into a regional BMP is a protracted process that can take several years (not accounting acquisition, when required). As such the Group considers the compliance schedule to be as short as possible.

This is true for all WQPs—by the nature of the limiting pollutant approach, it is expected that each of the remaining WQPs will be controlled at a faster rate than zinc. So the aggressive schedule in place to target zinc provides an equally aggressive schedule to target the remaining WQPs, and as such it is considered to be as short as possible for all WQPs.

5.1 Nonstructural Best Management Practices Schedule

A 10% load reduction is assumed to result from the cumulative effect of nonstructural BMPs. These nonstructural BMPs consist of Minimum Control Measures, Nonstormwater Discharge Measures and Targeted Control Measures (MCMs, NSWD measures and TCMs) as described in Chapter 3.

5.1.1 Nonstructural Minimum Control Measures Schedule

The MCMs will be implemented by the Participating Agencies upon approval of the WMP by the Regional Board Executive Officer or by the implementation dates provided in the MS4 Permit, where applicable. The scope of the MCM programs has expanded significantly from the prior third term MS4 Permit. This change is not entirely unexpected as a period of over ten years separates the adoption of the third and fourth term permits. Consequently significant pollutant reductions are anticipated through effective implementation of the new nonstructural MCMs. In particular, effective implementation of the Development Construction program will compliment the nonstructural TSS Reduction Strategy.

MCM provisions new to the Cities are described in WMP Section 3.2. Guidance documents have been prepared as an optional aid to Cities in MCM development/implementation – see Attachment 3.1.

5.1.2 Nonstructural Non Stormwater Discharge Measures Schedule

The NSWD measures will be implemented by the Participating Agencies upon approval of the WMP by the Regional Board Executive Officer or by the implementation dates provided in the MS4 Permit, where applicable. The scope of the NSWD measures has expanded from the prior third term MS4 Permit. In particular, NSWD source investigations are now tied into a robust outfall screening program required by the MS4 Permit Monitoring and Reporting Program and additional conditions have been placed on common exempt NSWDs, such as potable water discharges and irrigation runoff. Consequently significant pollutant reductions are anticipated through the resulting reductions in NSWD flows.

NSWD measures new to the Participating Agencies are described in WMP Section 3.3.

5.1.3 Nonstructural Targeted Control Measures Schedule

The specific Participating Agencies implementing each TCM is included in Table 3-5 in Chapter 3. The table also lists whether the TCM is a *planned* or a *potential* control measure. Potential control measures are contingent upon unknown factors such as governing body approval and as such implementation within the MS4 Permit term cannot be guaranteed. Descriptions of each nonstructural TCM are included in WMP Section 3.4.

Uncertainties associated with the targeted nonstructural controls complicate establishment of specific implementation dates. Despite this uncertainty, the Group has made a diligent effort to provide a clear schedule of specific actions within the current and next permit terms in order to achieve target load reductions. In addition, the status of these controls will be included in the annual watershed reports as well as through the adaptive management process in order to assess their progress in attaining targeted load reductions. Table 5-1 lists the nonstructural TCM compliance schedule.

TSS Reduction Strategy

The expanded start-date ranges for the TSS Reduction Strategy (TCM-TSS-1 to 6) are set to accommodate the time needed to develop, adopt and implement model ordinances. A successfully implemented ordinance from the City of Whittier is included in this WMP as Appendix A-3-2. The remaining Cities will consider this ordinance as a template for their own TSS Reduction Strategy.

Complete implementation of this Program throughout the watershed is not expected by the end of the MS4 Permit term. However, as discussed in WMP Section 3.4, appreciable pollutant reductions may be realized with only partial implementation.

Table 5-1: Nonstructural TCM Compliance Schedule

Nonstructural TCM	Chapter 3	Effort	Start	Milestones
Prioritize facility inspections based on WQPs	TCM-ICF-1	J*	7/1/2015	Reprioritize facilities as new water quality data is collected.
Enhance tracking through use of online GIS MS4 Permit database	TCM-MRP-1	J	7/1/2015	Modify database to reflect MS4 Permit provisions by 7/1/2016.
Statewide Trash Amendments (nonstructural measures)**	TCM-PAA-3	J	(Estimate) 7/1/2015	Schedule is listed in draft amendments, est. 10-15 year schedule.
Increased street sweeping frequency or routes	TCM-PAA-4	J	7/1/2015	Report on status with annual report submittal.
Apply for grant funding for stormwater quality projects	TCM-INI-4	W/J	7/1/2014	Suitable grants are pursued when practicable.
Refocused outreach to target audiences and WQPs	TCM-PIP-1	W/J	7/1/2015	Report on status with annual report submittal.
Train staff to facilitate LID and Green Streets implementation	TCM-PLD-1	J	7/1/2014	Complete first round by 7/1/2016. Continue periodic staff training.
LID ordinance for projects below MS4 Permit thresholds	TCM-PLD-2	J	7/1/2014	Adopt ordinance by 12/28/2017.
Encourage retrofitting of downspouts	TCM-RET-1	J	7/1/2015	Develop educational material by 1/1/2016. Supply to builders/ contractors by 7/1/2016. Report on status with annual report submittal.
Prepare guidance documents to aid implementation of MCMs	TCM-SWM-1	W/J	7/1/2014	Develop documents by 7/1/2015. Revise documents as needed.
Exposed soil ordinance	TCM-TSS-1	J	7/1/2015	Develop by 12/28/2015. Adopt by 12/28/2016.
Erosion repair and slope stabilization on private property	TCM-TSS-2	J	7/1/2015	Report on status with annual report submittal.
Private parking lot sweeping ordinance	TCM-TSS-3	J	7/1/2015	Adopt ordinance by 12/28/2016.
Sweeping of private roads and parking lots	TCM-TSS-4	J	7/1/2015	Enforce TCM-TSS-3 once adopted.
Erosion repair and slope stabilization on public property	TCM-TSS-6	J	7/1/2015	Report on status with annual report submittal.
Copper reduction through implementation of SB 346	TCM-INI-1	W*	Ongoing	Milestones are independent of participating agency actions.
Lead reduction through implementation of SB 757	TCM-INI-2	W	Ongoing	Milestones are independent of participating agency actions.
Support safer consumer product regs for zinc reduction in tires	TCM-INI-3	W	Ongoing	Report on status with annual report submittal.
Incentives for irrigation reduction practices	TCM-NSW-1	J	Ongoing	Ongoing; no interim or final milestones.
Upgraded sweeping equipment	TCM-PAA-1	J	Ongoing	Report on status with annual report submittal.
(Sanitary) Sewer System Management Plan	TCM-PAA-2	J	Ongoing	Ongoing; no interim or final milestones.
Negotiate with utilities for erosion control within ROW	TCM-TSS-5	W	Ongoing	Report on status with annual report submittal.

*W – Watershed Group effort, J – Jurisdictional effort

** Contingent upon State Water Board's adoption of Trash Amendments

5.2 PLANNED PROJECT - PROPOSITION 84 GRANT AWARD

The cities of Downey, Norwalk, Santa Fe Springs, and Whittier are participating in a regional multi-watershed project through the Gateway Water Management Authority (GWMA). This project applied for and was awarded funding though the Proposition 84 Grant. Initiation of this project will begin as soon as the grant contracts and funding are finalized which is expected to be in the fall of 2014. The BMPs include: one (1) vegetated bioswale, six (6) tree box filters, and ten (10) bioretention tree wells. Table 5-2 lists the responsible Permittees for each LID BMP in the Proposition 84 Grant project and Table 5-3 lists the deadlines and status for certain project milestones.

Table 5-2: Permittees Responsible for LID BMPs in the Proposition 84 Project

City	LID BMPs	Anticipated Treatment Volume[1]	Watersheds
Downey	(4) Tree box filters (1) Bioswale	29,032 cf 11,741 cf	San Gabriel River
Norwalk	(2) Tree box filters	14,516 cf	San Gabriel River
Santa Fe Springs	(2) Tree box filters	14,516 cf	San Gabriel River
Whittier	(10) Bioretention Tree Wells	5,870 cf	San Gabriel River

Table 5-3: Deadlines and Status for Prop 84 Tasks

Milestone	Deadline	Status
CEQA	January 2015	Completed
Monitoring Plan, Project Plan and Assessment, and Quality Assurance Project Plan	March 2015	Pending Approval
Preliminary Plans and Specifications	March 2015	Completed
Final Plans and Specifications	June 2015	Pending Approval
Awarded Construction Contract	July 2015	In Progress
Construction and Implementation	August 2015 – August 2016	Expected
Operation and Maintenance Plan	August 2016	Expected
Monitoring and Reporting	October 2016 – April 2017	Expected
Project Completion	April 2017	Expected

With the installation of these LID BMPs, this project is expected to reduce pollutant loads throughout the watershed. The full benefits of this project as it ties into interim and final compliance milestones will be

[1] Treatment volume calculations based on a 24-hour, 0.75-inch storm, 6x6 tree box filter units, and a 1200 LF swale. Additional details and calculations used to determine treatment volumes can be found in Attachment 6: Technical Report

determined during the adaptive management process. The project is currently in the design phase. Project milestones and implementation timeframes are as follows:

Design, Environmental Documentation and Design and Bid Solicitation Process

The Project went through review to determine compliance with the environmental requirements such as those outlined in the California Environmental Quality Act (CEQA) in January 2015.

The Monitoring Plan, the Project Assessment and Evaluation Plan, and the Quality Assurance Project Plan were all submitted in March 2015. The Project Assessment and Evaluation Plan was approved, and the Monitoring Plan and the Quality Assurance Project Plan are expected to be approved May 2015. Preliminary plans and specifications were developed and submitted in March 2015. Comments were received and addressed, and final plans and specifications are expected to be approved by June 2015. All proposed BMPs will be located on public property in the public right of way and therefore, issues obtaining site access are not expected as well as obtaining access agreements and easement deeds will not be required.

During the Project design and bid process, a preliminary engineering analysis will be performed for proposed designs and locations, preparation and review of design drawings and technical specifications. The Participating Agencies will collaborate in reviewing the submitted proposals and construction documents. Once the review process is complete a construction contract will be awarded and finalized by the end of July 2015.

Construction and Implementation

The Project construction and implementation process is expected to begin in August 2015. Construction is anticipated to last for approximately twelve months and completion is expected in August 2016. Associated activities for construction will include mobilization and site preparation, excavation, installation of BMPs and proper coordination with contractors. An Operation and Maintenance Plan will be developed by end of the year 2016. Monitoring and reporting will be conducted beginning October 2016. Community event materials, survey results, and school outreach materials will all be developed by end of the year 2016. All construction, monitoring and administration activities are expected to be completed by April 2017.

5.3 STRUCTURAL BEST MANAGEMENT PRACTICE SCHEDULE

Uncertainties associated with the structural controls complicate establishment of specific implementation dates. Despite this uncertainty the Group has made a diligent effort to provide a clear schedule of specific actions within the current and next permit terms in order to achieve target load reductions.

5.3.1 STRUCTURAL MINIMUM CONTROL MEASURES SCHEDULE

Significant pollutant reductions are anticipated through each City's effective implementation of the new structural LID BMP requirements of the Planning and Land Development Program. These new MCM provisions are described in WMP Section 3.2. Guidance documents have been prepared as an optional aid to Cities in MCM development/implementation – see Attachment 3.1. The Planning and Land Development Program will be implemented no later than June 28, 2014.

5.3.2 STRUCTURAL TARGETED CONTROL MEASURES SCHEDULE

The RAA (see Chapter 4) demonstrates the cumulative effectiveness of BMPs to be implemented, supports BMP selection, and provides volume reduction goals optimized across the entire watershed. The results are summarized for volume reduction (represented in acre-feet) for interim and final compliance milestones.

The plan depicted in the RAA is considered a potential initial scenario. Through the adaptive management process, the participating agencies may select different types of BMPs (e.g. increase implementation of green streets and reduce implementation of regional BMPs) or substitute alternative BMPs altogether (e.g., implement dry wells instead of green streets).

The wet weather volume reductions necessary for each milestone (10%, 35% and Final) for each City show the combined total estimated BMP volume (acre-feet) for right-of-way (ROW) BMPs and regional Low Impact Development (LID) BMPs on public or private parcels. Specific green streets projects were not investigated during this initial analysis for potential BMPs, therefore, the City-specific summary lists potential regional LID BMPs that *could* be used to achieve the required interim milestones and targets. Since this WMP is a planning-level document, over time the Watershed Group will report and demonstrate that the summative effect of projects implemented add up to the required reductions for interim milestones and final targets.

Dry weather reductions are attained through a combination of non-structural practices and structural BMPs as they are implemented as part of the wet weather attainment of limits. As wet-weather BMPs are implemented, they serve to remove the dry-weather flows thus meeting the compliance set forth to achieve dry-weather reductions.

APPROACH TO IMPLEMENTING STRUCTURAL CONTROLS

As expressed in the tables of Section 5.4, the Participating Agencies can meet the September 30, 2017, 10% milestone without structural controls. Despite this, the Group understands that targeting subsequent load reductions demands that the process of implementing structural controls begin as soon as possible. The initial phase of this process is as follows:

Right-of-Way BMPs (green street principles) - As the Participating Agencies prepare new capital improvement projects throughout their jurisdiction, a review to incorporate green street principles into the project will be done. Additionally, the Strategic Transportation Plan (STP), currently a draft document), prepared by the Gateway Water Management Authority, identifies major transportation corridors slated for significant redevelopment. The STP will require that structural stormwater BMPs be considered and incorporated into these projects where feasible. Implementation of the STP is expected to contribute to the achievement of the required metal reductions by the compliance deadlines.

Schedule: Every two years the adaptive management process will include an assessment of the effectiveness of both 1) right-of-way BMPs incorporated into CIP projects and 2) the STP in contributing toward targeted load reductions.

Regional BMPs - In each jurisdiction, potential Regional BMP locations have been identified and ranked. To maximize efficiency and resources, a feasibility study will be developed to aid in selection of the most effective BMPs. The study will provide criteria for selecting locations for regional BMPs, the process of ground-truthing to concretely determine feasibility, and a schedule that demonstrates implementation of regional BMPs. In conjunction with development of the feasibility study, each Participating Agency will conduct a preliminary site assessment at the highest ranked potential BMP. The preliminary site assessment will include reviewing available plans, and identifying nearby stormdrain systems and drainage areas. Should information acquired during the preliminary assessment suggest the selected potential BMP to be infeasible, additional high ranked potential BMPs in that jurisdiction will be explored. By December 2016, each Participating Agency would have conducted sufficient preliminary site determinations to select a location sufficient for further exploration. Selected sites will be chosen for additional exploration to include field analysis.

Schedule: The preliminary site assessments and feasibility study will be completed by March 2016. Field analysis at selected sites will begin in December 2016.

Even though not all projects can be specified and scheduled at this time, the Participating Agencies are committed to constructing the necessary regional and right-of-way BMPs to meet the determined load reductions per applicable compliance schedules. Through implementation of the WMP and adaptive management there is the potential for the final compliance milestones to change.

Furthermore, the LACFCD will work with the Watershed group in their efforts to address source controls; assess, develop, and pursue funding for structural BMPs, and promote the use of water reuse and infiltration. As regional project scopes are further refined, the LACFCD will contribute to the WMP projects on a case-by-case basis, agreed upon with the Watershed Group.

5.4 Pollutant Reduction Plan to Attain Interim & Final Limits

The following pages describe the pollutant reduction plans for each City for drainage areas within both the San Gabriel River and Coyote Creek. Figure 5-1 is an illustration of the total structural BMP capacity needed to comply with final WQBELs/RWLs within the Lower SGR Watershed.

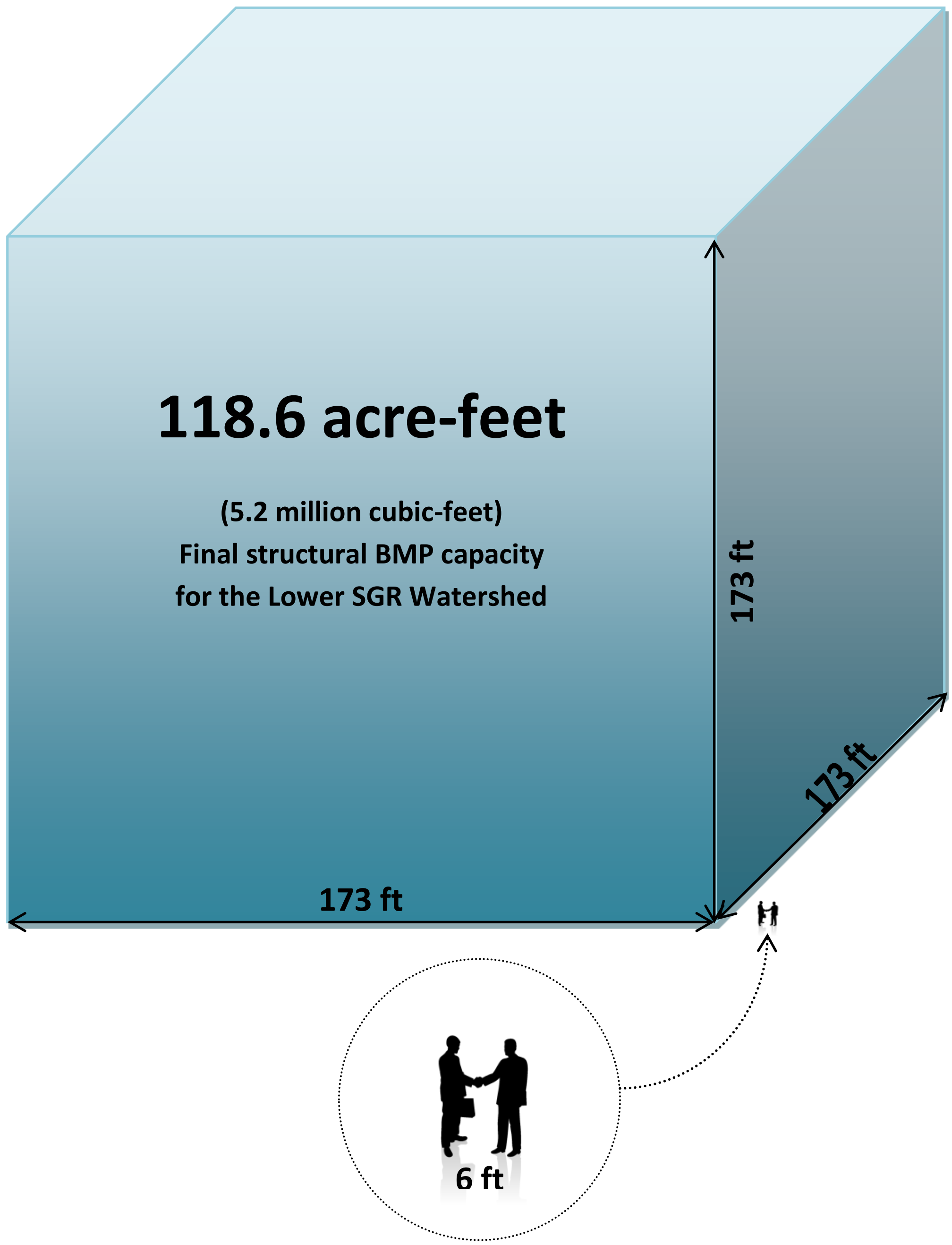

Figure 5-1: The Compliance Cube (total required BMP capacity for the Lower SGR Watershed)

5.4.1 CITY OF ARTESIA

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Artesia	10%	NS*	NS*
	35%	0.1	0.1
	Final	---	0.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Artesia within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.1 acre-feet by September 30, 2020 to meet the 35% interim milestone, which is equivalent to the final compliance milestone by September 30, 2026.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the remaining 0.1 acre-feet could be addressed using Right-of-Way BMPs to meet the 35% interim milestone and final compliance milestone.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Artesia	10%	NS*	NS*
	35%	1.1	1.1
	Final	0.0	1.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Artesia within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 1.1 acre-feet by September 30, 2020 to meet the 35% interim milestone, which is equivalent to the final compliance milestone.

If Padelford Park was transformed into an infiltration BMP, the potential capture volume would be 1.6 acre-feet, which would be sufficient to meet the 35% interim compliance and the final compliance. Additionally, the 1.1 acre-feet needed to meet the 35% interim milestone and final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.2 City of Bellflower

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Bellflower	10%	NS**	NS**
	35%	0.2	0.2
	Final	5.2	5.5

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Bellflower within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.2 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 5.5 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.2 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.3 CITY OF CERRITOS

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Cerritos	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.6	0.6

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Cerritos within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 0.6 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Cerritos	10%	NS**	NS**
	35%	0.0	0.0
	Final	6.4	6.5

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Cerritos within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 6.5 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.4 CITY OF DIAMOND BAR

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Diamond Bar	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.2	0.2

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Diamond Bar within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 0.2 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Diamond Bar	10%	NS**	NS**
	35%	0.3	0.3
	Final	8.7	8.9

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.

** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Diamond within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.3 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 8.9 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.3 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.5 City of Downey

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Downey	10%	NS*	NS*
	35%	0.0	0.0
	Final	10.4**	10.4**

* Nonstructural practices achieve 10% milestone
**Value attained after the city's existing distributed BMP volumes totaling 7.1 acre-ft were incorporated

According to the RAA results, the areas of the city of Downey within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 10.4 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.6 City of Hawaiian Gardens

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Hawaiian Gardens	10%	NS**	NS**
	35%	1.8	1.8
	Final	0.3	2.2

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Hawaiian Gardens within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 1.8 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 2.2 acre-feet by September 30, 2026 for the final compliance milestone.

Since the available area in Hawaiian Gardens consists mostly of educational use, the 1.8 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.7 City of La Mirada

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
La Mirada	10%	NS*	NS*
	35%	0.0	0.0
	Final	15.2	15.2

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of La Mirada within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 15.2 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.8 City of Lakewood

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Lakewood	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.3	0.3

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Lakewood within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 0.3 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN*	
		Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Lakewood	10%	NS**	NS**
	35%	1.6	1.6
	Final	0.3	1.8

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Lakewood within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 1.6 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 1.8 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 1.6 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

5.4.9 City of Long Beach

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Long Beach	10%	NS*	NS*
	35%	2.4	2.4
	Final	0.3	2.7

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Long Beach within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 2.4 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 2.7 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 2.4 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs.

Coyote Creek

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Long Beach	10%	NS*	NS*
	35%	0.0	0.0
	Final	0.0	0.0

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Long Beach within the Coyote Creek Watershed will not need to capture to capture and/or treat stormwater in order to meet the compliance milestones. The suggested approach for these areas is to implement the targeted nonstructural source control BMPs along with all required MCMs until further information is gathered from the adaptive management process.

5.4.10 CITY OF NORWALK

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Norwalk	10%	NS**	NS**
	35%	0.1	0.1
	Final	0.3	0.3

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Norwalk within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.1 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 0.3 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.1 acre-feet needed to meet the 35% interim milestone and 0.3 acre-feet needed to meet the final compliance milestone could be addressed using Right-of-Way BMPs.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative
Norwalk	10%	NS*	NS*
	35%	0.2	0.2
	Final	4.6	4.8

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Norwalk within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% interim milestone; however, the city will need to capture 0.2 acre-feet by September 30, 2020 to meet the 35% interim milestone, and total of 4.8 acre-feet by September 30, 2026 for the final compliance milestone.

Since many of the open space areas identified as potential locations for regional BMPs would provide a treatment volume much larger than the compliance volume, the 0.2 acre-feet needed to meet the 35% interim milestone could be addressed using Right-of-Way BMPs. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.11 City of Pico Rivera

San Gabriel River

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN* Total Estimated BMP Volume (acre-ft)	
		Incremental	Cumulative
Pico Rivera	10%	NS**	NS**
	35%	0.0	0.0
	Final	10.7	10.8

* Values taken directly from RAA. Differences between the sum of the incremental reduction volumes and the cumulative reduction volumes are attributed to rounding errors of the second decimal place.
** Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Pico Rivera within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 10.8 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.12 CITY OF SANTA FE SPRINGS

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Santa Fe Springs	10%	NS*	NS*
	35%	0.0	0.0
	Final	4.9	4.9

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Santa Fe Springs within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 4.9 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Santa Fe Springs	10%	NS*	NS*
	35%	0.0	0.0
	Final	2.1	2.1

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Santa Fe Springs within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 2.1 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

5.4.13 CITY OF WHITTIER

SAN GABRIEL RIVER

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Whittier	10%	NS*	NS*
	35%	0.0	0.0
	Final	1.4	1.4

* Non-structural practices achieve 10% milestone

According to the RAA results, the areas of the city of Whittier within the San Gabriel River Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 1.4 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. Additionally, Right-of-Way BMPs to meet the final compliance milestone will be explored.

COYOTE CREEK

Jurisdiction	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative
Whittier	10%	NS*	NS*
	35%	0.0	0.0
	Final	39	39

* Nonstructural practices achieve 10% milestone

According to the RAA results, the areas of the city of Whittier within the Coyote Creek Watershed will not need to capture and/or treat stormwater in order to meet the September 30, 2017 10% or September 30, 2020 35% interim milestone; however, the city will need to capture 39 acre-feet by September 30, 2026 to meet the final compliance milestone. Potential regional BMPs for the final compliance milestone will be explored as described in Section 3. This includes potential projects such as Cerritos Regional Park and Caruthers Park.

5.4.14 THE STATE OF BACTERIA

A bacteria TMDL is expected to be adopted for the Lower SGR Watershed in 2015. The RAA Guidelines state that in such an instance targets and critical conditions from other TMDLs in the region should be utilized. For bacteria, the existing Los Angeles River Bacteria TMDL is applicable. This results in a final wet and dry weather deadline of 2040 (or an alternate date as specified in a future TMDL), which extends beyond the 2026 deadline for the limiting pollutant zinc. If it is determined through the adaptive management process that required bacteria load reductions may not be met by controlling for zinc, then the WMP will be modified to incorporate bacteria milestones with measureable criteria or indicators consistent with any future bacteria TMDL for the San Gabriel River and with, at the latest, a final deadline of 2040.

5.5 ESTIMATED COSTS OF STRUCTURAL BMPS

Future costs associated with regional and Right-of-Way BMPs were estimated by using costs associated with an existing regional project (Discovery Park) and estimated costs for potential regional projects. Potential regional project costs were obtained from Los Angeles County.[2] Table 5-4 includes the estimated total costs and cost per acre-foot for regional and Right-of-Way BMPs.

The cost estimates only represent permitting, material, construction, and operation and maintenance (O&M) cost - with the exception of Discovery Park which does not take into account O&M costs. The cost of land acquisition, which is estimated to be over $5,000,000 per acre, was not included since initial regional and Right-of-Way BMP projects are planned for public lands. Because of the preliminary nature of the projects, the estimates developed for the proposed BMPs on public property lie between the preliminary/order of magnitude and budget level estimates, with an expected accuracy of about minus 25 percent to plus 40 percent.[3]

Table 5-4: Existing or potential estimated structural BMP cost

Project Name	Total Estimated Cost	BMP Capacity (acre-feet)	Cost Per Acre Foot
Bethune Park	$570,000	0.9	$1,000,000
Enterprise Park	$1,240,000	3.9	$318,000
Reid Park	$1,400,000	0.6	$2,333,000
Belvedere Park	$3,700,000	13.8	$268,000
Discovery Park	$4,500,000 *	8.0	$562,500
Johnson Park	$5,060,000	20.0	$253,000
Charles White Park	$5,300,000	21.0	$252,380
Right-of Way BMPs**	-------	0.25	$250,000

* Cost does not include O&M.

** A specific project was not used for the cost estimate. Instead various projects were averaged.

[2] Multi-Pollutant TMDL Implementation for the Unincorporated County Area of Los Angeles River: Part 2

[3] Multi-Pollutant TMDL Implementation for the Unincorporated County Area of Los Angeles River: Part 2

Cost were derived by assuming approximately two thirds of the projects implemented will be regional, with the remaining being Right-of-Way projects. Using general assumptions for the projects above, the following costs are anticipated:

- A cost of $2,000,000 per acre foot is anticipated for projects treating less than 1 acre-foot
- A cost of $625,000 per acre foot is anticipated for projects treating between 1 and 10 acre-feet
- A cost of $260,000 per acre foot is anticipated for projects treating more than 10 acre-feet

5.5.1 TOTAL ESTIMATED COSTS OF STRUCTURAL BMPS

The following tables include the total estimated costs of structural BMPs for each City.

CITY OF ARTESIA STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$450,000 - $840,000
	35%	0.1	0.1	
	Final	---	0.1	
Coyote Creek	10%	NS	NS	
	35%	1.1	1.1	
	Final	---	1.1	

CITY OF BELLFLOWER STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,100,000 - $3,850,000
	35%	0.2	0.2	
	Final	5.2	5.5	

CITY OF CERRITOS STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,700,000 - $5,000,000
	35%	0.0	0.0	
	Final	0.6	0.6	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	6.4	6.5	

City of Diamond Bar Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)		Total Estimated Cost
		Incremental	Cumulative	
San Gabriel River	10%	NS	NS	$3,400,000 - $6,400,000
	35%	0.0	0.0	
	Final	0.2	0.2	
Coyote Creek	10%	NS	NS	
	35%	0.3	0.3	
	Final	8.7	8.9	

City of Downey Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)		Total Estimated Cost
		Incremental	Cumulative	
San Gabriel River	10%	NS	NS	$3,900,000 - $7,300,000
	35%	0.0	0.0	
	Final	10.4	10.4	

City of Hawaiian Gardens Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft)		Total Estimated Cost
		Incremental	Cumulative	
Coyote Creek	10%	NS	NS	$825,000 - $1,540,000
	35%	1.8	1.8	
	Final	0.3	2.2	

CITY OF LA MIRADA STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
Coyote Creek	10%	NS	NS	$3,000,000 - 5,500,000
	35%	0.0	0.0	
	Final	15.2	15.2	

CITY OF LAKEWOOD STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$790,000 - $1,500,000
	35%	0.0	0.0	
	Final	0.3	0.3	
Coyote Creek	10%	NS	NS	
	35%	1.6	1.6	
	Final	0.3	1.8	

CITY OF LONG BEACH STRUCTURAL BMP COST ESTIMATE

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$1,015,500 - $1,900,000
	35%	2.4	2.4	
	Final	0.3	2.7	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	0.0	0.0	

City of Norwalk Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$1,900,000 - $3,600,000
	35%	0.1	0.1	
	Final	0.3	0.3	
Coyote Creek	10%	NS	NS	
	35%	0.2	0.2	
	Final	4.6	4.8	

City of Pico Rivera Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$4,050,000 - $7,600,000
	35%	0.0	0.0	
	Final	10.7	10.8	

City of Santa Fe Springs Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$2,600,000 - $4,900,000
	35%	0.0	0.0	
	Final	4.9	4.9	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	2.1	2.1	

City of Whittier Structural BMP Cost Estimate

Watershed	Milestone	POLLUTANT REDUCTION PLAN Total Estimated BMP Volume (acre-ft) Incremental	 Cumulative	Total Estimated Cost
San Gabriel River	10%	NS	NS	$7,900,000 - $14,700,000
	35%	0.0	0.0	
	Final	1.4	1.4	
Coyote Creek	10%	NS	NS	
	35%	0.0	0.0	
	Final	39	39	

6 FINANCIAL STRATEGY

This section outlines the financial strategy to implement the Lower SGR WMP in accordance with the MS4 Permit. The cost estimates provided herein are preliminary and based on the best available information to date. The estimates are also subject to revision as new information becomes available, including as the Watershed Control Measures (WCMs) are refined over the implementation period.

Financing the implementation of the Lower SGR WMP is the greatest challenge confronting the Watershed Group. In the absence of stormwater utility fees, the Participating Agencies have no dedicated revenue stream to pay for implementation of the WMP. In addition to current uncertainties associated with costs and funding, there are multiple uncertainties associated with future risks. The first TMDL compliance dates for the Lower SGR Watershed Group will be the interim metals milestones of 2017, 2020, and the final compliance date of September 30, 2026. Thus, there will be many deadlines that must be met despite limited resources. Member Agencies will need to set priorities and seek funding in order to meet the various compliance deadlines.

Therefore, to address the Lower SGR Water Quality Priorities (WQPs), the Watershed Group is going to pursue a multi-faceted financial strategy to match the multi-faceted Strategy for the Selection and Implementation of WCMs outlined in Chapter 3. In addition, the Watershed Group has coordinated the proposed compliance schedule (see Section 5) with the financial strategy.

The latest Los Angeles and Long Beach MS4 permits have greatly magnified the cost challenges associated with managing stormwater. The absence of a stable stormwater funding mechanism not tied to municipal General Funds is becoming ever more critical. For that reason, the City Manager Committees of the California Contract Cities Association and the League of California Cities, Los Angeles Division, formed a City Managers' Working Group (Working Group) to review stormwater funding options after the LA County proposed Clean Water, Clean Beaches funding initiative failed to move forward. The result was a Stormwater Funding Report that notes, "the Los Angeles region faces critical, very costly, and seriously underfunded stormwater and urban runoff water quality challenges." The Report found that funding stormwater programs is so complex and dynamic, and the water quality improvement measures so costly, that Permittees cannot depend on a single funding option at this time. The City Managers' report includes a variety of recommendations, including: organizational recommendations; education and outreach program recommendations; recommendations for legislation; Clean Water, Clean Beaches recommendations; local funding options; and recommendations for the Regional Water Board[1].

The Watershed Group has considered the recommendations in the Stormwater Funding Report in developing this financial strategy. A critical component of the report is the observation that moving forward with a regional stormwater fee vote (like the LA County Clean Water, Clean Beaches funding

[1]League of California Cities. (2014). Providing Sustainable Water Quality Funding in Los Angeles County. Prepared By City Managers Working Group. Los Angeles County Division May 21, 2014.

initiative) would likely not occur until after June 2015, which means that the first funds would likely not be available until property tax payments are received in 2017. Assuming revenues of approximately $6 million per year available from a funding source based on the proposed Clean Water, Clean Beaches funding initiative, the Watershed Group could expect approximately $60 million to be available over 10 years[2]. However, these amounts may not be sufficient to pay for and maintain expensive stormwater capture and dry-weather low flow diversions to the sanitary sewer if the Watershed Group had to depend on such projects to come into compliance with receiving water limitations (RWLs) and water quality-based effluent limitations (WQBELs) specified in the MS4 Permit.

The Reasonable Assurance Analysis (RAA) for the Lower SGR WMP, indicate that the volume of water required to be captured within the Watershed to comply with RWLs and WQBELs is 118.6 AF.

For cost estimation purposes, this WMP initially assumes that the Lower SGR Watershed could ultimately require the capacity to capture and infiltrate or use 118.6 AF of water. Based on cost estimates for constructing regional and Right-of-Way BMPs, as discussed in Section 5.5, such a requirement could cost the watershed between $34 million and $65 million for construction of these facilities (refer to Section 5.5 for more a detailed cost analysis).

The Watershed Group has been involved in the development of the financial strategy recommendations, and proposes to consider the recommendations of the City Managers Working Group to develop long-term solutions to stormwater quality funding. In the meantime, the Watershed Group will focus on the local funding options presented in the Stormwater Funding Report to secure the needed funding for initial implementation of the WMP.

During the early years of implementation, the Permittees anticipate having to depend largely on local fees such as commercial/industrial inspection fees, General Fund expenditures, and, potentially, Clean Water State Revolving Fund program financing agreements to fund the implementation of the WCMs. The Watershed Group will seek opportunities to leverage the limited funds available. It will do this by financially supporting the efforts of others, such as the California Stormwater Quality Association (CASQA), to seek State approval of true source control measures such as implementation of the Safer Consumer Product Regulations adopted by the Department of Toxic Substances Control in 2013. The Group will also support programs to increase water conservation, reduce dry-weather discharges to the storm drain system, and reduce TSS during wet weather. Successfully accomplishing these efforts could reduce the money needed in the long term to capture and/or treat stormwater discharges to comply with TMDLs and address other WQPs.

Concurrently, the Watershed Group proposes to work with the California Contract Cities, the Los Angeles Division of the League of California Cities, and others to educate elected officials and voters about the

[2] Based on numbers derived for Los Cerritos Channel (LCC) during the development of the LCC WMP using expected annual revenue from a pro rata distribution of funds allocated to the Cities in the LCC Watershed and a possible proportional allocation of funds from the Watershed Authority Groups.

water quality problems facing the region and the need to develop an equitable financing mechanism to fund the programs and facilities necessary to come into compliance with water quality regulations.

Legislative solutions will be necessary to clarify the application of Proposition 218 to fees for the capture and use of stormwater in light of a recent 6th Appellate Court decision and to ensure that any State water bond put on the ballot in fall 2014 contains funding for stormwater quality projects. The Group will also support local and statewide efforts to amend Proposition 218 to have stormwater fees treated in the same manner as water, sewage, and refuse fees. The Watershed Group and/or the Participating Agencies will also seek grants to implement rainwater capture and reuse or capture and infiltrate projects on publicly owned property.

In the long term, financing the WCMs for the Lower SGR Watershed will require establishing dependable revenue streams for local water quality programs. Accomplishing this formidable task will require the cooperation of many entities, including business and environmental organizations and the Regional Board.

7 LEGAL AUTHORITY

MS4 Permit §VI.C.5.b.iv.6 (LA)/ §VII.C.5.h.vi (LB)

This section covers information such as documentation and references/links to water quality ordinances for each participating that demonstrates adequate legal authority to implement and enforce Watershed Control Measures (WCMs) identified in this plan and as required in Section VI.D.5.b.iv.6 of the MS4 Permit. The goal of these WCMs is to create an efficient program that focuses on the watershed priorities by meeting the following objectives:

- Prevent or eliminate non-storm water discharges to the MS4 that are a source of pollutants from the MS4 to receiving waters.
- Implement pollutant controls necessary to achieve all applicable interim and final water quality-based effluent limitations and/or receiving water limitations pursuant to corresponding compliance schedules.
- Ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations.

The WCMs include the minimum control measures, nonstormwater discharge measures and targeted control measures (i.e. controls to address TMDL and 303(d) listings). As the requirement to incorporate these WCMs is an element of the MS4 Permits, the legal authority to implement them results from each agency's legal authority to implement the NPDES MS4 Permit.

A copy of each participating agency's legal authority certification from their chief legal counsel can be found in Appendix A-7. This certification shall be prepared annually. Table 7-1 includes the section that covers water quality ordinance for each agency with a reference link.

Table 7-1 Water quality ordinance language

City	Water Quality Ordinance	Reference
Artesia	Title 6-Sanitation and Health, Chapter 7, Storm Water Management and Discharge Control	http://qcode.us/codes/artesia/
6.7.02 Purpose and Intent (b) -*The intent of this chapter is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the Federal Clean Water Act, the California Porter-Cologne Water Quality Act and the Municipal NPDES Permit.* *(c) This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal separate storm sewer system over which it has jurisdiction as required by the Municipal NPDES Permit, and thereby fully and timely comply with the terms of the Municipal NPDES Permits while the CSWMP and the WMAP are being developed by the permittes under the Municipal NPDES Permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequent adopted CSWMP and WMAP, or other programs developed under the Municipal NPDES Permit.*		
Bellflower	Title 13-Public Services, Chapter 13.20, Stormwater and Runoff Pollution Control	http://qcode.us/codes/bellflower
13.20.030 Purpose and Intent (B)- *The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and*		

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<table>
<tr><td colspan="3">acts amendatory thereof or supplementary thereto, to applicable implementing regulations and the municipal NPDES permit and any amendment, revision, or re-issuance thereof.</td></tr>
<tr><td>Cerritos</td><td>Title 6- Health and Sanitation, Chapter 6.32, Stormwater and Urban Runoff Pollution Prevention Controls</td><td>http://www.codepublishing.com/ca/cerritos.html</td></tr>
<tr><td colspan="3">6.32.010 Purpose (C) - Reducing pollutants in storm water and urban runoff to the maximum extent practicable. (Ord. 777 § 1 (part), 1997)</td></tr>
<tr><td>Diamond Bar</td><td>Title 8- Health and Safety, Chapter 8.12, Division 5, Stormwater and Urban Runoff Pollution Control</td><td>http://library.municode.com/index.aspx?clientId=12790</td></tr>
<tr><td colspan="3">Sec. 8.12.1630 Purpose and Intent (b) - The intent of this division is to protect and enhance the quality of watercourses, water bodies, and wetlands within the city in a manner consistent with the Federal Clean Water Act, the California Porter-Cologne Water Quality Control Act and the municipal NPDES permit.
(c) This division is also intended to provide the city with the legal authority necessary to control discharges to and from those portions of the municipal storm water system over which it has jurisdiction as required by the municipal NPDES permit and to hold dischargers to the municipal storm water system accountable for their contributions of pollutants and flows.</td></tr>
<tr><td>Downey</td><td>Article V- Sanitation, Chapter 7, Stormwater and Urban Runoff Pollution and Conveyance Controls</td><td>http://qcode.us/codes/downey/</td></tr>
<tr><td colspan="3">Section 5701. Watershed Management Program - Notwithstanding other provisions in the Downey Municipal Codes, the MS4 Permit requires the City of Downey to implement the Watershed Management Program (WMP), and any subsequent amendments, are hereby incorporated into this Ordinance by reference. (Added by Ord. 1142, adopted 02-11-03; amended by Ord. 1320, adopted 11-12-13).</td></tr>
<tr><td>Hawaiian Gardens</td><td>Title 6- Health and Safety, Chapter 6.47, Urban Storm Water Runoff Control</td><td>http://qcode.us/codes/hawaiiangardens/</td></tr>
<tr><td colspan="3">6.47.020 Purpose and Intent (D) - Reducing pollutants in storm water and urban runoff to the maximum extent practicable in order to achieve water quality standards/receiving water limitations. (Ord. 549 § 1, 2013; Ord. 476 § 1, 2002)</td></tr>
<tr><td>La Mirada</td><td>Title 13- Water and Sewage, Chapter 13.12, Urban Runoff</td><td>http://www.amlegal.com/library/ca/lamirada.shtml</td></tr>
<tr><td colspan="3">13.12.020 Purpose and Intent (c) - Reducing pollutants in stormwater and urban runoff to the maximum extent practicable.</td></tr>
<tr><td>Lakewood</td><td>Article 05 (V) - Sanitation-Health, Chapter 8, Stormwater and Urban Runoff Pollution Control</td><td>http://weblink.lakewoodcity.org/weblink8/</td></tr>
<tr><td colspan="3">5800 - Adoption of the Los Angeles County Stormwater Runoff Pollution Control Ordinance - Except as otherwise provided in this Chapter, the stormwater runoff pollution control ordinance of the County of Los Angeles contained in Chapter 12.80 of Title 12- Environmental Protection of the Los Angeles County Code relating to control of pollutants carried by stormwater and runoff adopted by the County of Los Angeles on June 9, 1998, is hereby adopted and made a part hereof as though set forth in full. The same shall hereafter constitute the Stormwater and Runoff Pollution Control Ordinance of the City of Lakewood relating to the control of pollutants carried by stormwater and runoff and discharging into receiving water of the United States.</td></tr>
<tr><td>Long Beach</td><td>Volume II-Title 18-Building and Construction, Chapter 18.61, NPDES and SUSMP Regulations</td><td>http://library.municode.com/index.aspx?clientId=16115</td></tr>
<tr><td colspan="3">18.61.010 Purpose - The purpose of this chapter is to provide regulations and give legal effect to certain requirements of the National Pollutant Discharge Elimination System (NPDES) permit issued to the City of Long Beach, and the subsequent requirements of the Standard Urban Storm Water Mitigation Plan (SUMSP), mandated by the California Regional Water Quality Control Board, Los Angeles Region</td></tr>
</table>

(RWQCB). The intent of these regulations is to effectively prohibit non-storm water discharges into the storm drain systems or receiving waters and to require source control BMP to prevent or reduce the discharge of pollutants into storm water to the maximum extent practicable. *The City of Long Beach is a participant member of this watershed group but is under a different MS4 Permit. Certification of legal authority will be in accordance with its MS4 Permit timeline*		
LACFCD	Flood Control District Code, Chapter 21 - Stormwater and Runoff Pollution Control	https://library.municode.com/index.aspx?clientId=16274
21.01 - Purpose and Intent - *The purpose and intent of this chapter is to regulate the stormwater and non-stormwater discharges to the facilities of the Los Angeles County Flood Control District for the protection of those facilities, the water quality of the waters in and downstream of those facilities, and the quality of the water that is being stored in water-bearing zones underground.*		
Norwalk	Title 18 - Environment, Chapter 18.04, Stormwater and Urban Runoff Pollution Control	http://qcode.us/codes/norwalk/
18.04.030 Purpose and Intent (C)- *This chapter is also intended to provide the City with the legal authority necessary to control discharges to and from those portions of the municipal stormwater system over which it has jurisdiction as required by the municipal NPDES permit, and fully and timely comply with the terms of the municipal NPDES permit while the CSWMP and the WMAP are being developed by the permittees under the municipal NPDES permit, and in contemplation of the subsequent amendment of this chapter or adoption by the City of additional provisions of this chapter to implement the subsequently adopted CSWMP and WMAP, or other programs developed under the municipal NPDES permit.*		
Pico Rivera	Title 16- Environment, Chapter 16.04, Stormwater and Urban Runoff Pollution Prevention	http://qcode.us/codes/picorivera
16.01.010 Purpose and Intent (4) - *Reducing pollutant loads in storm water and urban runoff, from land uses and activities identified in the municipal NPDES permit.* *The provisions of this chapter are adopted pursuant to the Federal Water Pollution Control Act, also known as the "Clean Water Act," codified and amended at 33 U.S.C 1251 et seq. The intent of this chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and acts amendatory thereof of supplementary thereto; applicable implementing regulations; the Municipal NPDES permit, and any amendment, revisions, or re-issuance thereof. (Ord. 989 § 1 (part), 2002).*		
Santa Fe Springs	Title V: Public Works- 52, Stormwater Runoff	http://www.amlegal.com/library/ca/santafesprings.shtml
§ 52.01 Purpose and Intent- *The purpose of this chapter is to protect the health, safety and general welfare of the citizens, and to reduce the quantity of pollutants being discharged to the waters of the United States by: (F) Protecting and enhancing the quality of the waters of the United States in a manner consistent with the provisions of the Clean Water Act.*		
Whittier	Title 8-Health and Safety, Chapter 8.36, Stormwater and Runoff Pollution Control	https://library.municode.com/index.aspx?clientId=16695
8.36.030 Purpose and Intent- *The purpose of this chapter is to protect and improve water quality of receiving waters by: (E) reducing pollutant loads in stormwater and urban runoff, from land uses and activities identified in the municipal NPDES permit.*		

8 COORDINATED INTEGRATED MONITORING PROGRAM

The Participating Agencies have developed a customized coordinated integrated monitoring program (CIMP). The CIMP, based on the provisions set forth in Part IV of the MRP (Attachment E) of the MS4 Permit, assesses progress toward achieving the water quality-based effluent limitations and receiving water limitations per the compliance schedules, and progress toward addressing water quality priorities. The customized monitoring program is designed to address the Primary Objectives detailed in Attachment E, Part II.A of the MS4 Permit and includes the following program elements:

- Receiving Water Monitoring
- Storm Water Outfall Monitoring
- Non-Storm Water Outfall Monitoring
- New Development/Re-Development Effectiveness Tracking
- Regional Studies

The CIMP is included in Appendix 8-1.

9 ADAPTIVE MANAGEMENT PROCESS

Adaptive management is the process by which new information about the state of the watershed is incorporated into the WMP. The WMP is adaptively managed following the process described in Permit §IV.C.8. The process is implemented by the participating agencies every two years from the date of WMP approval by the Regional Water Board (or by the Executive Officer on behalf of the Regional Water Board). The purpose of the adaptive management process is to improve the effectiveness of the WMP based on – but not limited to – consideration of the following:

1. Progress toward achieving interim and/or final water quality-based effluent limitations and/or receiving water limitations in §VI.E and Attachments L through R of the MS4 Permit, according to established compliance schedules;
2. Progress toward achieving improved water quality in MS4 discharges and achieving receiving water limitations through implementation of the watershed control measures based on an evaluation of outfall-based monitoring data and receiving water monitoring data;
3. Achievement of interim milestones;
4. Re-evaluation of the water quality priorities identified for the Watershed Management Area (WMA) based on more recent water quality data for discharges from the MS4 and the receiving water(s) and a reassessment of sources of pollutants in MS4 discharges;
5. Availability of new information and data from sources other than the MS4 Permittees' monitoring program(s) within the WMA that informs the effectiveness of the actions implemented by the Permittees;
6. Regional Water Board recommendations; and
7. Recommendations for modifications to the Watershed Management Program solicited through a public participation process.

9.1 MODIFICATIONS

Based on the results of the adaptive management process, the participating agencies may find that modifications of the WMP are necessary to improve effectiveness. Modifications may include new compliance deadlines and interim milestones, with the exception of those compliance deadlines established in a TMDL.

9.1.1 REPORTING

Modifications are reported in the Annual Report, as required pursuant to Part XVIII.A.6 of the Permit Monitoring and Reporting Program (No. CI-6958), and as part of the Report of Waste Discharge (ROWD) required pursuant to Part II.B of Attachment D – Standard Provisions. The background and rational for these modifications are included by addressing the following points:

- Identify the most effective control measures and describe why the measures were effective and how other control measures will be optimized based on past experiences.

- Identify the least effective control measures and describe why the measures were deemed ineffective and how the control measures will be modified or terminated.
- Identify significant changes to control measures during the prior year and the rationale for the changes.
- Describe all significant changes to control measures anticipated to be made in the next year and the rationale for the changes. Those changes requiring approval of the Regional Water Board or its Executive Officer shall be clearly identified at the beginning of the Annual Report.
- Include a detailed description of control measures to be applied to New Development or Re-development projects disturbing more than 50 acres.
- Provide the status of all multi-year efforts that were not completed in the current year and will continue into the subsequent year(s).

9.1.2 IMPLEMENTATION

Modifications are implemented upon approval by the Regional Water Board Executive Officer or within 60 days of submittal if the Regional Water Board Executive Officer expresses no objections.

9.2 RECEIVING WATER LIMITATIONS

The adaptive management process fulfills the requirements in MS4 Permit §V.A.4 to address continuing exceedances of receiving water limitations.

10 REPORTING PROGRAM & ASSESSMENT

10.1 ANNUAL REPORT

PERMIT MRP §XV.A (LA/LB)

Each year on or before December 15th, the participating agencies will submit, either jointly or individually, an annual report to the Regional Water Board Executive Officer. The annual report will present a summary of information that will allow the Regional Board to assess implementation and effectiveness of the watershed management program[1].

The reporting process is intended to meet the following objectives:

- Each agency's participation in one or more Watershed Management Programs.
- The impact of each agency's storm water and non-storm water discharges on the receiving water.
- Compliance with receiving water limitations, numeric water quality-based effluent limitations, and non-storm water action levels.
- The effectiveness of control measures in reducing discharges of pollutants from the MS4 to receiving waters.
- Whether the quality of MS4 discharges and the health of receiving waters is improving, staying the same, or declining as a result watershed management program efforts, and/or TMDL implementation measures, or other Minimum Control Measures.
- Whether changes in water quality can be attributed to pollutant controls imposed on new development, re-development, or retrofit projects.

Annual Report will identify data collected and strategies, control measures and assessments implemented for each watershed within the participating agency's jurisdiction. The report will include summaries for each of the following seven sections as required by the MS4 Permit:

1) Stormwater Control Measures -Summary of New Development/Re-development Projects, actions to comply with TMDL provisions
2) Effectiveness Assessment of Stormwater Control Measures -Summary of rainfall data, provide assessment and compare water quality data, summary to whether or not water quality is improving
3) Non-Stormwater Control Measures -Summary of outfalls screening
4) Effectiveness Assessment of Non-Storm Water Control Measures -Summary of the effectiveness of control measures implemented
5) Integrated Monitoring Compliance Report - Report with summary of all identified exceedances of outfall-based stormwater monitoring data, we weather receiving water monitoring data, dry weather receiving water data and non-storm water outfall monitoring data
6) Adaptive Management Strategies -Summary of effective, less effective control measures

[1] Annual reports will cover summary from previous fiscal year beginning June 1st through July 30th.

7) Supporting Data and Information - Monitoring data summary

The participating agencies will submit annual reports as required by the MS4 Permit. The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

10.1.1 Data Reporting *Permit MRP §XIV.L (LA/LB)*

Analytical data reports will be submitted on a semi-annual basis. Data will be sent electronically to the Regional Water Board's Storm Water site at MS4stormwaterRB4@waterboards.ca.gov. These data reports will summarize:

- Exceedances of applicable WQBELs, receiving water limitations, or any available interim action levels or other aquatic toxicity thresholds.
- Basic information regarding sampling dates, locations, or other pertinent documentation.

10.1.2 Chronic Toxicity Reporting *Permit MRP §XII.K (LA/LB)*

Aquatic toxicity monitoring results will be submitted to the Regional Board on an annual basis as part of the integrated monitoring compliance report as well as in the semi-annual basis data report submittal.

10.2 Watershed Report *Permit MRP §XVII.A (LA/LB)*

The participating agencies will submit biennial watershed reports as required by the MS4 Permit to the Regional Water Board Executive Officer. This biennial report, which will be included in the annual report in odd years, will include information related to the following sections:

- Watershed Management Area
- Subwatershed (HUC-12) Description
- Description of the Permittees Drainage Area within the Subwatershed

Per MS4 Permit § XVII.B, the participating agencies may reference the Watershed Management Program (WMP) in the odd-year report, when the required information is already included or addressed in this WMP, to satisfy baseline information requirements.

The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

10.3 TMDL Reporting *Permit MRP §XIX (LA/LB)*

The participating agencies will also submit an annual report to the Regional Water Board Executive Officer regarding progress of TMDL implementation within the watershed.

The TMDLs that will be addressed in the report are:

- Metals and Selenium
- Harbor Toxics

The Regional Board is currently preparing a reporting format. Once available, the reporting form will be incorporated into the WMP as an appendix.

Watershed Management Program Appendix 1

A-1-1 Definitions, Acronyms and Abbreviations

DEFINITIONS, ACRONYMS AND ABBREVIATIONS

The following are definitions for terms in this Watershed Management Program:

Bacteria Total Maximum Daily Load (TMDL) Dry Weather: Defined in the Bacteria TMDLs as those days with less than 0.1 inch of rainfall and those days occurring more than 3 days after a rain.

Bacteria Total Maximum Daily Load (TMDL) Wet Weather: Defined in the Bacteria TMDLs as a day with 0.1 inch or more of rain and 3 days following the rain event.

Baseline Waste Load Allocation: The Waste Load Allocation assigned before reductions are required. The progressive reductions in the Waste Load Allocations are based on a percentage of the Baseline Waste Load Allocation. The Baseline Waste Load Allocation for each jurisdiction was calculated based on the annual average amount of trash discharged to the storm drain system from a representative sampling of land use areas, as determined during the Baseline Monitoring Program.

Basin Plan: The Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

Beneficial Uses: The existing or potential uses of receiving waters as designated by the Regional Board in the Basin Plan.

Best Management Practices (BMPs): BMPs are practices or physical devices or systems designed to prevent or reduce pollutant loading from and or volume of stormwater or nonstormwater discharges to receiving waters.

Commercial Development: Any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities; mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

Commercial Malls: Any development on private land comprised of one or more buildings forming a complex of stores which sells various merchandise, with interconnecting walkways enabling visitors to easily walk from store to store, along with parking area(s). A commercial mall includes, but is not limited to: mini-malls, strip malls, other retail complexes, and enclosed shopping malls or shopping centers.

Daily Generation Rate (DGR): The estimated amount of trash deposited within a representative drainage area during a 24hour period, derived from the amount of trash collected from streets and catch basins in the area over a 30-day period.

Disturbed Area: An area that is altered as a result of clearing, grading, and/or excavation.

Effluent Limitation: Any restriction imposed on quantities, discharge rates, and concentrations of pollutants, which are discharged from point sources to waters of the U.S.

Environmentally Sensitive Areas (ESAs): An area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to stormwater mitigation requirements are: areas designated as Significant Ecological Areas by the County of Los Angeles (Los Angeles County Significant Areas

Study, Los Angeles County Department of Regional Planning (1976) and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Game's Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the Basin Plan as supporting the "Rare, Threatened, or Endangered Species (RARE)" beneficial use; and an area identified by a Permittee as environmentally sensitive.

Estuaries: Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater.

Hillside: Property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

Hydrologic Unit Code (HUC): A standardized watershed classification system in which each hydrologic unit is identified by a unique hydrologic unit code (HUC).

Illicit Connection: Any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

Illicit Discharge: Any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations.

Industrial/Commercial Facility: Any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

Industrial Park: A land development that is set aside for industrial development. Industrial parks are usually located close to transport facilities, especially where more than one transport modalities coincide: highways, railroads, airports, and navigable rivers. It includes office parks, which have offices and light industry.

Institutional Controls: Programmatic control measures that do not require construction or structural modifications to the MS4. Examples include street sweeping, public education, and clean out of catch basins that discharge to storm drains.

Integrated Pest Management (IPM): An ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties.

Low Impact Development (LID): LID consists of building and landscape features designed to retain or filter stormwater runoff.

Low Impact Development (LID) Plan: See "SUSMP" definition.

Maximum Extent Practicable (MEP): The process in choosing effective BMPs and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive.

National Pollutant Discharge Elimination System (NPDES): The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405.

Natural Drainage System: A natural drainage system is a drainage system that has not been improved (e.g., channelized or armored). The clearing or dredging of a natural drainage system does not cause the system to be classified as an improved drainage system.

New Development: Land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

Nonstormwater Discharge: Any discharge into the MS4 or from the MS4 into a receiving water that is not composed entirely of stormwater.

Not Detected (ND): Sample results which are less than the laboratory's minimum detection level.

Nuisance: Anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.; (3) occurs during, or as a result of, the treatment or disposal of wastes.

Receiving Water: A "water of the United States" into which stormwater runoff is or may be discharged.

Receiving Water Limitation: Any applicable numeric or narrative water quality objective or criterion, or limitation to implement the applicable water quality objective or criterion.

Redevelopment: Land-disturbing activity that results in the creation, addition, or replacement of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

Significant Ecological Areas (SEAs): An area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan.

Source Control BMP: Any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution.

SUSMP: The Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP shall address the Planning and Land Development conditions and requirements of the MS4 Permit.

Wet Season: The calendar period beginning October 1 through April 15.

Acronym/Abbreviation	Full Phrase/Definition
µg/L	micrograms per Liter
303(d) List	California's Clean Water Act Section 303(d) List
ASBS	Areas of Special Biological Significance
Basin Plan	Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties
BMP	Best Management Practices
Caltrans Permit	The State Board's Caltrans NPDES Permit, Order No. 2012-0011-DWQ
CASQA	California Stormwater Quality Association
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	The State Board's Construction General Permit Order No. 2009-0009-DWQ, or as amended.
CIMP	The Lower San Gabriel River Watershed Group Coordinated Integrated Monitoring Program.
Cities	The Lower San Gabriel River Watershed Group participating cities, only.
County	The LACFCD and the LA County DPW
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
DC	Development Construction Program
ELRS	Equivalent Load Reduction Strategy
EPA	United States Environmental Protection Agency
GIS	Geographical Information System
gpd	gallons per day
GWMA	Gateway Water Management Authority
HUC	Hydrologic Unit Code
ICF	Industrial/Commercial Facilities Program
ICID	Illicit Connection and Illicit Discharge Elimination Program
IGP	The State Board's Industrial Storm Water General Permit Order No. 2014-0057-DWQ, or as amended.
INI	Initiatives (as defined in the WMP)
IPM	Integrated Pest Management
JSWMP	Jurisdictional Stormwater Management Program
LA	Load Allocations
LA County DPW	Los Angeles County Department of Public Works
LA MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175, only (excluding LB MS4 and Caltrans Permits).
LACFCD	Los Angeles County Flood Control District
LB MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2014-0024, only (excluding LA MS4 and Caltrans Permits).
LID	Low Impact Development
LID Plan	Low Impact Development Plan

Acronym/Abbreviation	Full Phrase/Definition
Lower SGR Watershed	Lower San Gabriel River Watershed
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
mg/L	milligrams per Liter
MGD	Million Gallons Per Day
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
MS4 Permit	The Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175 and Order No. R4-2014-0024.
NAICS	North American Industry Classification System
NPDES	National Pollutant Discharge Elimination System
NSWD	Nonstormwater Discharge
Ocean Plan	Water Quality Control Plan for Ocean Waters of California
PAA	Public Agency Activities Program
Participating Agencies	The Lower San Gabriel River Watershed Group participating agencies, excluding Caltrans.
PEP	Progressive Enforcement Policy
Permittees	The County of Los Angeles and 85 cities within the coastal watersheds of Los Angeles County
PIP	Public Information and Participation Program
PLD	Planning and Land Development Program
PMP	Pollutant Minimization Plan
POTW	Publicly Owned Treatment Works
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
RAA	Reasonable Assurance Analysis
RAP	Reasonable Assurance Program
REAP	Rain Event Action Plan
Regional Board	California Regional Water Quality Control Board, Los Angeles Region
RP	Responsible Party
SEA	Significant Ecological Area
SIC	Standard Industrial Classification
SMARTS	State Water Resources Control Board’s Storm Water Multiple Application and Report Tracking System
SQMP	Stormwater Quality Management Programs
SSO	Sewer Leaks, sanitary sewer overflow
State Board	California State Water Resources Control Board
State Listing Policy	State Board’s Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List

Acronym/Abbreviation	Full Phrase/Definition
SUSMP	Standard Urban Stormwater Mitigation Plan
SWPPP	Stormwater Pollution Prevention Plan
SWQDv	Stormwater Quality Design Volume
TAC	Technical Advisory Committee
TCM	Targeted Control Measure
TMDL	Total Maximum Daily Load
TRA	Training
TSS	Total Suspended Solids
WAG	Watershed Authority Group
WDID	Waste Discharge Identification
WLA	Waste Load Allocations
WMP	The Lower San Gabriel River Watershed Group Watershed Management Program
WQBEL	Water Quality Based Effluent Limitations
WQO	Water Quality Objective
WQP	Water Quality Priority
WRP	Water Reclamation Plant

Watershed Management Program Appendix 2

A-2-1 2010 303(d) List

REGION/REGION NAME	WATER BODY NAME	POLLUTANT	POLLUTANT CATEGORY	POTENTIAL SOURCES	SOURCE CATEGORY
Regional Board 4 - Los Angeles Region	Coyote Creek	Ammonia	Nutrients	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	Coyote Creek	Copper, Dissolved	Metals/Metalloids	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Diazinon	Pesticides	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek	Lead	Metals/Metalloids	Major Municipal Point Source-wet weather discharge	Municipal Wastewater
Regional Board 4 - Los Angeles Region	Coyote Creek	Toxicity	Toxicity	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	Coyote Creek	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek, North Fork	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	Coyote Creek, North Fork	Selenium	Metals/Metalloids	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 1 (Estuary to Firestone)	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 1 (Estuary to Firestone)	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Cyanide	Other Inorganics	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Lead	Metals/Metalloids	Nonpoint Source	Unspecified Nonpoint Source
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Lead	Metals/Metalloids	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Gabriel River Reach 3 (Whittier Narrows to Ramona)	Indicator Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Ammonia	Nutrients	Nonpoint Source	Unspecified Nonpoint Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Ammonia	Nutrients	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Coliform Bacteria	Pathogens	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Total Dissolved Solids	Salinity	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Toxicity	Toxicity	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 1 (SG Confluence to Temple St.)	pH	Miscellaneous	Source Unknown	Source Unknown
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Coliform Bacteria	Pathogens	Point Source	Unspecified Point Source
Regional Board 4 - Los Angeles Region	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Coliform Bacteria	Pathogens	Nonpoint Source	Unspecified Nonpoint Source

Watershed Management Program Appendix 2

A-2-2 Mass Emission Station Monitoring Results

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	2.6	0	1	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.126	0	0.018	0	0	0.019
pH	Comp	SM4500H B	0-14		7.82	7.06	8.03	7.02	8.75	8.65
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	5.5	8.2	8.58	9.38	9.18	9.61
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20	MPN/100ml	300000	500000	800000	500000	8000	3500
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	300000	300000	9000	300000	1700	70
Ratio Fecal Coliform/Total Coliform					1.0	0.6	0.011	0.6	0.21	0.02
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	800000	110000	170000	130000	800	800
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	800000	50000	170000	130000	800	800
General										
Chloride	Comp	EPA300.0	2	mg/L	29.5	9.13	78	14.8	88	87
Fluoride	Comp	EPA300.0	0.1	mg/L	0.36	0.14	0.54	0.1	0.46	1
Nitrate	Comp	EPA300.0	0.1	mg/L	7.32	1.61	8.31	2.89	2.28	8.9
Sulfate	Comp	EPA300.0	0.1	mg/L	44.5	10.4	114	22.1	125	129
Alkalinity	Comp	EPA310.1	4	mg/L	69	43	137.5	27.5	155	220
Hardness	Comp	EPA130.2	2	mg/L	130	60	180	45.6	195	340
COD	9i	EPA410.4	10	mg/L	96.1	24.4	148	24	28	87.6
TPH	Grab	EPA418.1	1	mg/L	1.4	1	2.8	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	522	160.8	792	171.1	831	2020
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	370	114	522	112	518	1250
Turbidity	Comp	EPA180.1	0.1	NTU	48	54.5	45.1	67.4	0.73	1.98
Total Suspended Solids	Comp	EPA160.2	2	mg/L	648	351	204	181	63	12
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	123	68	14.8	2.4	15	9
MBAS	Comp	EPA425.1	0.05	mg/L	0.27	0.053	0.151	0	0	0.062
Total Organic Carbon	Comp	EPA415.1	1	mg/L	29.3	7.81	17.9	4.27	5.35	10.1
BOD	Comp	SM5210B	2	mg/L	52.1	9.4	12.1	6.03	6.62	42.4
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.442	0.096	0.441	0.242	0	0
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.46	0.155	0.524	0.259	0	0
NH3-N	Comp	EPA350.3	0.1	mg/L	2.51	0.158	2.11	0	0	0.298
Nitrate-N	Comp	SM4110B	0.5	mg/L	1.65	0.364	1.87	0.6525	0.515	2.01
Nitrite-N	Comp	SM4110B	0.03	mg/L	1.01	0.198	1.42	0	0	0.365
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	3.36	0.558	6.84	1.16	0.82	1.87
Metals										
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	1118	0	0	134	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	2.99	0.83	1.22	0	0.64	0.68
Total Antimony	Comp	EPA200.8	5	ug/l	3.56	0.87	1.27	0	0.64	0.7
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	2.48	0	2.28	0	6.19	2.27
Total Arsenic	Comp	EPA200.8	5	ug/l	3.01	1.42	2.43	1.19	6.19	3.46
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	0.97	0	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	3.15	1.16	4.11	3.37	2.06	1.02
Total Chromium	Comp	EPA200.8	5	ug/l	8.49	11.7	4.55	9.25	12.5	2.6
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	11.7	4.21	4.83	4.76	3.98	6.9
Total Copper	Comp	EPA200.8	5	ug/l	45.9	9.91	17.9	12.1	9.94	10.1

RB-AR15733

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Dissolved Iron	Comp	EPA200.8	100	ug/l	0	109	163	213	0	0
Total Iron	Comp	EPA200.8	100	ug/l	1420	225	209	581	203	145
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.62	0.58	0	0	0
Total Lead	Comp	EPA200.8	5	ug/l	20.9	1.44	1.27	2.05	1.25	0.54
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	14.2	2.25	7.65	2.68	2.29	3.37
Total Nickel	Comp	EPA200.8	5	ug/l	17	15.5	9.57	6.01	18.9	4.3
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.37	0	0	0	1.92	0
Total Selenium	Comp	EPA200.8	5	ug/l	2.37	0	0	0	1.92	0
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50	ug/l	84.5	32	52	6	9.32	53
Total Zinc	Comp	EPA200.8	50	ug/l	219	52	61	41	11.6	84
Semi-Volatiles Organics (EPA 625)										
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dichloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dimethylpheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dinitropheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-chloro_3_methylpheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Pentachloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0

RB-AR15734

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0.31	0	0.085	0.07	0	0.038

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzec
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	0	12.9	0	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.029	0.005	0.047	0	0	0.019
pH	Comp	SM4500H B	0-14		8.26	7.24	7.79	7.4	8.32	
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	7.1	8.4	9.39	8.26	8	8.9
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20	MPN/100ml	300000	300000	240000	500000	17000	50000
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	50000	300000	17000	220000	500	50000
Ratio Fecal Coliform/Total Coliform					0.17	1.0	0.071	0.44	0.029	1.0
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	24000	300000	130000	500000	230	1700
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	3000	300000	130000	500000	80	1300
General										
Chloride	Comp	EPA300.0	2	mg/L	74	25.4	20.6	23.2	167	93.2
Fluoride	Comp	EPA300.0	0.1	mg/L	0.35	0.19	0.13	0.19	0.23	0.21
Nitrate	Comp	EPA300.0	0.1	mg/L	2.5	6.63	3.87	3.88	34.9	30.9
Sulfate	Comp	EPA300.0	0.1	mg/L	102	38.3	21.9	36.1	150	117
Alkalinity	Comp	EPA310.1	4	mg/L	69	64	55	60.5	107	
Hardness	Comp	EPA130.2	2	mg/L	210	108	80	103	270	250
COD	9i	EPA410.4	10	mg/L	83.7	41.4	121	36	37.5	66.6
TPH	Grab	EPA418.1	1	mg/L	0	1	1.1	1	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	732	313	229	281	1215	1012
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	464	206	152	190	806	636
Turbidity	Comp	EPA180.1	0.1	NTU	143	963	46	457.5	0.13	9.8
Total Suspended Solids	Comp	EPA160.2	2	mg/L	630	1258	543	794	5	28
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	437	63	48.1	7	3	8
MBAS	Comp	EPA425.1	0.05	mg/L	0.209	0	0	0	0.085	0.088
Total Organic Carbon	Comp	EPA415.1	1	mg/L	10.2	6.44	6.75	6.77	7.77	7.95
BOD	Comp	SM5210B	2	mg/L	21.46	21.3	11.9	6.46	69.9	50.6
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.343	0.195	0.218	0.347	0.362	
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.356	0.713	0.236	0.349	0.411	
NH3-N	Comp	EPA350.3	0.1	mg/L	0.466	0	0	0	0.314	
Nitrate-N	Comp	SM4110B	0.5	mg/L	0.565	1.5	0.87	0.876	7.88	9.4
Nitrite-N	Comp	SM4110B	0.03	mg/L	0	0	0	0	5.81	0
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	3.58	0.372	2.44	7.64	0.314	
Metals										
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0	
Total Aluminum	Comp	EPA200.8	100	ug/l	2780	158	100	122	0	
Dissolved Antimony	Comp	EPA200.8	5	ug/l	1.68	0.98	0.78	0.51	0.55	
Total Antimony	Comp	EPA200.8	5	ug/l	3.87	1.02	0.81	0.58	0.58	
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	0	3.15	1.3	1.94	1.05	
Total Arsenic	Comp	EPA200.8	5	ug/l	4.49	6.1	1.39	2.18	1.05	
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Cadmium	Comp	EPA200.8	1	ug/l	2.15	0	0	0	0	
Dissolved Chromium	Comp	EPA200.8	5	ug/l	0	0.97	1.88	6.18	3.54	
Total Chromium	Comp	EPA200.8	5	ug/l	17.5	12.5	4.36	10.1	12.3	
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	8.98	4.23	6.01	5.82	4.39	
Total Copper	Comp	EPA200.8	5	ug/l	81.4	10.5	11.9	13.1	18.1	

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WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Dissolved Iron	Comp	EPA200.8	100	ug/l	221	220	311	953	0	
Total Iron	Comp	EPA200.8	100	ug/l	3680	540	431	1730	207	
Dissolved Lead	Comp	EPA200.8	5	ug/l	0.67	1.21	1.55	0	0	
Total Lead	Comp	EPA200.8	5	ug/l	56	2.52	2.16	5.39	1.38	
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	9.92	2.9	3.22	4.29	7.46	
Total Nickel	Comp	EPA200.8	5	ug/l	21.1	15.9	5.76	8.22	23.5	
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.61	0	0	0	1.95	
Total Selenium	Comp	EPA200.8	5	ug/l	3.86	0	0	0	1.95	
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0	
Total Silver	Comp	EPA200.8	1	ug/l	0.43	0	0	0	0	
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0	
Dissolved Zinc	Comp	EPA200.8	50	ug/l	23.8	26	22	4	36.4	
Total Zinc	Comp	EPA200.8	50	ug/l	440	74	41	48	36.4	
Semi-Volatiles Organics (EPA 625)										
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dichloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dimethylpheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
2,4-dinitropheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
4-chloro_3_methylpheno	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Pentachloropheno	Comp	EPA625	2	ug/l	0	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE	Sample Type	EPA Method	PQL	Units	11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0	0
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0.34	0	0.41	0.035	0	0.047

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WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0203-01	0203-02	0203-03	0203-05	0203-01	0203-02
DATE					11/08/2002	12/16/2002	02/11/2003	03/15/2003	10/10/2002	04/30/2003
	Sample Type	EPA Method	PQL	Units						
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0	
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0	

Note:
1) blank cell indicates sample was not analyzec
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
Conventional									
Oil and Grease	Grab	EPA413.1	1	mg/L	0	0	0	0	0
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.02	0	0.017	0.007	0.01
pH	Comp	SM4500H B	0-14		7.5	6.89	6.89	7.39	8.16
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	3.02	8.12	11.28	6.6	17.1
Indicator Bacteria									
Total Coliform	Grab	SM9230B	20	MPN/100ml	50000	170000	24000	80000	2400
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	3000	110000	3000	1700	2400
Ratio Fecal Coliform/Total Coliform					0.06	0.65	0.13	0.02	1.00
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	24000	110000	17000	1100	900
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	24000	80000	13000	1100	260
General									
Chloride	Comp	EPA300.0	2	mg/L	64.3	15.1	32.4	219	103
Fluoride	Comp	EPA300.0	0.1	mg/L	0.29	0.16	0.15	0.63	0.54
Nitrate	Comp	EPA300.0	0.1	mg/L	0	6.63	12.3	0.96	17.5
Sulfate	Comp	EPA300.0	0.1	mg/L	78.8	24	53	317	158
Alkalinity	Comp	EPA310.1	4	mg/L	157.3	77	78	217	237
Hardness	Comp	EPA130.2	2	mg/L	225	92.8	112	325	395
COD	9i	EPA410.4	10	mg/L	279.1	30	38.6	70.8	125
TPH	Grab	EPA418.1	1	mg/L	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	649	277	374	1735	1767
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	408	192	250	1000	1100
Turbidity	Comp	EPA180.1	0.1	NTU	16.3	60	1.02	1.15	0.7
Total Suspended Solids	Comp	EPA160.2	2	mg/L	2061	336	102	445	9
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	394	88	25	77	7
MBAS	Comp	EPA425.1	0.05	mg/L	0.466	0.113	0.181	0.058	0
Total Organic Carbon	Comp	EPA415.1	1	mg/L	69.5	10	10.1	10.9	6.63
BOD	Comp	SM5210B	2	mg/L	119	20.3	17.3	4.31	14.4
Nutrients									
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.763	0.32	0.26	0.10	0.00
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.844	0.36	0.30	0.13	0.00
NH3-N	Comp	EPA350.3	0.1	mg/L	4.64	0.00	0.00	0.14	0.19
Nitrate-N	Comp	SM4110B	0.5	mg/L	0	1.50	2.78	0.22	3.95
Nitrite-N	Comp	SM4110B	0.03	mg/L	0.18	0.07	0.13	0.69	1.11
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	7	1.73	2.28	2.34	1.16
Metals									
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	5856	112	130	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	2.63	1.58	1.88	1.39	0.65
Total Antimony	Comp	EPA200.8	5	ug/l	4.75	1.63	2.02	1.39	0.65
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	3.44	1.91	1.78	3.94	2.85
Total Arsenic	Comp	EPA200.8	5	ug/l	7.17	1.96	1.78	3.94	3.71
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	2.46	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	5.96	1.52	3.1	7.7	4.78
Total Chromium	Comp	EPA200.8	5	ug/l	19	5.78	6.26	19.2	6.66
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	5.56	7.4	11	8.56	6.35
Total Copper	Comp	EPA200.8	5	ug/l	97.5	21.6	17.6	16.6	8.58
Dissolved Iron	Comp	EPA200.8	100	ug/l	316	0	0	0	0
Total Iron	Comp	EPA200.8	100	ug/l	20100	294	318	157	0
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.96	1.5	0	0
Total Lead	Comp	EPA200.8	5	ug/l	73.1	1.85	2.25	0.81	0.82
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0.236	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	15.1	3.94	4.53	6.62	5.3
Total Nickel	Comp	EPA200.8	5	ug/l	38	6.12	6.47	6.62	7.26
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.36	0	0	4.6	4.55
Total Selenium	Comp	EPA200.8	5	ug/l	2.85	0	0	4.6	5.64
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	1.2	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
Dissolved Zinc	Comp	EPA200.8	50	ug/l	6.9	40	65	17.1	13
Total Zinc	Comp	EPA200.8	50	ug/l	530	52	90	17.1	50
Semi-Volatiles Organics (EPA 625)									
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-chloro_3_methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	0	0	0	0
Base/Neutral									
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	48.4	0	40.7	31.5	5.2
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0.7	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	6.4	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	6.6	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Chlorinated Pesticides									
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	1/13/2004
	Sample Type	EPA Method	PQL	Units					
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0
Polychlorinated Biphenyls									
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Organohosphate Pesticides									
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0	0	0.104	0.181	0
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0
Herbicides									
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
Conventional									
Oil and Grease	Grab	EPA413.1	1	mg/L	0	0	0	0	3.3
Total Phenols	Grab	EPA420.1	0.1	mg/L	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0.012	0.022	0.015	0.023	0
pH	Comp	SM4500H B	0-14		8.17	7.68	7.64	7.49	7.92
Dissolved Oxygen	Grab	SM4500O G	1	mg/L	9.56	9.02	10.68	8.52	10.38
Indicator Bacteria									
Total Coliform	Grab	SM9230B	20	MPN/100ml	30000	170000	3000	30000	13000
Fecal Coliform	Grab	SM9230B	20	MPN/100ml	500	130000.00	270	110.00	500.00
Ratio Fecal Coliform/Total Coliform					0.02	0.76	0.09	0.00	0.04
Fecal Streptococcus	Grab	SM9230B	20	MPN/100ml	1300	22000	1300	700	300
Fecal Enterococcus	Grab	SM9230B		MPN/100ml	1300	17000	800	700	170
General									
Chloride	Comp	EPA300.0	2	mg/L	153	123	132	147	111
Fluoride	Comp	EPA300.0	0.1	mg/L	0.32	0.17	0.17	0.23	0.11
Nitrate	Comp	EPA300.0	0.1	mg/L	24.6	32.4	36.3	31.5	10.3
Sulfate	Comp	EPA300.0	0.1	mg/L	191	186	174	132	121
Alkalinity	Comp	EPA310.1	4	mg/L	140.8	169	152	112	107
Hardness	Comp	EPA130.2	2	mg/L	260	320	305	210	195
COD	9i	EPA410.4	10	mg/L	103.5	45.3	44.5	40.7	31.7
TPH	Grab	EPA418.1	1	mg/L	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1	umhos/cm	1116	1167	1107	1008	733
Total Dissolved Solids	Comp	EPA160.1	2	mg/L	706	716	682	594	450
Turbidity	Comp	EPA180.1	0.1	NTU	0.55	30	1.16	0.5	0.2
Total Suspended Solids	Comp	EPA160.2	2	mg/L	10	29	80	6	23
Volatile Suspended Solids	Comp	EPA160.4	1	mg/L	4	10	14	2	11
MBAS	Comp	EPA425.1	0.05	mg/L	0.061	0.052	0.07	0.054	0.05
Total Organic Carbon	Comp	EPA415.1	1	mg/L	8.69	5.49	5.81	6.75	5.42
BOD	Comp	SM5210B	2	mg/L	16.7	5.87	14.8	3.4	3.93
Nutrients									
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.09	0.54	0.35	0.13	0.09
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.11	0.65	0.38	0.14	0.11
NH3-N	Comp	EPA350.3	0.1	mg/L	0.00	0.00	0.00	0.00	0.00
Nitrate-N	Comp	SM4110B	0.5	mg/L	5.55	7.32	8.20	7.11	2.33
Nitrite-N	Comp	SM4110B	0.03	mg/L	0.76	0.48	0.44	1.93	0.37
Kjeldahl-N	Comp	EPA351.4	0.1	mg/L	0.95	1.71	0.77	0.64	0.17
Metals									
Dissolved Aluminum	Comp	EPA200.8	100	ug/l	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100	ug/l	198	258	178	0	0
Dissolved Antimony	Comp	EPA200.8	5	ug/l	0.529	0	0.6	0	0
Total Antimony	Comp	EPA200.8	5	ug/l	0.529	0	0.74	0	0.88
Dissolved Arsenic	Comp	EPA200.8	5	ug/l	0	1.52	1.44	1.01	1.67
Total Arsenic	Comp	EPA200.8	5	ug/l	1.05	1.58	1.55	1.01	1.88
Dissolved Berylium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5	ug/l	0.807	1.19	3.81	5.93	0
Total Chromium	Comp	EPA200.8	5	ug/l	0.807	4.76	4.74	14.6	0.86
Dissolved Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10	ug/l	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5	ug/l	2.21	4.3	5.95	4.96	4.86
Total Copper	Comp	EPA200.8	5	ug/l	12.5	16	10.5	13.9	10.7
Dissolved Iron	Comp	EPA200.8	100	ug/l	0	115	102	0	0
Total Iron	Comp	EPA200.8	100	ug/l	160	423	320	150	0
Dissolved Lead	Comp	EPA200.8	5	ug/l	0	0.92	1.46	0	0
Total Lead	Comp	EPA200.8	5	ug/l	3.34	1.72	2.14	1.04	0.72
Dissolved Mercury	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1	ug/l	0	0	0.234	0	0
Dissolved Nickel	Comp	EPA200.8	5	ug/l	3.7	4.97	5.62	4.61	3.47
Total Nickel	Comp	EPA200.8	5	ug/l	7.52	6.36	6.66	5.37	3.62
Dissolved Selenium	Comp	EPA200.8	5	ug/l	2.52	2.3	2.18	1.55	1.54
Total Selenium	Comp	EPA200.8	5	ug/l	2.69	2.39	2.58	1.55	1.65
Dissolved Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Total Silver	Comp	EPA200.8	1	ug/l	0	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5	ug/l	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50	ug/l	26.9	46	42	36.8	13
Total Zinc	Comp	EPA200.8	50	ug/l	64.5	61	67	36.8	33

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
Semi-Volatiles Organics (EPA 625)									
2- Chlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2	ug/l	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3	ug/l	0	0	0	0	0
4-chloro_3_methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2	ug/l	0	0	0	0	0
Phenol	Comp	EPA625	1	ug/l	0	0	0	0	0
2,4,6-trichlophenol	Comp	EPA625	1	ug/l	0	2.9	2.1	0	0
Base/Neutral									
Acenaphthene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Benzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroethoxy) methane	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Chloroisopropyl) ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Bis(2-Chloroethyl) ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Bis(2-Ethylhexl) phthalate	Comp	EPA625	1	ug/l	42.4	43.4	19.8	18.7	0
4-Bromophenyl phenyl ether	Comp	EPA625	1	ug/l	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.3	ug/l	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Chrysene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3	ug/l	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.5	ug/l	9.5	1.7	1.9	0	0
Dimethyl phthalate	Comp	EPA625	0.5	ug/l	1	0	0	3.1	0
di-n-Butyl phthalate	Comp	EPA625	1	ug/l	0	0	0	7.2	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3	ug/l	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3	ug/l	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1	ug/l	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Fluorene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1	ug/l	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3	ug/l	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1	ug/l	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.3	ug/l	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/l	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.5	ug/l	0	0	0	0	0
Chlorinated Pesticides									
Aldrin	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-BHC (lindane)	Comp	EPA625	0.05	ug/l	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
gamma-chlordane	Comp	EPA625	0.05	ug/l	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.1	ug/l	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Dieldrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0

WEATHER CONDITION					Wet			Dry	
STATION NO.					S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0304-01	0304-02	0304-03	0304-01	0304-02
DATE					10/31/2003	12/25/2003	1/1/2004	10/28/2003	37999
	Sample Type	EPA Method	PQL	Units					
alpha-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
beta-Endosulfan	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.1	ug/l	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/l	0	0	0	0	0
Toxaphene	Comp	EPA625	1	ug/l	0	0	0	0	0
Polychlorinated Biphenyls									
Aroclor-1016	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.5	ug/l	0	0	0	0	0
Organohosphate Pesticides									
Chlorpyrifos	Comp	EPA507	0.05	ug/l	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/l	0	0	0	0	0
Prometryn	Comp	EPA507	2	ug/l	0	0	0	0	0
Atrazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Simazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Cyanazine	Comp	EPA507	2	ug/l	0	0	0	0	0
Malathion	Comp	EPA507	2	ug/l	0	0	0	0	0
Herbicides									
Glyphosate	Comp	EPA547	25	ug/l	0	0	0	0	0
2,4-D	Comp	EPA515.3	10	ug/l	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1	ug/l	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection leve
3) PQL = minimum level
4) Highlighted cells show exceedances

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
General Chemistry												
Cyanide	0.01	mg/L	0.004				0.010	0.000	0.000	0.000	0.008	0.013
pH	mg/L			6.5<pH<8.5			7.04	7.42	7.29	7.52	8.18	8.04
TPH	1						0.00	0.00	0.00	0.00	0.00	0.00
Oil and Grease	1	mg/L	75				0.00	0.00	0.00	0.00	0.00	0.00
Total Phenols	0.1	mg/L					0.00	9.10	0.00	0.00	0.00	0.00
Dissolved Oxygen	1	mg/L		<5			8.40		8.91	10.40	11.72	7.30
Calcium	1	mg/L					56.90	35.30	29.70	32.10	80.00	84.20
Magnesium	1	mg/L					16.00	10.20	13.60	10.70	34.00	29.20
Potassium	1	mg/L					9.95	5.10	4.47	3.75	12.50	11.70
Sodium	1	mg/L					34.40	25.70	42.30	23.00	118.00	110.00
Bicarbonate	2	mg/L					168.00	87.20	89.90		0.00	
Carbonate	2	mg/L					0.00	0.00	0.00	0.00	0.00	0.00
Chloride	2	mg/L		150			52.50	33.90	59.20	25.10	134.0	220.0
Fluoride	0.1	mg/L		2.2			0.36	0.18	0.13	0.18	0.40	0.26
Sulfate	0.1	mg/L		350			95.50	58.70	66.30	37.90	196.00	198.00
Alkalinity	0.1	mg/L					138.00	71.50	73.70	77.00	178.00	165.00
Hardness	2	mg/L					208	130	130	124	340	330
COD	10	mg/L					102.70	14.90	45.90	45.16	85.70	57.40
Specific Conductance	1	umhos/cm					598	391	451	337	1107	1072
Total Dissolved Solids	2	mg/L		1500			352	214	254	200	748	738
Turbidity	0.1	NTU	225				87.60	20.70	0.53	107.00	4.23	3.41
Total Suspended Solids	2	mg/L					723	48	18	1246	34	47
Volatile Suspended Solids	1	mg/L					140	11	6	69	15	10
MBAS	0.05	mg/L					0.31	0.07	0.00	0.00	0.06	0.06
Total Organic Carbon	1	mg/L					41.79	8.18	4.80	8.28	5.16	5.59
BOD	2	mg/L					59.70	6.79	4.58	3.30	21.00	30.60
Nutrients												
Dissolved Phosphorus	0.05	mg/L					0.27	0.19	0.10	0.10	0.00	0.00
Total Phosphorus	0.05	mg/L					0.62	0.30	0.15	0.77	0.11	0.12
Ammonia	0.1	mg/L					4.99	0.00	0.15	0.00	0.25	0.62
NH3-N	0.1	mg/L					4.12	0.00	0.12	0.00	0.21	0.51
Nitrate	0.1	mg/L					5.39	9.10	6.89	5.30	16.50	12.4
Nitrate-N	0.5	mg/L		10			1.22	2.05	1.56	1.20	3.73	2.80
Nitrite-N	0.03	mg/L		1			1.04	0.00	0.04	0.00	0.18	0.34
Kjeldahl-N	0.1	mg/L					15.30	1.49	0.89	1.87	1.37	0.64
Indicator Bacteria												
Total Coliform	20	MPN/100ml		10,000			1,400,000	240,000	240,000	17,000	17,000	9000
Fecal Coliform	20	MPN/100ml		400			140,000	17,000	90,000	2,800	170	40
Fecal Streptococcus	20	MPN/100ml					300,000	90,000	35,000	2,800	40	20
Enterococcus	20	MPN/100ml		104			300,000	90,000	35,000	1,700	40	20
Metals												
Dissolved Aluminum	100	ug/l					0.00	0.00	0.00	1215.00	0.00	0.00
Total Aluminum	100	ug/l		1000			260	776	1,240	16,100	175	0
Dissolved Antimony	5	ug/l					2.17	0.64	0.58	0.68	0.00	0.50
Total Antimony	5	ug/l		6			2.26	0.83	0.60	1.12	0.00	0.51
Dissolved Arsenic	5	ug/l					2.20	1.50	2.10	2.91	1.35	2.00
Total Arsenic	5	ug/l	32	50			2.34	1.73	2.54	6.74	1.75	2.27
Dissolved Barium	10	ug/l					36.70	29.10	32.70	95.50	51.40	50.30
Total Barium	10	ug/l					49.70	32.10	63.10	257.00	51.60	51.00
Dissolved Berylium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Beryllium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Boron	100	ug/l					530	150	108	137	348	351
Total Boron	100	ug/l					710	940	126	152	674	378
Dissolved Cadmium	1	ug/l			2.7-4.0	5.4-9.4	0.00	0.00	0.00	0.33	0.00	0.00
Total Cadmium	1	ug/l			2.9-4.4	5.8-10.3	0.00	0.00	0.00	0.82	0.00	0.00
Dissolved Chromium	5	ug/l			78.0-9119.2	680.3-999.7	1.26	1.08	1.74	0.70	0.56	12.60
Total Chromium	5	ug/l		50	246.9-377.1	2071.1-3163.5	1.87	2.68	4.91	19.20	1.42	18.80

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
Dissolved Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Copper	5	ug/l			10.8-16.8	16.4-26.8	6.16	5.36	3.57	10.20	4.59	3.59
Total Copper	5	ug/l	12		11.2-17.4	17.1-27.9	22.50	12.70	32.20	37.90	9.05	11.00
Dissolved Iron	100	ug/l					203	0	0	849	0	0
Total Iron	100	ug/l					896	1,340	1,950	15,050	104	119
Dissolved Lead	5	ug/l			3.2-5.5	81.6-141.9	0.00	0.00	0.00	11.40	0.00	0.00
Total Lead	5	ug/l	8		4.2-8.1	107.4-207.4	3.78	4.42	9.05	37.50	1.17	1.07
Dissolved Manganese	30	ug/l					0.00	0.00	0.00	79.40	0.00	0.00
Total Manganese	30	ug/l					165.00	32.40	48.30	648.00	0.00	52.10
Dissolved Mercury	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Mercury	1	ug/l	0.16	2			0.25	0.00	0.00	0.00	0.00	0.00
Dissolved Nickel	5	ug/l			65.0-96.7	561.7-870.1	9.43	3.50	2.18	2.71	5.32	5.13
Total Nickel	5	ug/l	20	100	65.1-96.9	562.8-871.8	11.30	4.99	6.66	18.30	5.36	5.82
Dissolved Selenium	5	ug/l					1.79	0.00	1.03	0.00	2.56	3.58
Total Selenium	5	ug/l	60	50			2.02	0.00	1.06	0.00	3.58	3.71
Dissolved Silver	1	ug/l				5.0-12.2	0.00	0.00	0.00	0.00	0.00	0.00
Total Silver	1	ug/l	80			5.9-14.3	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Zinc	50	ug/l			140.6-218.0	140.6-218.0	32.20	10.30	15.90	17.70	22.80	9.49
Total Zinc	50	ug/l			143.8-222.9	143.8-222.9	49.60	24.60	69.30	90.70	33.40	21.80
Semi-Volatiles												
Acenaphthylene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Acetophenone	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Antracene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aminobiphenyl	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzidine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(k)flouranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)pyrene	0.1	ug/l		0.2			0.00	0.00	0.00	0.00	0.00	0.00
Butyl benzyl phthalate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-chloroethyl)ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Chloroethoxy) methane	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Ethylhexl) phthalate	1	ug/l					0.00	0.00	0.00	0.00	26.70	0.00
Bis(2-chlorisopropyl) ether	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Bromophenyl phenyl ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chloroaniline	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Chlorophenyl phenyl ether	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chrysene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
7,12-Dimethyl-benz(a)-anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
alpha,alpha-Dimethylphenethylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenz(a,j)acridine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenzo(a,h)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,3-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.05	ug/l		5			0.00	0.00	0.00	0.00	0.00	0.00
3,3-Dichlorobenzidine	0.05	ug/l		600			0.00	0.00	0.00	0.00	0.00	0.00
Diethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
di-n-Butyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Diphenylamine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diphenylhydrazine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
di-n-Octyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Ethyl methanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin ketone	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluorene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.5	ug/l		1			0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobutadiene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachloro-cyclopentadiene	3	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Hexachloroethane	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Isophorone	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylcholanthrene	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylmethanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Naphthalene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
3-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Nitrobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-butyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-dimethyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-diphenyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-di-n-propyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitrosopiperidine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenacetin	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenanthrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Picoline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pronamide	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pyrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4,5-Tetra-chlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trichlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzoic acid	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro-3-methylphenol	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro_3_methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2- Chlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dimethylphenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dinitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,6 Dinitro-2-methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Metholphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,3,4,6-Tetrachlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-Trichlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,6-trichlophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
PCBs												
Aroclor-1016	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1221	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1232	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1242	0.5	ug/l		0.03	0.014		0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1248	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1254	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1260	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-1. Water Quality Results for Constituents Measured at the San Gabriel River Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	3/17/2005	6/21/2005
Pesticides												
Aldrin	0.05	ug/l				3	0.00	0.00	0.00	0.00	0.00	0.00
alpha-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
beta-BHC	0.05	ug/l	0.008				0.00	0.00	0.00	0.00	0.00	0.00
delta-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
gamma-BHC (lindane)	0.05	ug/l		0.2		0.95	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane	0.05	ug/l			0.0043	2.4	0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDD	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDE	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDT	0.1	ug/l			0.001	1.1	0.00	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.1	ug/l			0.056	0.24	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 1	0.1	ug/l			0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 2	0.1	ug/l	0.018		0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan sulfate	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin	0.1	ug/l	0.004	2	0.036	0.086	0.00	0.00	0.00	0.00	0.00	0.00
Endrin aldehyde	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor Epoxide	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Methoxychlor	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Toxaphene	1	ug/l		3	0.0002	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Diazinon	0.01	ug/l		0.08			0.096	0.100	0.051	0.00	0.00	0.00
Chlorpyrifos	0.05	ug/l		0.07			0.00	0.00	0.00	0.00	0.00	0.00
Diuron	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Malathion	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Prometryn	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Simazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Atrazine	2	ug/l		3			0.00	0.00	0.00	0.00	0.00	0.00
Cyanazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Molinate	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Thiobencarb	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Herbicides												
Carbofuran	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP-Silvex	10	ug/l		70			0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP	1	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Bentazon	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Glyphosate	25	ug/l		700			0.00	0.00	0.00	0.00	0.00	0.00

[1] CTR values for metals are hardness dependent; higher hardness gives higher WQO

[2] Values of 0 represent that the constituent was not detected above the PQL as defined in the Municipal Stormwater Permit. Results are presented in accordance with Method B of the permit

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
General Chemistry												
Cyanide	0.01	mg/L	0.004				0.005	1.300	0.007	0.000	0.015	0.009
pH	mg/L			6.5<pH<8.5			7.18	6.61	6.79	6.94	8.18	8.30
TPH	1						0.00	0.00	0.00	0.00	0.00	0.00
Oil and Grease	1	mg/L	75				0.00	0.00	0.00	0.00	0.00	0.00
Total Phenols	0.1	mg/L					0.00	9.66	0.00	0.00	0.00	0.00
Dissolved Oxygen	1	mg/L		<5			6.83		9.30	9.20	15.19	10.90
Calcium	1	mg/L					56.10	12.00	29.70	12.80	96.20	120.00
Magnesium	1	mg/L					14.60	4.86	8.75	7.78	41.30	53.50
Potassium	1	mg/L					7.47	2.69	3.67	2.07	7.47	11.40
Sodium	1	mg/L					55.20	16.50	28.10	20.90	156.00	265.00
Bicarbonate	2	mg/L					195.00	40.30	84.50		326.00	0.00
Carbonate	2	mg/L					0.00	0.00	0.00	0.00	0.00	0.00
Chloride	2	mg/L		150			58.70	14.50	28.70	17.10	175.00	228.00
Fluoride	0.1	mg/L		2.2			0.37	0.11	0.16	0.00	0.69	0.90
Sulfate	0.1	mg/L		350			96.30	16.80	44.70	23.70	293.00	492.00
Alkalinity	0.1	mg/L					160.00	33.00	69.30	40.70	267.00	283.00
Hardness	2	mg/L					200	50	110	64	410	520
COD	10	mg/L					117.90	11.30	79.70	18.72	27.40	88.40
Specific Conductance	1	umhos/cm					607	149	349	199	1545	1,923
Total Dissolved Solids	2	mg/L		1500			364	94	192	122	966	1,354
Turbidity	0.1	NTU	225				64.90	8.43	1.38	8.67	0.81	1.24
Total Suspended Solids	2	mg/L					1312	196	105	88	74	33
Volatile Suspended Solids	1	mg/L					233	58	38	3	20	9
MBAS	0.05	mg/L					0.29	0.13	0.07	0.00	0.00	0.00
Total Organic Carbon	1	mg/L					38.20	10.07	8.70	7.45	7.22	5.59
BOD	2	mg/L					59.80	12.80	14.40	5.18	32.90	8.85
Nutrients												
Dissolved Phosphorus	0.05	mg/L					0.11	0.19	0.17	0.12	0.09	0.00
Total Phosphorus	0.05	mg/L					0.38	0.26	0.29	0.25	0.13	0.00
Ammonia	0.1	mg/L					2.83	0.00	0.64	0.16	0.76	0.14
NH3-N	0.1	mg/L					2.34	0.00	0.53	0.13	0.63	0.11
Nitrate	0.1	mg/L					1.96	4.28	4.28	4.67	13.10	23.05
Nitrate-N	0.5	mg/L		10			0.44	0.97	0.97	0.15	2.96	5.21
Nitrite-N	0.03	mg/L		1			0.68	0.00	0.17	0.07	0.36	0.17
Kjeldahl-N	0.1	mg/L					12.20	2.24	2.24	1.31	1.29	0.99
Indicator Bacteria												
Total Coliform	20	MPN/100ml		10,000			900,000	1,600,000	500,000	500,000	30,000	9,000
Fecal Coliform	20	MPN/100ml		400			110,000	30,000	300,000	14,000	11,000	800
Fecal Streptococcus	20	MPN/100ml					900,000	900,000	170,000	50,000	1,700	130
Enterococcus	20	MPN/100ml		104			900,000	300,000	170,000	22,000	1,700	130
Metals												
Dissolved Aluminum	100	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Aluminum	100	ug/l		1000			170	1,061	1,560	1,360	0	148
Dissolved Antimony	5	ug/l					2.47	0.64	1.64	0.80	0.00	0.00
Total Antimony	5	ug/l		6			2.57	1.25	2.36	1.24	0.00	0.00
Dissolved Arsenic	5	ug/l					2.74	1.37	1.66	1.13	1.70	3.58
Total Arsenic	5	ug/l	32	50			2.87	1.39	2.16	1.48	1.70	4.02
Dissolved Barium	10	ug/l					44.00	19.40	26.00	17.70	40.10	71.10
Total Barium	10	ug/l					62.90	32.90	63.10	40.90	40.10	72.20
Dissolved Berylium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Beryllium	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Boron	100	ug/l					330	0	0	0	447	508
Total Boron	100	ug/l					680	960	0	0	1,450	662
Dissolved Cadmium	1	ug/l			1.4-6.6	2.0-19.6	0.00	0.00	0.00	0.00	0.00	0.00
Total Cadmium	1	ug/l			1.4-7.5	2.1-22.2	0.00	0.00	0.38	0.28	0.00	0.00
Dissolved Chromium	5	ug/l			37.1-207.7	311.0-1742.8	1.30	0.69	1.48	0.73	0.84	0.98
Total Chromium	5	ug/l		50	117.3-657.4	984.3-5515.0	1.92	3.48	5.35	3.97	0.84	2.69

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
Dissolved Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Chromium +6	10	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Copper	5	ug/l			5.0-29.9	7.0-50.7	7.30	7.02	5.94	6.38	4.38	5.40
Total Copper	5	ug/l	12		5.2-31.2	7.3-52.8	23.30	16.80	44.50	22.50	11.20	11.70
Dissolved Iron	100	ug/l					156	0	0	136	0	0
Total Iron	100	ug/l					698	1,874	2,050	1,355	0	103
Dissolved Lead	5	ug/l			1.2-11	30.1-288.1	0.00	0.00	0.00	1.67	0.00	0.00
Total Lead	5	ug/l	8		1.3-19.2	33.8-492.0	3.24	7.31	14.70	13.50	2.15	1.48
Dissolved Manganese	30	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Manganese	30	ug/l					395.0	40.3	64.2	57.00	0.00	0.00
Dissolved Mercury	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Mercury	1	ug/l	0.16	2			0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Nickel	5	ug/l			29.0-171.8	260.5-1544.8	10.00	3.26	3.07	2.18	3.82	4.22
Total Nickel	5	ug/l	20	100	29.0-172.1	261.0-1547.9	12.20	4.44	8.04	5.35	3.82	4.29
Dissolved Selenium	5	ug/l					1.69	0.00	0.00	0.00	2.94	7.78
Total Selenium	5	ug/l	60	50			1.76	0.00	0.00	0.00	2.94	9.29
Dissolved Silver	1	ug/l				1.1-39.1	0.00	0.00	0.00	0.00	0.00	0.00
Total Silver	1	ug/l	80			1.2-46.0	0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Total Thallium	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dissolved Zinc	50	ug/l			65.1-387.3	65.1-387.3	24.70	36.10	36.60	31.00	11.40	7.60
Total Zinc	50	ug/l			66.6-396.0	66.6-396.0	47.00	65.80	153.00	79.30	24.50	27.60
Semi-Volatiles												
Acenaphthylene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Acetophenone	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Anthracene	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Antracene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aminobiphenyl	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzidine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(k)flouranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)pyrene	0.1	ug/l		0.2			0.00	0.00	0.00	0.00	0.00	0.00
Butyl benzyl phthalate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-chloroethyl)ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Chloroethoxy) methane	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Bis(2-Ethylhexl) phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	14.20
Bis(2-chlorisopropyl) ether	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Bromophenyl phenyl ether	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chloroaniline	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Chloronaphthalene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Chlorophenyl phenyl ether	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Chrysene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
7,12-Dimethyl-benz(a)-anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
alpha,alpha-Dimethylphenethylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenz(a,j)acridine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dibenzo(a,h)anthracene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,3-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.05	ug/l		5			0.00	0.00	0.00	0.00	0.00	0.00
3,3-Dichlorobenzidine	0.05	ug/l		600			0.00	0.00	0.00	0.00	0.00	0.00
Diethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Dimethyl phthalate	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
di-n-Butyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dinitrotoluene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Diphenylamine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diphenylhydrazine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
di-n-Octyl phthalate	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Ethyl methanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin ketone	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluoranthene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Fluorene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobenzene	0.5	ug/l		1			0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorobutadiene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Hexachloro-cyclopentadiene	3	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Hexachloroethane	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Isophorone	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylcholanthrene	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Methylmethanesulfonate	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Naphthalene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Naphthylamine	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
3-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Nitroaniline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Nitrobenzene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-butyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-dimethyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-diphenyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitroso-di-n-propyl amine	0.3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
N-Nitrosopiperidine	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenacetin	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenanthrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Picoline	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pronamide	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pyrene	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4,5-Tetra-chlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trichlorobenzene	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Benzoic acid	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro-3-methylphenol	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-chloro_3_methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2- Chlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,6-Dichlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dimethylphenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4-dinitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,6 Dinitro-2-methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-Methylphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-Metholphenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4-nitrophenol	3	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pentachlorophenol	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Phenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,3,4,6-Tetrachlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-Trichlorophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,6-trichlophenol	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00

Table C-2. Water Quality Results for Constituents Measured at the Coyote Creek Mass Emission Site for the 2004-2005 Monitoring Season.

			Water Quality Objectives				Wet Weather Monitoring[2]				Dry Weather Monitoring[2]	
CONSTITUENT	PQL	UNITS	Ocean Plan	Basin Plan	Freshwater CTR (CCC)[1]	Freshwater CTR (CMC)[1]	10/17/2004	10/26/2004	12/5/2004	1/7/2005	11/16/2004	3/9/2005
PCBs												
Aroclor-1016	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1221	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1232	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1242	0.5	ug/l		0.03	0.014		0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1248	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1254	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Aroclor-1260	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Pesticides												
Aldrin	0.05	ug/l				3	0.00	0.00	0.00	0.00	0.00	0.00
alpha-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
beta-BHC	0.05	ug/l	0.008				0.00	0.00	0.00	0.00	0.00	0.00
delta-BHC	0.05	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
gamma-BHC (lindane)	0.05	ug/l		0.2		0.95	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane	0.05	ug/l			0.0043	2.4	0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDD	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDE	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
4,4'-DDT	0.1	ug/l			0.001	1.1	0.00	0.00	0.00	0.00	0.00	0.00
Dieldrin	0.1	ug/l			0.056	0.24	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 1	0.1	ug/l			0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan 2	0.1	ug/l	0.018		0.056	0.22	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfan sulfate	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Endrin	0.1	ug/l	0.004	2	0.036	0.086	0.00	0.00	0.00	0.00	0.00	0.00
Endrin aldehyde	0.1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Heptachlor Epoxide	0.05	ug/l		0.01	0.0038	0.52	0.00	0.00	0.00	0.00	0.00	0.00
Methoxychlor	0.5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Toxaphene	1	ug/l		3	0.0002	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Diazinon	0.01	ug/l		0.08			0.065	0.060	0.079	0.00	0.00	0.00
Chlorpyrifos	0.05	ug/l		0.07			0.00	0.00	0.00	0.00	0.00	0.00
Diuron	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Malathion	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Prometryn	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Simazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Atrazine	2	ug/l		3			0.00	0.00	0.00	0.00	0.00	0.00
Cyanazine	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Molinate	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Thiobencarb	1	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Herbicides												
Carbofuran	5	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP-Silvex	10	ug/l		70			0.00	0.00	0.00	0.00	0.00	0.00
2,4,5-TP	1	ug/l		50			0.00	0.00	0.00	0.00	0.00	0.00
Bentazon	2	ug/l					0.00	0.00	0.00	0.00	0.00	0.00
Glyphosate	25	ug/l		700			0.00	0.00	0.00	0.00	0.00	0.00

[1] CTR values for metals are hardness dependent; higher hardness gives higher WQO

[2] Values of 0 represent that the constituent was not detected above the PQL as defined in the Municipal Stormwater Permit. Results are presented in accordance with Method B of the permit

RB-AR15754

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	1.10	0	0	0	0	0	0
Total Phenols	Grab	EPA420.1	0.10	mg/L	0	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0	0	0.01	0.014	0.01	0.018	0.016
pH	Comp	SM4500H B	0-14		7.72	7.63	7.71	8.05	7.26	8.10	8.22
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	6.05	8.16	8.57	12.26	10.97	13.90	14.38
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	50,000,000	900,000	1,600,000	22,000	160,000	22,000	17,000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	16,000,000	300,000	22,000	2,400	50,000	3,000	800
Ratio Fecal Coliform/Total Coliform					0.32	0.33	0.01	0.11	0.31	0.14	0.05
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300,000	90,000	90,000	170	17,000	3,000	130
Enterococcus	Grab	SM9230B		MPN/100ml	300,000	90,000	90,000	170	8,000	3,000	130
General											
Chloride	Comp	EPA300.0	2.00	mg/L	70.30	75.20	53.80	210.00	13.70	202.00	196.00
Fluoride	Comp	EPA300.0	0.10	mg/L	0.4	0.34	0.29	0.67	0	0.7	0.75
Nitrate	Comp	EPA300.0	0.10	mg/L	15.5	7.74	9.41	17.5	2.21	17.7	9.57
Sulfate	Comp	EPA300.0	0.10	mg/L	135.40	137.00	95.90	309.00	25.00	367.00	350.00
Alkalinity	Comp	EPA310.1	4.00	mg/L	150.7	104.5	104.5	201	41.8	247.5	220
Hardness	Comp	EPA130.2	2.00	mg/L	210	180	170	380	88	420	370
COD	Comp	EPA410.4	10.00	mg/L	148	76.547	75.64	72	0	65.2	145.3
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.0	0	0	0	0	0	0
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	858	712	566	2020	208	1589	2050
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	576.00	434.00	350.00	1112.00	118.00	1044.00	1340.00
Turbidity	Comp	EPA180.1	0.10	NTU	2.10	2.51	2.23	0.79	8.94	1.47	0.84
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	967	302	259	3	368	11	5
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	139	63	80	1	72	5	1
MBAS	Comp	EPA425.1	0.05	mg/L	0.6822	0.126	0.261	0.05	0.154	0.066	0.087
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	36.8	9.21	17.2	6.28	4.12	4.5	7.83
BOD	Comp	SM5210B	2.00	mg/L	29.1	13.4	28.1	9.86	10.4	8.95	8.81
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	0	0	0	0	0	0	0
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0552	0.116	0.112	0	0.122	0	0
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.1367	0.201	0.398	0	0.73	0	0
NH3-N	Comp	EPA350.3	0.10	mg/L	1.22	0.21162	0.524	0.11	0.33	0	0.15
Nitrate - N	Comp	SM4110B	0.50	mg/L	3.50	1.75	2.125	3.952	0.499	3.997	2.16
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.00	0.155	0.268	0	0.0396	0.00	0.4534
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	10.9	1.208	2.425	1.48	4.24	0.825	0.92
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2,490	615	214	0	15,000	0	104
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.56	0.5	1.65	0.51	0.82	0	0.76
Total Antimony	Comp	EPA200.8	5.00	ug/L	3.89	1.11	2.23	0.63	2.05	0.70	0.77
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	3.15	0	1.63	2.66	1.14	1.74	3.19
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.92	1.91	2.19	3.3	3.67	3.77	4.42
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	48.60	15.60	26.80	38.00	20.60	28.50	41.50
Total Barium	Comp	EPA200.8	10.00	ug/L	152.00	29.70	31.80	38.40	155.00	48.40	44.90
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.80	0.00	0	0	1.29	0	0
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.72	0.71	2.83	3.63	1.34	1.42	6.79
Total Chromium	Comp	EPA200.8	5.00	ug/L	8.37	2.84	2.86	4.1	19.5	6.41	7.31
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	10.70	6.79	12.50	5.31	4.25	6.00	5.72
Total Copper	Comp	EPA200.8	5.00	ug/L	63.20	7.52	13.70	16.7	56.9	9.13	18.8
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	339	0	0	0	0	0	0
Total Iron	Comp	EPA200.8	100.00	ug/L	4540	123	331	0	12980	0	172
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.64	0	0	0	0.77	0.5	0
Total Lead	Comp	EPA200.8	5.00	ug/L	23.30	0.95	1.87	0.77	54	0.52	0.78
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	10.00	1.84	4.37	3.58	2.84	2.09	4.91
Total Nickel	Comp	EPA200.8	5.00	ug/L	20.30	4.11	5.77	3.73	21.9	3.63	22.1
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	2.46	0	1.84	4.36	0	3.5	5.4
Total Selenium	Comp	EPA200.8	5.00	ug/L	2.83	1.96	2.15	5.99	0	6.50	7.57
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1.00	ug/L	0.26	0	0	0	0.28	0	0
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	35.00	11.90	46.00	17.5	17.6	26.10	9.09
Total Zinc	Comp	EPA200.8	50.00	ug/L	342.00	35.60	75.00	17.9	242	48.90	18.8
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
Phenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units							
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Benzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	0	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0.36
Naphthalene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0	0
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/L							
gamma-chlordane	Comp	EPA625	0.05	ug/L							
Chlordane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0	0
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0	0

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-04	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	03/03/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units							
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	0	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/L	0	0	0	0	0	0	0
Prometryn	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Atrazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Simazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Malathion	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0	0
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	0	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10.00	ug/L	0	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	0	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	0	1.10	0	0	0	0
Total Phenols	Grab	EPA420.1	0.10	mg/L	0	0	0	0	0	0
Cyanide	Grab	EPA335.2	0.01	mg/L	0	0	0.012	0	0.017	0
pH	Comp	SM4500H B	0-14		8.21	7.48	7.99	7.99	7.79	7.9
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	7.12	8.31	10.2	11.00	9.49	8.40
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	90,000,000	240,000	16,000	3,000	3,000	9,000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	16,000,000	240,000	800	300	3,000	130
Ratio Fecal Coliform/Total Coliform					0.18	1.00	0.05	0.10	1.00	0.01
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	240,000	90,000	700	80	1,300	210
Enterococcus	Grab	SM9230B		MPN/100ml	240,000	90,000	700	80	1,300	210
General										
Chloride	Comp	EPA300.0	2.00	mg/L	73.10	37.50	134.00	80.40	119.00	100.00
Fluoride	Comp	EPA300.0	0.10	mg/L	0.18	0.18	0.18	0.14	0.17	0.28
Nitrate	Comp	EPA300.0	0.10	mg/L	11.5	5.49	9.09	7.07	8.85	3.74
Sulfate	Comp	EPA300.0	0.10	mg/L	153.00	53.20	158.00	98.40	155.00	179.00
Alkalinity	Comp	EPA310.1	4.00	mg/L	132	69.3	145.2	122	129.8	193
Hardness	Comp	EPA130.2	2.00	mg/L	250	112.5	255	220	250	345
COD	Comp	EPA410.4	10.00	mg/L	73	37.3814	39.94	49.9	53.4	10.6
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	0	1.6	0	0	0	0
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	863	379	974	871	944	1197
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	578.00	222.00	584.00	474.00	582.00	666.00
Turbidity	Comp	EPA180.1	0.10	NTU	1.32	8.07	0.59	1.33	1.25	0.68
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	517	933	11	9	31	9
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	60	109	3	5	8	6
MBAS	Comp	EPA425.1	0.05	mg/L	0.1919	0.106	0	0.065	0.061	0
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	8.57	12.47	5.08	4.99	4.63	2.76
BOD	Comp	SM5210B	2.00	mg/L	6.04	39.7	8.56	7.6	21.1	4.63
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	0	0	0	0	0	0
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0794	0.139	0.064	0.078	0.058	0.097
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.0992	0.266	0.088	0.095	0.103	0.157
NH3-N	Comp	EPA350.3	0.10	mg/L	0.665	0.21162	0.322	0.54	0.589	0.12
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.60	1.24	2.053	1.596	1.998	0.845
Nitrite - N	Comp	SM4110B	0.03	mg/L	0	0.207	0	0	0.377	0
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	5.44	0.9982	0.871	2.72	1.448	0.44
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2,140	575	112	174	0	262
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	0.93	0	0	0	0	0
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.41	0.88	0.00	0	0.00	0
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.65	0	1.21	1.24	1.2	2.56
Total Arsenic	Comp	EPA200.8	5.00	ug/L	2.79	1.36	1.80	1.51	1.82	3.18
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	46.00	12.30	43.10	50.40	39.2	71.20
Total Barium	Comp	EPA200.8	10.00	ug/L	100.00	29.60	55.00	51.40	54.0	82.70
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.51	0.00	0	0	0	0
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.87	0.00	4.37	2.47	1.19	4.75
Total Chromium	Comp	EPA200.8	5.00	ug/L	6.82	1.92	5.26	3.04	3.88	4.79
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0	0	0	0	0	0
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	3.49	3.04	3.55	3.69	4.67	2.6
Total Copper	Comp	EPA200.8	5.00	ug/L	34.50	6.79	6.83	10.6	5.31	17.6
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	0	0	0	0	0	0
Total Iron	Comp	EPA200.8	100.00	ug/L	4290	232	138	287	112	469
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.00	0	0	0	0.71	0
Total Lead	Comp	EPA200.8	5.00	ug/L	14.20	1.01	0.77	1.4	0.94	1.12
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Mercury	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	5.54	1.50	3.68	3.51	3.31	6.04
Total Nickel	Comp	EPA200.8	5.00	ug/L	12.10	3.54	4.51	4.56	4.62	21
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.97	0	1.95	0	2.31	1.42
Total Selenium	Comp	EPA200.8	5.00	ug/L	2.12	0.00	2.57	1.49	2.71	2
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	0	0	0	0	0	0
Total Silver	Comp	EPA200.8	1.00	ug/L	0.00	0.00	0	0	0	0
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0
Total Thallium	Comp	EPA200.8	5.00	ug/L	0	0	0	0	0	0
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	24.00	9.84	19.00	17.1	29.10	4.16
Total Zinc	Comp	EPA200.8	50.00	ug/L	175.00	32.80	36.00	23.3	55.60	19.8
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
2-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
4-nitrophenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Pentachlorophenol	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
Phenol	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	0	0	22.8	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Acenaphthylene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Anthracene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Benzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	0	0	0	0	0	0
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	0	0	0	0	0	0
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Chrysene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Diethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Fluoranthene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Fluorene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	0	0	0	0	0	0
Hexachloroethane	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Isophorone	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Naphthalene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Nitrobenzene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	0	0	0	0	0	0
Phenanthrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Pyrene	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	0	0	0	0	0	0
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
alpha-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
beta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
delta-BHC	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
alpha-chlordane	Comp	EPA625	0.05	ug/L						
gamma-chlordane	Comp	EPA625	0.05	ug/L						
Chlordane	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDD	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDE	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
4,4'-DDT	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Dieldrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endrin	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Endrin aldehyde	Comp	EPA625	0.10	ug/L	0	0	0	0	0	0
Heptachlor	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	0	0	0	0	0	0
Toxaphene	Comp	EPA625	1.00	ug/L	0	0	0	0	0	0
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1221	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1232	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1242	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1248	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1254	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0
Aroclor-1260	Comp	EPA608	0.50	ug/L	0	0	0	0	0	0

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT NO.					0506-01	0506-02	0506-03	0506-03	0506-01	0506-02
DATE					10/17/2005	12/31/2005	01/14/2006	02/17/2006	01/24/2006	04/25/2006
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	0	0	0	0	0	0
Diazinon	Comp	EPA507	0.01	ug/L	0	0.03	0	0	0	0
Prometryn	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Atrazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Simazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Cyanazine	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Malathion	Comp	EPA507	2.00	ug/L	0	0	0	0	0	0
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	0	0	0	0	0	0
2,4-D	Comp	EPA515.3	10.00	ug/L	0	0	0	0	0	0
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	0	0	0	0	0	0

Note:
1) blank cell indicates sample was not analyzed
2) 0 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	1.400		-99	1.300	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.010	0.005	0.010	0.007
pH	Comp	SM4500H B	0-14		7.540	7.680	7.680	7.670	8.110	8.130
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	8.180		8.790	7.880	16.650	14.900
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	170,000.000		300,000.000	170,000.000	20.000	5,000.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	170,000.000		9,000.000	17,000.000	20.000	1,300.000
Ratio Fecal Coliform/Total Coliform					1.000		0.030	0.100	1.000	0.260
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	170,000.000		14,000.000	30,000.000	20.000	40.000
Enterococcus	Grab	SM9230B		MPN/100ml	110,000.000		14,000.000	24,000.000	20.000	40.000
General										
Chloride	Comp	EPA300.0	2.00	mg/L	85.500	45.400	42.700	52.100	176.000	23.400
Fluoride	Comp	EPA300.0	0.10	mg/L	0.390	0.299	0.289	0.345	0.650	0.967
Nitrate	Comp	EPA300.0	0.10	mg/L	15.400	-99	-99	-99	12.800	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	135.000	76.700	59.200	85.300	292.000	399.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	151.800	133.100	91.300	100.100	258.500	201.300
Hardness	Comp	EPA130.2	2.00	mg/L	250.000	190.000	140.000	180.000	380.000	350.000
COD	Comp	EPA410.4	10.00	mg/L	139.000	58.680	77.550	51.100	58.070	21.059
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.500		-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	965.000	532.000	472.000	612.000	1820.000	2200.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	604.000	310.000	278.000	252.000	1008.000	1264.000
Turbidity	Comp	EPA180.1	0.10	NTU	4.900	1.760	1.560	1.260	2.680	0.410
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	216.000	382.000	75.000	88.000	8.000	6.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	54.000	85.000	25.000	33.000	6.000	2.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.264	0.124	0.161	0.121	-99	0.059
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	30.500	11.100	17.900	14.700	4.430	7.850
BOD	Comp	SM5210B	2.00	mg/L	13.700	12.800	29.700	17.900	22.900	19.000
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.220	0.120	0.169	0.135	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.604	1.160	0.353	0.359	-99	0.050
NH3-N	Comp	EPA350.3	0.10	mg/L	0.800	0.220	0.420	0.230	-99	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	3.480	-99	-99	-99	2.710	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.155	-99	-99	-99	0.216	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	3.280	3.940	2.960	2.380	0.840	1.240
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	2370.000	1820.000	1530.000	2170.000	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.160	1.490	2.230	2.280	0.570	0.770
Total Antimony	Comp	EPA200.8	5.00	ug/L	3.500	2.850	3.440	3.720	0.690	0.810
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.930	3.010	2.220	1.880	3.860	3.510
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.120	6.980	3.380	2.620	4.040	4.320
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	47.000	28.100	30.600	32.500	61.700	40.900
Total Barium	Comp	EPA200.8	10.00	ug/L	121.000	132.000	63.800	68.000	67.400	43.700
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.690	0.610	0.250	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	2.560	1.790	3.070	1.700	5.500	3.660
Total Chromium	Comp	EPA200.8	5.00	ug/L	7.490	11.500	5.750	5.080	5.810	3.720
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	1.060	1.600	0.880	0.300	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	1.060	1.600	0.880	0.300	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	11.500	7.950	13.300	11.000	4.200	7.080
Total Copper	Comp	EPA200.8	5.00	ug/L	66.600	73.200	50.300	45.500	28.300	28.700
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	71.000	272.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	3830.000	5490.000	1040.000	1900.000	184.000	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.620	1.100	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	19.000	21.400	10.300	10.400	0.830	0.810
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	7.650	3.940	4.950	5.060	4.290	4.010
Total Nickel	Comp	EPA200.8	5.00	ug/L	16.200	13.700	8.720	9.460	6.520	4.640
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.540	4.020	1.300	1.310	8.160	5.130
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.950	4.290	1.650	1.580	8.590	5.570
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.300	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	71.700	27.800	39.600	31.900	9.210	12.100
Total Zinc	Comp	EPA200.8	50.00	ug/L	208.000	216.000	123.000	120.000	15.900	33.500
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	0.147
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99
Other										
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.970	0.270	0.510	0.280	0.100	0.110
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Conventional										
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		1.000	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.009		0.027	-99	-99	0.020
pH	Comp	SM4500H B	0-14		7.340	7.380	7.810	7.830	8.050	7.860
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	8.480		9.090	8.810	9.640	9.300
Indicator Bacteria										
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	240,000.000		160,000.000	30,000.000	17,000.000	9,000.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	14,000.000		1,300.000	2,200.000	2,100.000	230.000
Ratio Fecal Coliform/Total Coliform					0.058		0.008	0.073	0.124	0.026
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	11,000.000		1,100.000	800.000	230.000	170.000
Enterococcus	Grab	SM9230B		MPN/100ml	11,000.000		1,100.000	800.000	230.000	170.000
General										
Chloride	Comp	EPA300.0	2.00	mg/L	86.600	51.900	93.300	50.000	101.000	92.500
Fluoride	Comp	EPA300.0	0.10	mg/L	0.210	0.227	0.288	0.256	0.260	0.233
Nitrate	Comp	EPA300.0	0.10	mg/L	10.900	-99	-99	-99	3.930	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	91.900	60.400	116.000	50.400	174.000	109.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	111.100	69.300	117.700	111.100	171.600	113.300
Hardness	Comp	EPA130.2	2.00	mg/L	210.000	150.000	200.000	180.000	310.000	220.000
COD	Comp	EPA410.4	10.00	mg/L	189.000	104.980	55.730	41.730	38.780	51.827
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	828.000	562.000	872.000	792.000	1090.000	892.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	498.000	308.000	488.000	414.000	618.000	476.000
Turbidity	Comp	EPA180.1	0.10	NTU	5.930	12.800	0.930	1.680	2.450	0.620
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	264.000	6.000	21.000	29.000	291.000	9.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	52.000	2.000	6.000	2.000	54.000	7.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.187	-99	0.076	0.060	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	34.900	8.380	8.880	6.450	2.930	3.920
BOD	Comp	SM5210B	2.00	mg/L	21.400	20.600	80.800	11.700	8.990	4.560
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99
Nutrients										
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.135	0.189	0.123	0.092	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.513	0.826	0.176	0.138	0.770	0.110
NH3-N	Comp	EPA350.3	0.10	mg/L	1.240	0.560	-99	-99	0.170	0.240
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.460	-99	-99	-99	0.887	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.190	0.133	0.111	0.050	-99	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	3.840	2.460	1.700	1.040	2.460	1.100
Metals										
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	3450.000	2430.000	920.000	1110.000	296.000	121.000
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.120	0.970	0.810	0.840	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.900	1.490	1.140	1.060	-99	-99
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.540	2.120	1.440	1.330	2.710	1.540
Total Arsenic	Comp	EPA200.8	5.00	ug/L	2.720	2.620	1.890	1.550	3.020	1.860
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	44.500	31.200	44.200	46.500	70.100	55.500
Total Barium	Comp	EPA200.8	10.00	ug/L	107.000	65.000	61.800	65.800	74.100	61.000
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.440	-99	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.550	-99	1.310	1.060	3.840	2.100
Total Chromium	Comp	EPA200.8	5.00	ug/L	7.800	3.930	1.690	2.320	6.890	2.740
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	6.490	4.720	6.390	4.740	2.890	3.090
Total Copper	Comp	EPA200.8	5.00	ug/L	43.200	32.700	21.100	24.500	32.500	23.800
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	125.000	340.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	5130.000	2600.000	696.000	727.000	808.000	153.000
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.030	1.170	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	15.300	8.230	3.410	3.070	2.880	1.070
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	5.850	3.220	6.080	4.100	4.960	3.300
Total Nickel	Comp	EPA200.8	5.00	ug/L	12.600	6.750	8.120	6.330	5.120	4.050
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	2.420	3.560	1.560	1.090	4.720	1.320
Total Selenium	Comp	EPA200.8	5.00	ug/L	3.270	3.760	1.970	1.110	5.220	1.510
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	35.800	20.600	18.400	9.350	7.620	11.000
Total Zinc	Comp	EPA200.8	50.00	ug/L	138.000	67.200	36.200	26.300	29.800	20.700
Semi-Volatiles Organics (EPA 625)										
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Base/Neutral										
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides										
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls										
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet				Dry	
STATION NO.					S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event02	2006-07Event12
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	11/01/2006	04/02/2007
	Sample Type	EPA Method	PQL	Units						
Organohosphate Pesticides										
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99
Herbicides										
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99
Other										
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	1.500	0.090	-99	-99	0.210	0.290
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	1.700		-99	-99	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		-99	-99	-99	-99	-99
pH	Comp	SM4500H B	0-14		7.380	7.980	7.610	8.010	7.380	8.490	7.730
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	7.890		11.600	10.370	11.800	12.200	13.400
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	24,000.000		35,000.000	50,000.000	30,000.000	1,300.000	2,400.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	9,000.000		3,000.000	1,700.000	9,000.000	800.000	130.000
Ratio Fecal Coliform/Total Coliform					0.375		0.086	0.034	0.300	0.615	0.054
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	90,000.000		13,000.000	9,000.000	14,000.000	230.000	40.000
Enterococcus	Grab	SM9230B		MPN/100ml	90,000.000		13,000.000	9,000.000	14,000.000	230.000	20.000
General											
Chloride	Comp	EPA300.0	2.00	mg/L	29.000	16.800	47.300	74.900	39.700	61.400	87.000
Fluoride	Comp	EPA300.0	0.10	mg/L	0.200	0.177	0.216	0.328	0.243	0.160	0.240
Nitrate	Comp	EPA300.0	0.10	mg/L	11.200	-99	-99	-99	-99	2.340	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	60.200	29.800	91.800	115.000	77.700	114.000	155.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	83.600	99.000	116.600	132.000	80.300	101.200	114.400
Hardness	Comp	EPA130.2	2.00	mg/L	180.000	130.000	220.000	250.000	220.000	205.000	250.000
COD	Comp	EPA410.4	10.00	mg/L	97.400	28.950	55.890	42.410	37.390	29.310	6.461
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.800		-99	-99	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	426.000	269.000	627.000	868.000	482.000	690.000	936.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	254.000	150.000	332.000	466.000	298.000	384.000	536.000
Turbidity	Comp	EPA180.1	0.10	NTU	8.680	9.310	1.310	1.540	2.740	1.060	0.630
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	694.000	564.000	934.000	40.000	24.000	69.000	183.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	164.000	152.000	280.000	4.000	6.000	21.000	50.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.222	0.100	0.084	0.068	0.078	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	29.100	10.700	7.930	6.910	9.050	3.510	4.950
BOD	Comp	SM5210B	2.00	mg/L	17.700	11.200	21.600	11.800	7.370	3.340	5.910
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.229	0.163	0.052	-99	-99	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.499	1.070	0.192	0.078	-99	0.180	0.050
NH_3-N	Comp	EPA350.3	0.10	mg/L	0.530	0.200	-99	-99	0.100	0.260	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.530	-99	-99	-99	-99	0.528	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.125	-99	-99	-99	-99	-99	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	4.180	3.920	4.960	1.300	1.140	1.140	1.440
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	7140.000	4720.000	11100.000	1060.000	410.000	286.000	917.000
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.170	1.070	0.930	0.780	0.900	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	2.870	3.040	4.440	1.180	1.170	-99	0.530
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.030	1.830	1.280	1.270	1.100	2.540	1.800
Total Arsenic	Comp	EPA200.8	5.00	ug/L	6.370	3.760	7.560	1.590	1.290	2.880	1.820
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	28.600	21.300	33.800	45.600	20.800	60.600	76.400
Total Barium	Comp	EPA200.8	10.00	ug/L	203.000	145.000	206.000	65.500	30.900	66.500	93.800
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	2.830	0.970	3.030	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.100	0.520	1.590	1.370	1.260	2.110	1.790
Total Chromium	Comp	EPA200.8	5.00	ug/L	20.600	11.700	21.100	1.910	1.520	2.510	3.130
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	-99	0.250	0.300	0.370	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.310	-99	0.250	0.300	0.370	-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	8.620	4.470	4.040	5.230	5.910	2.310	2.920
Total Copper	Comp	EPA200.8	5.00	ug/L	128.000	67.600	90.400	20.000	16.700	20.800	25.300
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	334.000	277.000	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	12400.000	6660.000	12500.000	618.000	341.000	151.000	635.000
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.700	0.980	-99	-99	0.510	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	50.500	33.700	52.200	3.700	2.480	0.690	4.880
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	0.400	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	4.540	2.310	3.720	3.070	2.430	2.190	2.540
Total Nickel	Comp	EPA200.8	5.00	ug/L	25.500	13.800	26.400	4.910	3.990	2.850	4.760
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.040	3.690	1.140	2.070	-99	5.020	1.510
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.510	3.820	2.660	2.310	-99	5.740	1.710
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.330	0.440	0.400	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	45.500	24.200	62.200	39.900	20.000	5.290	9.340
Total Zinc	Comp	EPA200.8	50.00	ug/L	442.000	361.000	1380.000	93.000	41.900	16.400	140.000
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.640	0.240	-99	-99	0.120	0.320	0.100
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	-99	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.009	-99	-99	0.013	0.021
pH	Comp	SM4500H B	0-14		7.400	7.800	7.840	7.750	7.840	8.350	8.030
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	9.150		10.100	8.570	10.700	16.720	17.000
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	28,000.000		300,000.000	160,000.000	24,000.000	11,000.000	1,700.000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	14,000.000		16,000.000	17,000.000	16,000.000	800.000	70.000
Ratio Fecal Coliform/Total Coliform					0.500		0.053	0.106	0.667	0.073	0.041
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	130,000.000		50,000.000	160,000.000	30,000.000	800.000	20.000
Enterococcus	Grab	SM9230B		MPN/100ml	130,000.000		24,000.000	160,000.000	17,000.000	230.000	(99.000)
General											
Chloride	Comp	EPA300.0	2.00	mg/L	42.700	70.600	66.400	46.900	55.800	170.000	167.000
Fluoride	Comp	EPA300.0	0.10	mg/L	0.190	0.277	0.318	0.276	0.232	0.320	0.330
Nitrate	Comp	EPA300.0	0.10	mg/L	12.300	-99	-99	-99	-99	20.300	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	79.200	148.000	110.000	71.200	99.900	295.000	278.000
Alkalinity	Comp	EPA310.1	4.00	mg/L	99.000	115.500	110.000	83.600	113.300	200.200	179.300
Hardness	Comp	EPA130.2	2.00	mg/L	190.000	230.000	230.000	150.000	210.000	440.000	430.000
COD	Comp	EPA410.4	10.00	mg/L	435.000	152.440	76.320	43.040	65.300	57.460	18.684
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.800		-99	-99	1.000	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	540.000	760.000	744.000	514.000	699.000	1775.000	1778.000
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	318.000	448.000	438.000	290.000	416.000	1046.000	940.000
Turbidity	Comp	EPA180.1	0.10	NTU	4.270	5.330	2.560	2.140	1.490	1.130	0.870
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	886.000	215.000	95.000	29.000	97.000	11.000	14.000
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	240.000	68.000	29.000	5.000	31.000	6.000	6.000
MBAS	Comp	EPA425.1	0.05	mg/L	0.338	0.117	0.137	0.137	0.168	-99	-99
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	37.100	19.100	18.700	10.900	14.100	5.420	6.780
BOD	Comp	SM5210B	2.00	mg/L	23.300	21.300	19.800	43.900	26.500	21.700	60.800
Methyl Tertiary Butyl Ether (MTBE	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.270	0.260	0.157	0.117	0.182	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.822	0.633	0.228	0.158	0.586	0.069	-99
NH_3-N	Comp	EPA350.3	0.10	mg/L	0.710	0.210	-99	-99	0.590	0.130	0.140
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.780	-99	-99	-99	-99	4.584	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.253	0.050	-99	0.053	-99	0.332	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	5.300	3.960	4.100	1.660	3.540	0.940	0.960
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	3360.000	4350.000	1430.000	1120.000	2140.000	143.000	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.630	2.110	3.010	2.290	1.990	0.650	0.640
Total Antimony	Comp	EPA200.8	5.00	ug/L	5.870	3.010	3.980	2.870	3.680	0.780	0.740
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.260	3.300	2.870	1.890	1.810	3.550	2.080
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.910	4.260	3.340	2.180	2.610	3.830	3.020
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	40.800	41.300	43.700	24.600	32.400	49.400	43.100
Total Barium	Comp	EPA200.8	10.00	ug/L	195.000	94.300	71.700	37.100	74.400	50.800	44.500
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	1.930	0.740	0.340	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.650	1.810	3.930	2.060	2.500	4.610	2.590
Total Chromium	Comp	EPA200.8	5.00	ug/L	15.200	6.050	4.610	3.040	6.340	5.170	2.750
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.470	1.410	1.240	1.270	0.650	0.350
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.470	1.410	1.240	1.270	0.650	0.350
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	13.600	18.000	21.100	15.200	11.300	4.950	4.950
Total Copper	Comp	EPA200.8	5.00	ug/L	166.000	66.400	48.000	32.700	48.300	22.700	23.800
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	186.000	1350.000	136.000	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	6080.000	2350.000	1220.000	513.000	1640.000	100.000	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.560	2.880	2.710	-99	-99	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	573.000	13.000	8.230	4.470	14.700	0.710	0.680
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	0.157	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	0.157	-99	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	12.800	6.550	7.200	6.220	4.780	4.450	4.040
Total Nickel	Comp	EPA200.8	5.00	ug/L	32.200	12.700	10.500	8.710	9.600	5.010	4.640
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.170	5.690	3.400	1.590	2.850	10.400	5.600
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.590	5.870	3.770	1.820	3.290	11.100	9.170
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	1.700	-99	0.270	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	68.900	639.000	64.200	23.600	47.200	9.060	-99
Total Zinc	Comp	EPA200.8	50.00	ug/L	435.000	803.000	135.000	58.100	169.000	15.300	22.100
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE	Sample Type	EPA Method	PQL	Units	12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ethe	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ethe	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ethe	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ethe	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ethe	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylpheno	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2006-07Event03	2006-07Event06	2006-07Event07	2006-07Event08	2006-07Event09	2006-07Event01	2006-07Event15
DATE					12/09/2006	02/10/2007	02/19/2007	02/22/2007	02/27/2007	10/31/2006	04/09/2007
	Sample Type	EPA Method	PQL	Units							
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	0.016	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.860	0.250	0.110	-99	0.710	0.160	0.170
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	1.40		-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	0.40		-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.2850		-99	-99		0.01	0.0180
pH	Comp	SM4500H B	0-14		7.50	6.70	6.97	7.03	6.90	8.30	8.25
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	9.66		9.64	9.10		13.33	11.80
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	300		160000	90000		9000	1300
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	300		90000	17000		1300	20
Ratio Fecal Coliform/Total Coliform											
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	130		50000	90000		800	20
Enterococcus	Grab	SM9230B		MPN/100ml	130		50000	90000		500	20
General											
Chloride	Comp	EPA300.0	2.00	mg/L	25	27.40	59	20.80	16	221	180
Fluoride	Comp	EPA300.0	0.10	mg/L	0.3470	0.1280	0.4950	0.2170	0.1830	1.13	0.9420
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	37.90	38.80	109	31.70	26.10	403	316
Alkalinity	Comp	EPA310.1	4.00	mg/L	116.60	50	61	47.30	33	259	220
Hardness	Comp	EPA130.2	2.00	mg/L	110	100	205	85	77	325	330
COD	Comp	EPA410.4	10.00	mg/L	179	45.40	52.60	34.60	39.81	127.70	65.40
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		1.12	2.12		-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	388	346	717	256	219	1831	1585
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	272	202	468	160	130	1278	1050
Turbidity	Comp	EPA180.1	0.10	NTU	3.88	5.50	1.81	2.28	5.65	1.27	0.53
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	1556	223	35	53	84	9	3
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	322	33	3	14	22	3	3
MBAS	Comp	EPA425.1	0.05	mg/L	0.3090	0.17	0.10	0.18	0.20	0.05	0.07
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	25.20	13.10	8.49	6.87	6.26	5.25	5.39
BOD	Comp	SM5210B	2.00	mg/L	57.30	16.70	21.40	18.50	6.90	10.20	12.20
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99		-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.3530	0.2360	0.15	0.23	0.15	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	1.23	0.4990	0.15	0.23	0.17	-99	-99
NH_3-N	Comp	EPA350.3	0.10	mg/L	2.15	0.53	0.7030	0.2370	0.2680	-99	0.2420
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.61	-99	-99	-99	-99	0.03
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	10.12	2.62	6.30	1.73	0.9060	0.63	1.73
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	17400	6220	3430	784	1720	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	2.45	1.66	1.68	1.29	1.33	0.52	0.56
Total Antimony	Comp	EPA200.8	5.00	ug/L	9.25	2.45	3.59	1.40	2.68	0.61	0.64
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2.64	1.96	2.25	1.24	1.40	3.76	3.31
Total Arsenic	Comp	EPA200.8	5.00	ug/L	15.70	2.98	4.64	1.41	2.10	4.09	3.49
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	43.80	29.90	28.70	18.60	16.80	51.40	41.30
Total Barium	Comp	EPA200.8	10.00	ug/L	620	93.80	111	25.90	58.20	52.90	48.10
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0.51	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	4.97	0.52	0.71	-99	0.45	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	1.11	1.56	1.37	1.23	1.17	3.47	7.26
Total Chromium	Comp	EPA200.8	5.00	ug/L	43.30	8.19	7.96	1.98	5.23	3.54	7.31
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.29	-99	-99	-99	-99	0.27
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.29	-99	0.25	0.30	0.34	0.27
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	4.03	6.92	8.22	7.29	6.75	5.03	4.27
Total Copper	Comp	EPA200.8	5.00	ug/L	351	46	54.10	15.50	32.80	9.52	22.90
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	527	-99	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	31800	7380	4760	1140	2730	103	-99
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	2.13	-99	1.52	0.62	0.84	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	147	16.10	25.70	4.73	15.60	0.50	-99
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.1260	-99	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	9.84	4.05	4.46	2.74	2.31	3.58	3.62
Total Nickel	Comp	EPA200.8	5.00	ug/L	58	13.10	12.10	3.56	10.50	4.18	4.29
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.07	-99	-99	-99	-99	6.40	4.77
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.94	-99	-99	-99	-99	6.86	4.92
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	2.50	-99	0.28	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	15.80	20.50	48	41.50	38.90	12.60	16
Total Zinc	Comp	EPA200.8	50.00	ug/L	2010	202	269	75.30	193	28	36.60
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99		-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	2.60	0.64	0.85	0.2870	0.3240	-99	0.2930
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:
1) blank cell indicates DATA is NOT AVAILABLE
2) PQL = minimum level
3) Highlighted cells show exceedances
4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	-99		-99	-99		-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99		-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	-99		0.0054	-99		0.0240	0.0160
pH	Comp	SM4500H B	0-14		7.52		7.58	7.53		8.01	7.98
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	5.66		5.06	9.83		8.28	8.36
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	160000		90000	240000		24000	30000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	500		24000	16000		800	170
Ratio Fecal Coliform/Total Coliform											
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	2400		240000	160000		300	20
Enterococcus	Grab	SM9230B		MPN/100ml	2400		240000	90000		300	20
General											
Chloride	Comp	EPA300.0	2.00	mg/L	68.50		51.80	80.60		116	146.60
Fluoride	Comp	EPA300.0	0.10	mg/L	0.3240		0.3510	0.2890		0.6470	0.3290
Nitrate	Comp	EPA300.0	0.10	mg/L	-99		-99	-99		-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	101		62.20	78.40		118	156
Alkalinity	Comp	EPA310.1	4.00	mg/L	125.40		94	110		143	147.40
Hardness	Comp	EPA130.2	2.00	mg/L	280		160	80		215	270
COD	Comp	EPA410.4	10.00	mg/L	67.70		43.80	51.60		100.90	53.80
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99		1.50	1.12		-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	811		561	693		904	1083
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	558		346	434		572	676
Turbidity	Comp	EPA180.1	0.10	NTU	1.98		2.76	1.89		0.68	0.58
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	226		102	319		37	19
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	43		14	52		6	5
MBAS	Comp	EPA425.1	0.05	mg/L	0.1570		0.09	0.11		0.06	0.16
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	18.20		5.64	4.62		5.42	5.84
BOD	Comp	SM5210B	2.00	mg/L	41.70		15.80	20.70		9.22	17.90
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99		-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.2730		0.24	0.14		0.29	0.07
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.6020		0.34	0.28		0.33	0.11
NH_3-N	Comp	EPA350.3	0.10	mg/L	-99		1.01	-99		0.5130	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99		-99	-99		-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99		0.13	0.05		-99	0.23
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	2.56		1.79	2.08		0.82	1.63
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99		-99	-99		-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	4100		1110	4660		1550	585
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.51		0.94	0.89		0.55	0.54
Total Antimony	Comp	EPA200.8	5.00	ug/L	2.46		1.20	2.10		0.73	0.65
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	2		1.37	1.33		1.29	1.24
Total Arsenic	Comp	EPA200.8	5.00	ug/L	3.88		1.50	2.29		1.33	1.31
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	52.50		26.60	34.90		32.10	49.60
Total Barium	Comp	EPA200.8	10.00	ug/L	171		42.60	88.70		40.20	63.60
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.80		0.29	0.50		-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.60		1.43	1.71		2.16	5.68
Total Chromium	Comp	EPA200.8	5.00	ug/L	11.90		2.78	7.59		2.74	7.36
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99		-99	-99		-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99		-99	0.25		-99	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	7.88		5.45	3.44		4.29	3
Total Copper	Comp	EPA200.8	5.00	ug/L	40.40		15.20	29.90		12.90	23.60
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	-99		-99	-99		-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	8200		3770	4860		4160	1340
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	0.51		1.58	0.55		-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	22.40		7.12	16.10		2.30	2.28
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99		0.17	-99		0.4330	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	6.84		3.69	3.92		3.53	6.77
Total Nickel	Comp	EPA200.8	5.00	ug/L	16		5.49	9.45		4.92	7.89
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	1.43		-99	-99		1.47	1.83
Total Selenium	Comp	EPA200.8	5.00	ug/L	1.83		-99	-99		1.52	1.90
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99		-99	-99		-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	0.25		-99	0.25		-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99		-99	-99		-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99		-99	-99		-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	39.60		34.30	35.40		38	29.80
Total Zinc	Comp	EPA200.8	50.00	ug/L	206		72	133		112	51.30
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99		-99	-99		-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99		-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99		-99	-99		-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99		-99	-99		-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99		-99	-99		-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99		-99	-99		-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99		-99	-99		-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99		-99	-99		-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event27	2007-08Event47
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99		-99	-99		-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99		-99	-99		-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99		-99	-99		-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99		-99	-99		-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99		-99	-99		-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99		-99	-99		-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99		-99	-99		-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	-99		1.22	-99		0.6210	-99
Endrin ketone	Comp	EPA625	0.1	ug/L	-99		-99	-99		-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99		-99	-99		-99	-99

Note:

1) blank cell indicates DATA is NOT AVAILABLE

2) PQL = minimum level

3) Highlighted cells show exceedances

4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	2.6		-99	1	2.6	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.051		0.0054	-99	-99	0.01	-99
pH	Comp	SM4500H B	0-14		7.46	7	7.02	6.76	7.39	7.68	8.14
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	4		6.38	10.56	9.67	16.65	11.33
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	900000		160000	240000	50000	2400	90000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	300000		50000	16000	24000	40	17000
Ratio Fecal Coliform/Total Coliform					0.333		0.313	0.067	0.480	0.017	0.189
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300000		90000	90000	50000	130	140
Enterococcus	Grab	SM9230B		MPN/100ml	300000		90000	50000	50000	130	140
General											
Chloride	Comp	EPA300.0	2.00	mg/L	23.6	30.6	16.4	39.3	39.3	131	154
Fluoride	Comp	EPA300.0	0.10	mg/L	0.353	0.456	0.231	0.186	0.196	0.191	0.37
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	33.2	59.4	26.4	56.5	59.1	200	342
Alkalinity	Comp	EPA310.1	4.00	mg/L	146.3	72	61	46.2	80.3	167	204
Hardness	Comp	EPA130.2	2.00	mg/L	140	160	110	80	152	370	520
COD	Comp	EPA410.4	10.00	mg/L	84.6	40.7	52	39.4	44.98	67.2	487.9
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	2.25		1.75	1.37	4.5	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	435	454	269	257	445	1191	1474
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	268	250	164	152	246	796	1008
Turbidity	Comp	EPA180.1	0.10	NTU	2.7	1.86	2.52	2.68	3.76	1.5	0.68
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	5653	451	728	89	78	11	43
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	762	86	141	23	16	8	4
MBAS	Comp	EPA425.1	0.05	mg/L	0.218	0.14	0.22	0.19	0.18	0.13	0.07
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	30.5	12.1	10.5	6.84	6.23	6.23	5.89
BOD	Comp	SM5210B	2.00	mg/L	9.9	15.9	23.4	14.6	13	50.8	3
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.569	-99	0.22	0.17	0.13	0.21	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	1.22	0.847	0.25	0.21	0.13	0.29	-99
NH3-N	Comp	EPA350.3	0.10	mg/L	4.7	0.82	1.01	0.563	0.26	0.55	0.162
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.47	0.05	-99	-99	0.75	-99
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	30.08	4.56	7.28	1.91	0.942	1.42	1.59
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	24300	3770	4090	551	1130	-99	114
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.35	1.24	1.38	0.87	0.82	-99	-99
Total Antimony	Comp	EPA200.8	5.00	ug/L	4.63	2.38	3.33	1.17	1.47	-99	-99
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	1.62	2.01	1.1	1.1	1.24	1.46	1.54
Total Arsenic	Comp	EPA200.8	5.00	ug/L	10.2	3.37	2.76	1.15	1.5	1.55	1.83
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	38.3	30	24.6	22.2	25	39.6	52.8
Total Barium	Comp	EPA200.8	10.00	ug/L	876	108	133	31.5	44.5	46.1	61.5
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	0.54	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	0.47	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	6.65	0.86	6.59	-99	-99	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.76	1.88	1.72	1.11	1.59	2.38	5.72
Total Chromium	Comp	EPA200.8	5.00	ug/L	47	7.61	17.6	1.84	2.54	2.55	6.65
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.25	-99	-99	-99	-99	0.71
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	0.25	-99	0.45	0.35	0.63	0.71
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	1.9	2.23	6.55	5.63	5.28	3.28	2.18
Total Copper	Comp	EPA200.8	5.00	ug/L	390	48	57.1	13.5	16.9	11.6	16.3
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	349	-99	110	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	43400	4130	7370	711	1370	113	257
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	1.09	-99	1.52	0.77	0.59	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	206	23.3	29	4.77	7.47	1.24	1.02
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.119	0.159	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	6.3	3.73	4.32	2.37	2.53	3.97	5.22
Total Nickel	Comp	EPA200.8	5.00	ug/L	58.2	12.5	19.7	3.3	4.51	4.81	6.42
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	1.04	3.89	4.43
Total Selenium	Comp	EPA200.8	5.00	ug/L	3.33	-99	-99	-99	1.06	4.29	5.17
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	1.4	-99	0.68	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	0.56	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	17	17.3	49.8	46.6	53.3	60	11
Total Zinc	Comp	EPA200.8	50.00	ug/L	2120	409	330	94.8	126	94.2	90
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS15	TS15	TS15	TS15	TS15	TS15	TS15
STATION NAME					Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek	Upper San Jose Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	0.017
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	5.69	0.99	1.22	0.681	0.315	0.67	0.196
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:

1) blank cell indicates DATA is NOT AVAILABLE

2) PQL = minimum level

3) Highlighted cells show exceedances

4) -99 indicates a reported value cannot be achieved

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Conventional											
Oil and Grease	Grab	EPA413.1	1	mg/L	2.1		1.2	1.1	-99	-99	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99		-99	-99	-99	-99	-99
Cyanide	Grab	EPA335.2	0.01	mg/L	0.105		0.005	-99	0.0116	0.01	0.0223
pH	Comp	SM4500H B	0-14		7.96	6.85	7.85	7.18	7.11	8.14	8.02
Dissolved Oxygen	Grab	SM4500O G	1.00	mg/L	5.74		9.92	9.19	11.01	16.65	19.61
Indicator Bacteria											
Total Coliform	Grab	SM9230B	20.00	MPN/100ml	240000		35000	160000	160000	130	22000
Fecal Coliform	Grab	SM9230B	20.00	MPN/100ml	35000		22000	9000	3000	80	22000
Ratio Fecal Coliform/Total Coliform					0.146		0.629	0.056	0.019	0.615	1.000
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	300000		28000	24000	13000	20	1100
Enterococcus	Grab	SM9230B		MPN/100ml	300000		28000	24000	2800	20	1100
General											
Chloride	Comp	EPA300.0	2.00	mg/L	107	38.6	125	13.4	42	133	221
Fluoride	Comp	EPA300.0	0.10	mg/L	0.433	0.434	0.339	0.153	0.229	0.359	0.368
Nitrate	Comp	EPA300.0	0.10	mg/L	-99	-99	-99	-99	-99	-99	-99
Sulfate	Comp	EPA300.0	0.10	mg/L	201	56.7	223	22.9	77.6	216	342
Alkalinity	Comp	EPA310.1	4.00	mg/L	223.3	110	193	45.1	82.5	178	215
Hardness	Comp	EPA130.2	2.00	mg/L	480	160	390	75	178	385	475
COD	Comp	EPA410.4	10.00	mg/L	103	84.6	44.8	33.2	56.46	58.7	100.2
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1		1.75	2.37	-99	-99	-99
Specific Conductance	Comp	EPA120.1	1.00	umhos/cm	1666	535	1228	216	501	1271	1605
Total Dissolved Solids	Comp	EPA160.1	2.00	mg/L	986	318	846	120	296	868	1096
Turbidity	Comp	EPA180.1	0.10	NTU	0.99	3.16	3.63	2.44	8.97	0.68	0.85
Total Suspended Solids	Comp	EPA160.2	2.00	mg/L	316	733	61	161	166	4	3
Volatile Suspended Solids	Comp	EPA160.4	1.00	mg/L	69	150	8	58	38	2	1
MBAS	Comp	EPA425.1	0.05	mg/L	0.129	0.2	-99	0.21	0.24	0.11	0.12
Total Organic Carbon	Comp	EPA415.1	1.00	mg/L	15.8	28.5	4.08	7.39	9.66	5.08	7.9
BOD	Comp	SM5210B	2.00	mg/L	60.7	16.8	4.84	11.6	13.9	32	27.5
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99		-99	-99	-99	-99	-99
Nutrients											
Dissolved Phosphorus	Comp	EPA365.3	0.05	mg/L	0.188	0.409	0.09	0.22	0.14	-99	-99
Total Phosphorus	Comp	EPA365.3	0.05	mg/L	0.559	1	0.11	0.23	0.18	0.06	-99
NH3-N	Comp	EPA350.3	0.10	mg/L	0.32	2.86	0.1	0.218	0.264	0.13	0.284
Nitrate - N	Comp	SM4110B	0.50	mg/L	-99	-99	-99	-99	-99	-99	-99
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	-99	0.1	-99	-99	0.1	0.14
Kjeidahl-N	Comp	EPA351.4	0.10	mg/L	7.36	7.38	1.13	2.14	1.3	0.7	2.3
Metals											
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	18600	6270	180	1370	3100	-99	-99
Dissolved Antimony	Comp	EPA200.8	5.00	ug/L	1.68	1.77	0.59	1.3	1.74	0.68	2.11
Total Antimony	Comp	EPA200.8	5.00	ug/L	1.96	4.46	0.67	1.53	2.92	0.77	2.32
Dissolved Arsenic	Comp	EPA200.8	5.00	ug/L	3.2	2.83	2.44	1.38	1.96	2.73	3.19
Total Arsenic	Comp	EPA200.8	5.00	ug/L	4.63	5.93	2.82	1.63	2.92	2.77	3.2
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	63.2	43.1	58	19.3	32.1	56.9	55.2
Total Barium	Comp	EPA200.8	10.00	ug/L	143	206	67.4	42	91.1	64.3	63.9
Dissolved Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Beryllium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Cadmium	Comp	EPA200.8	1.00	ug/L	0.51	1.67	-99	-99	0.46	-99	-99
Dissolved Chromium	Comp	EPA200.8	5.00	ug/L	0.93	3.89	2.47	1.14	1.93	2.35	7.01
Total Chromium	Comp	EPA200.8	5.00	ug/L	8.52	14.9	3.12	3.35	7.45	2.36	7.47
Dissolved Chromium +6	Comp	EPA200.8	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Chromium +6	Comp	EPA200.8	10.00	ug/L	0.26	-99	0.89	0.28	0.84	0.58	-99
Dissolved Copper	Comp	EPA200.8	5.00	ug/L	12.8	2.23	4.36	7.36	9.45	6.35	5.2
Total Copper	Comp	EPA200.8	5.00	ug/L	46.4	129	10.6	21.7	46.5	12.9	19.8
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	-99	274	-99	-99	-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	3290	8770	388	2050	2310	111	120
Dissolved Lead	Comp	EPA200.8	5.00	ug/L	-99	0.78	-99	0.69	0.92	-99	-99
Total Lead	Comp	EPA200.8	5.00	ug/L	12.6	48	1.4	9.18	21.1	0.68	0.71
Dissolved Mercury	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Mercury	Comp	EPA200.8	1.00	ug/L	-99	0.111	0.133	-99	-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	5.00	ug/L	7.59	7.86	3.9	3.27	4.79	3.74	5.1
Total Nickel	Comp	EPA200.8	5.00	ug/L	13.9	28.8	5.06	5.87	12.3	4.81	6.17
Dissolved Selenium	Comp	EPA200.8	5.00	ug/L	6.46	-99	5.54	-99	1.67	6.41	6.57
Total Selenium	Comp	EPA200.8	5.00	ug/L	7.24	1.67	6.94	-99	2.03	6.6	6.68
Dissolved Silver	Comp	EPA200.8	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Silver	Comp	EPA200.8	1.00	ug/L	-99	0.55	-99	-99	-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Total Thallium	Comp	EPA200.8	5.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	50.00	ug/L	23.9	13.5	15	45.9	47.2	11.8	14.2
Total Zinc	Comp	EPA200.8	50.00	ug/L	238	870	93.1	98.9	192	33.4	45
Semi-Volatiles Organics (EPA 625)											
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Base/Neutral											
Acenaphthene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Acenaphthylene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Anthracene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
2-Chloroethyl vinyl ether	Grab	EPA624	2.50	ug/L	-99		-99	-99	-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Chrysene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Diethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Dimethyl phthalate	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	3.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Isophorone	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Naphthalene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Nitrobenzene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	0.30	ug/L	-99	-99	-99	-99	-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlorinated Pesticides											
Aldrin	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
beta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
delta-BHC	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
alpha-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
gamma-chlordane	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Chlordane	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDD	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDE	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
4,4'-DDT	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Dieldrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan I [alpha]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan II [beta]	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endosulfan sulfate	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Endrin aldehyde	Comp	EPA625	0.10	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Heptachlor Epoxide	Comp	EPA625	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Toxaphene	Comp	EPA625	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99

WEATHER CONDITION					Wet					Dry	
STATION NO.					TS17	TS17	TS17	TS17	TS17	TS17	TS17
STATION NAME					North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek	North Fork Coyote Creek
EVENT CODE					2007-08Event21	2007-08Event23	2007-08Event29	2007-08Event31	2007-08Event32	2007-08Event26	2007-08Event48
	Sample Type	EPA Method	PQL	Units							
Polychlorinated Biphenyls											
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99	-99	-99	-99	-99
Organohosphate Pesticides											
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99	-99	-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99	-99	-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Herbicides											
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4-D	Comp	EPA515.3	10.00	ug/L	-99	-99	-99	-99	-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	1.00	ug/L	-99	-99	-99	-99	-99	-99	-99
Other											
Ammonia	Comp	SM4500-NH3 F	0.1	mg/L	0.39	3.46	0.121	0.264	0.319	0.16	0.344
Endrin ketone	Comp	EPA625	0.1	ug/L	-99	-99	-99	-99	-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99	-99	-99	-99	-99

Note:

1) blank cell indicates DATA is NOT AVAILABLE

2) PQL = minimum level

3) Highlighted cells show exceedances

4) -99 indicates a reported value cannot be achieved

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Conventional																		
Oil and Grease	Grab	EPA1664A / EPA413.1	1	mg/L	2.1	1.1	1.1				3.6		0.7			-99	0.9	0.5
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99	-99	-99				-99		-99			-99	-99	-99
Cyanide	Grab	SM4500-CNE	0.01	mg/L	-99	-99	-99				-99		-99			0.015	0.01	0.014
pH	Comp	SM4500H B	0.00	NONE	7.38	6.98	7.42				7.1		7.3			8.42	8.23	8.66
Dissolved Oxygen	Grab	SM4500 (OG)	1.00	mg/L	11.1	10.3	9.87				9.54		13.6			20.7	12.1	14.5
Indicator Bacteria																		
Total Coliform	Grab	SM9221B/SM9221E	20.00	MPN/100ml	16000000	30000	240000				160000		5000			1700	5000	3000
Fecal Coliform	Grab	SM9221E/SM9221B	20.00	MPN/100ml	2200000	24000	90000				5000		1300			300	230	800
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	1700000	240000	240000				17000		50000			230	230	40
Enterococcus	Grab	SM9230B	20.00	MPN/100ml	1700000	240000	130000				17000		50000			80	230	40
General																		
Chloride	Comp	SM4110B	2.00	mg/L	29	31.9	20.8				21.4		19.6			153	149	193
Fluoride	Comp	SM4110B	0.10	mg/L	0.33	0.14	-99				0.1		-99			0.93	0.95	1.15
Nitrate	Comp	SM4110B	0.10	mg/L	10.4	7.51	5.34				4.1		3.59			17.2	7.33	5.28
Sulfate	Comp	SM4110B	1.00	mg/L	45.9	53.3	34.7				35.7		33			261	239	332
Alkalinity	Comp	SM2320B	1.00	mg/L	66	50	61				55		41			254	215	234
Hardness	Comp	SM2340C	2.00	mg/L	130	75	90				100		60			400	310	356
COD	Comp	SM5220D	10.00	mg/L	102	50.5	71.9				161		35.1			97.1	78.3	62
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	1.62	1.5	1				0.87		0.5			-99	-99	-99
Specific Conductance	Comp	SM2510B	1.00	umhos/cm	367	344	252				266		231			1776	1472	1962
Total Dissolved Solids	Comp	SM2540C	2.00	mg/L	240	222	162				164		134			1148	952	1200
Turbidity	Comp	SM2130B	0.10	NTU	5.67	9.39	44.4				6.65		14.1			2.03	1.48	0.98
Total Suspended Solids	Comp	SM25400D	1.00	mg/L	1038	159	431	87	27	202	235	90	191	85	97	9	17	6
Volatile Suspended Solids	Comp	SM2540E	1.00	mg/L	231	47	62				53		50			4	8	2
MBAS	Comp	SM5540-C	0.05	mg/L	0.36	0.3	-99				0.29		0.1			0.12	0.37	0.16
Total Organic Carbon	Comp	SM5310B / EPA415.1		mg/L	27.4	10.2	10.7				10.7		4.65			5.32	17.5	28
BOD	Comp	SM5210B	2.00	mg/L	39	15.3	13.3				10.3		6.51			18.8	10.8	11.2
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Nutrients																		
Dissolved Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.23	0.25	0.48				0.22		0.12			-99	0.05	-99
Total Phosphorus	Comp	SM4500-PE	0.05	mg/L	1.02	0.49	1.21				0.49		0.59			-99	0.06	0.06
NH3-N	Comp	SM4500-NH3 F	0.10	mg/L	0.61	0.43	0.33				-99		0.12			-99	-99	-99
Nitrate - N	Comp	SM4110B	0.50	mg/L	2.35	1.7	1.21				0.93		0.81			2.75	1.66	1.19
Nitrite - N	Comp	SM4110B	0.03	mg/L	0.08	-99	-99				-99		-99			0.13	-99	0.07
Kjeidahl-N	Comp	SM4500-NHorg C	0.10	mg/L	7.04	1.49	0.97				0.82		0.81			0.8	1.8	1.22
Metals																		
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99				-99		118			-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	872	189	2280				1020		1930			-99	-99	-99
Dissolved Antimony	Comp	EPA200.8	0.50	ug/L	2.71	1.28	0.95				1.27		0.84			0.53	1.73	0.81
Total Antimony	Comp	EPA200.8	0.50	ug/L	5.55	2.14	1.56				3.41		1.76			0.56	1.79	0.82
Dissolved Arsenic	Comp	EPA200.8	1.00	ug/L	2.49	1.36	1.43				1.64		0.87			3.06	3.13	4.71
Total Arsenic	Comp	EPA200.8	1.00	ug/L	6.76	2.16	3.24				4.26		1.73			3.22	3.28	5.19
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	34.2	25.9	34.7				21.8		20.3			48.7	48.7	45.8
Total Barium	Comp	EPA200.8	10.00	ug/L	256	62	247				125		66.4			55.6	51.1	51.4
Dissolved Beryllium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Beryllium	Comp	EPA200.8	0.50	ug/L	0.28	-99	0.48				0.21		0.12			-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	0.25	ug/L	-99	-99	0.11				-99		-99			0.23	-99	-99
Total Cadmium	Comp	EPA200.8	0.25	ug/L	1.49	2.01	2.55				0.76		0.38			0.25	-99	-99
Dissolved Chromium	Comp	EPA200.8	0.50	ug/L	1.98	1.37	1.09				1.66		1.58			1.34	4.06	4.56
Total Chromium	Comp	EPA200.8	0.50	ug/L	21	5.43	23.8				18		8.59			2.23	4.38	5.66
Dissolved Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	0.27	0.37				0.39		0.54			0.59	0.33	-99
Total Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	0.27	0.37				0.39		0.54			0.59	0.33	-99
Dissolved Copper	Comp	EPA200.8	0.50	ug/L	14.3	8.18	5.17				7.47		5.08			6.18	9.34	3.99
Total Copper	Comp	EPA200.8	0.50	ug/L	170	30.9	31.8				56		27.8			9.34	16.6	9.48
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	340	58.2	77.5				-99		93.3			-99	-99	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	9870	3220	19900				8470		3350			119	90.8	114
Dissolved Lead	Comp	EPA200.8	0.50	ug/L	3.19	1.12	1.45				0.74		1.07			-99	-99	-99
Total Lead	Comp	EPA200.8	0.50	ug/L	58.8	12.9	36				30.8		15.2			0.59	0.68	0.76
Dissolved Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dissolved Nickel	Comp	EPA200.8	1.00	ug/L	7.42	3.71	2.3				2.62		1.84			3.99	5.49	3.91
Total Nickel	Comp	EPA200.8	1.00	ug/L	23.8	10.1	19.8				15.3		7.1			4.52	6.21	4.69
Dissolved Selenium	Comp	EPA200.8	1.00	ug/L	0.95	-99	0.93				-99		-99			4.79	3.67	5.81
Total Selenium	Comp	EPA200.8	1.00	ug/L	1.67	1.01	1.19				0.54		-99			4.8	3.69	6.26
Dissolved Silver	Comp	EPA200.8	0.25	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Silver	Comp	EPA200.8	0.25	ug/L	0.57	0.52	-99				0.24		0.11			-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Total Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	0.44				0.11		-99			-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	10.00	ug/L	9870	44.4	13.6				27.8		30.5			9.89	20.2	14.7
Total Zinc	Comp	EPA200.8	10.00	ug/L	774	193	173				266		128			15.6	23.5	19.6
Semi-Volatiles Organics (EPA 625)																		
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

RB-AR15785

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Base/Neutral																		
Acenaphthene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Acenaphthylene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Anthracene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	2	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-Chloroethyl vinyl ether	Comp	EPA624	2.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chrysene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Diethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dimethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Fluoranthene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Isophorone	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Naphthalene	Comp	EPA625	0.20	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Nitrobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chlorinated Pesticides																		
Aldrin		EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
alpha-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
beta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
delta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Gamma-BHC (Lindane)	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
alpha-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
gamma-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDD	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDE	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
4,4'-DDT	Comp	EPA608	0.01	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Dieldrin	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan I [alpha]	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan II [beta]	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endosulfan sulfate	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endrin	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Endrin aldehyde	Comp	EPA608	0.10	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Heptachlor	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Mass Emission Monitoring

WEATHER CONDITION					Wet											Dry		
STATION NO.					S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13	S13
STATION NAME					Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek	Coyote Creek
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event10	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/25/2008	12/15/2008	12/21/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Heptachlor Epoxide	Comp	EPA608	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Toxaphene	Comp	EPA608	1.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Polychlorinated Biphenyls																		
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Organophosphate Pesticides																		
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Herbicides																		
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4-D	Comp	EPA515.3	5.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	10.00	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Other																		
Ammonia	Comp	SM4500-NH3 F	0.1	mg/l	0.74	0.52	0.4				-99		0.14			-99	-99	-99
Endrin ketone	Comp	EPA625	1	ug/L	-99	-99	-99				-99		-99			-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99				-99		-99			-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances
5) Wet weather suspension of fecal coliform objective applies to 2008-09Event06, 2008-09Event09, and 2008-09Event21

Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Conventional																	
Oil and Grease	Grab	EPA1664A / EPA413.1	1	mg/L	-99	0.6	-99			0.7		-99			0.5	1.3	-99
Total Phenols	Grab	EPA420.1	0.10	mg/L	-99	-99	-99			-99		-99			-99	-99	-99
Cyanide	Grab	SM4500-CNE	0.01	mg/L	0.01	-99	0.01			0.009		-99			0.015	0.01	0.013
pH	Comp	SM4500H B	0.00	NONE	8.22	6.92	7.34			7.52		7.48			8.29	7.53	8.53
Dissolved Oxygen	Grab	SM4500 (OG)	1.00	mg/L	7.83	7.84	9.29			9.44		12.7			9.36	8.18	8.03
Indicator Bacteria																	
Total Coliform	Grab	SM9221B/SM9221E	20.00	MPN/100ml	1700000	240000	28000			2200		5000			9000	160000	1700
Fecal Coliform	Grab	SM9221E/SM9221B	20.00	MPN/100ml	900000	50000	1400			80		1300			1300	500	230
Streptococcus	Grab	SM9230B	20.00	MPN/100ml	170000	300000	500			40		800			230	-99	-99
Enterococcus	Grab	SM9230B	20.00	MPN/100ml	170000	240000	500			40		800			230	-99	-99
General																	
Chloride	Comp	SM4110B	2.00	mg/L	93.7	22.8	55.1			34.1		48.5			166	81.9	108
Fluoride	Comp	SM4110B	0.10	mg/L	0.52	-99	0.12			0.11		0.13			0.29	0.51	0.91
Nitrate	Comp	SM4110B	0.10	mg/L	24.7	7.61	12.1			7.24		4.99			27.2	25.1	26.2
Sulfate	Comp	SM4110B	1.00	mg/L	120	40.7	76.2			52.7		58.3			219	113	117
Alkalinity	Comp	SM2320B	1.00	mg/L	138	50	72			55		89			172	119	151
Hardness	Comp	SM2340C	2.00	mg/L	230	90	145			105		150			325	210	236
COD	Comp	SM5220D	10.00	mg/L	66.5	66.9	46.2			60.3		65.1			63.2	60.5	25
Total Petroleum Hydrocarbons	Grab	EPA418.1	1.00	mg/L	-99	0.75	0.37			1.12		-99			-99	-99	-99
Specific Conductance	Comp	SM2510B	1.00	umhos/cm	845	275	499			364		486			1241	828	1045
Total Dissolved Solids	Comp	SM2540C	2.00	mg/L	554	180	302			214		290			764	516	620
Turbidity	Comp	SM2130B	0.10	NTU	3.25	18.1	6.33			30.5		16.1			1.22	1.84	1.3
Total Suspended Solids	Comp	SM25400D	1.00	mg/L	16	211	261	64	55	113	74	156	87	76	13	21	17
Volatile Suspended Solids	Comp	SM2540E	1.00	mg/L	4	45	37			8		24			6	7	3
MBAS	Comp	SM5540-C	0.05	mg/L	0.37	0.1	0.08			-99		0.03			0.09	0.26	0.08
Total Organic Carbon	Comp	SM5310B / EPA415.1		mg/L	13.2	8.94	7.11			5.68		5.33			4.91	10.1	9.5
BOD	Comp	SM5210B	2.00	mg/L	13.7	11.8	8			4.56		7.42			14.8	11.7	10.6
Methyl Tertiary Butyl Ether (MTBE)	Grab	EPA624	1.00	ug/L	-99	-99	-99			-99		-99			-99		-99
Nutrients																	
Dissolved Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.23	0.23	0.15			0.3		0.07			-99	0.33	0.28
Total Phosphorus	Comp	SM4500-PE	0.05	mg/L	0.58	0.44	0.44			0.41		0.13			-99	0.42	0.47
NH3-N	Comp	SM4500-NH3 F	0.10	mg/L	0.97	0.31	-99			-99		0.11			0.33	0.38	0.4
Nitrate - N	Comp	SM4110B	0.50	mg/L	5.58	1.72	2.73			1.63		1.13			6.14	5.67	5.91
Nitrite - N	Comp	SM4110B	0.03	mg/L	-99	0.04	-99			-99		-99			0.07	-99	0.04
Kjeidahl-N	Comp	SM4500-NHorg C	0.10	mg/L	2.44	3.24	0.6			0.62		0.9			1.25	1.98	1.18
Metals																	
Dissolved Aluminum	Comp	EPA200.8	100.00	ug/L	-99	-99	-99			-99		165			-99	-99	-99
Total Aluminum	Comp	EPA200.8	100.00	ug/L	-99	635	675			2340		1360			-99	-99	292
Dissolved Antimony	Comp	EPA200.8	0.50	ug/L	1.14	0.94	0.6			0.61		0.53			0.47	0.88	0.62
Total Antimony	Comp	EPA200.8	0.50	ug/L	1.24	2.05	1.19			1.05		0.89			0.62	0.89	0.68
Dissolved Arsenic	Comp	EPA200.8	1.00	ug/L	1.57	1.22	1.08			0.99		1.13			1.18	1.43	1.6
Total Arsenic	Comp	EPA200.8	1.00	ug/L	1.7	2.87	2.24			2.8		1.9			1.23	1.51	1.61
Dissolved Barium	Comp	EPA200.8	10.00	ug/L	37.7	22.3	29.1			26.2		33.3			56.4	34.3	42.3
Total Barium	Comp	EPA200.8	10.00	ug/L	50.8	120	85.2			153		63.1			64.8	35.9	52
Dissolved Beryllium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Beryllium	Comp	EPA200.8	0.50	ug/L	-99	0.22	0.17			0.39		0.11			-99	-99	-99
Dissolved Cadmium	Comp	EPA200.8	0.25	ug/L	-99	-99	-99			-99		0.1			0.12	-99	-99
Total Cadmium	Comp	EPA200.8	0.25	ug/L	-99	0.74	0.47			0.54		0.37			0.14	-99	-99
Dissolved Chromium	Comp	EPA200.8	0.50	ug/L	2.98	0.99	1.1			1.42		2.19			1.05	0.78	1.7
Total Chromium	Comp	EPA200.8	0.50	ug/L	3.53	15.4	11.6			25.7		6.91			3.02	1.03	1.73
Dissolved Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	-99	0.25			0.26		0.38			0.35	-99	-99
Total Chromium +6	Comp	EPA218.6	0.25	ug/L	-99	-99	0.25			0.26		0.38			0.35	-99	-99
Dissolved Copper	Comp	EPA200.8	0.50	ug/L	5.76	4.84	3.47			3.26		3.12			2.95	5.21	3.73
Total Copper	Comp	EPA200.8	0.50	ug/L	11.4	43.8	23.9			31.4		15.7			7.11	10.7	10.5
Dissolved Iron	Comp	EPA200.8	100.00	ug/L	80.7	125	-99			95.9		150			-99	52.6	-99
Total Iron	Comp	EPA200.8	100.00	ug/L	452	10300	7740			17700		2970			375	119	618
Dissolved Lead	Comp	EPA200.8	0.50	ug/L	0.81	1.72	1.1			1.06		1.01			0.25	0.29	0.23
Total Lead	Comp	EPA200.8	0.50	ug/L	1.97	42.3	14.6			17.7		7.49			1.49	0.8	1.8
Dissolved Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Mercury	Comp	EPA245.1	0.10	ug/L	-99	-99	0.15			-99		-99			-99	0.11	-99
Dissolved Nickel	Comp	EPA200.8	1.00	ug/L	4.42	3.01	2.66			4.53		2.38			4.32	4.2	4.69
Total Nickel	Comp	EPA200.8	1.00	ug/L	5.23	15.3	9.38			18.6		6.43			5	4.82	5.82
Dissolved Selenium	Comp	EPA200.8	1.00	ug/L	1.23	0.71	0.68			-99		-99			2.11	1.23	1.22
Total Selenium	Comp	EPA200.8	1.00	ug/L	1.42	0.97	0.71			-99		0.6			2.36	1.4	1.41
Dissolved Silver	Comp	EPA200.8	0.25	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Total Silver	Comp	EPA200.8	0.25	ug/L	-99	0.24	-99			0.11		-99			-99	-99	-99
Dissolved Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

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Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Total Thallium	Comp	EPA200.8	0.50	ug/L	-99	-99	-99			0.2		-99			-99	-99	-99
Dissolved Zinc	Comp	EPA200.8	10.00	ug/L	35.7	18.5	23.2			14.9		16.4			34.7	26.3	31.5
Total Zinc	Comp	EPA200.8	10.00	ug/L	48.4	223	143			100		58			46.1	28.2	44.2
Semi-Volatiles Organics (EPA 625)																	
2-Chlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dichlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dimethylphenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-dinitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-nitrophenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-chloro-3-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Pentachlorophenol	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Phenol	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4,6-trichlorophenol	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			0.89	-99	-99
Base/Neutral																	
Acenaphthene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Acenaphthylene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Anthracene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2 Benzanthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(a)pyrene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(g,h,i)perylene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
3,4 Benzofluoranthene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Benzo(k)flouranthene	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroethoxy)methane	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroisopropyl)ether	Comp	EPA625	2	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Chloroethyl)ether	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Bis(2-Ethylhexl)phthalate	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-Bromophenyl phenyl ether	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Butyl benzyl phthalate	Comp	EPA625	0.30	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-Chloroethyl vinyl ether	Comp	EPA624	2.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2-Chloronaphthalene	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4-Chlorophenyl phenyl ether	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chrysene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dibenzo(a,h)anthracene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,3-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,4-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2-Dichlorobenzene	Comp	EPA625	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
3,3-Dichlorobenzidine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Diethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dimethyl phthalate	Comp	EPA625	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
di-n-Butyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,6-Dinitrotoluene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,6 Dinitro-2-methylphenol	Comp	EPA625	3.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2-Diphenylhydrazine	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
di-n-Octyl phthalate	Comp	EPA625	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Fluoranthene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Fluorene	Comp	EPA625	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachlorobutadiene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachloro-cyclopentadiene	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Hexachloroethane	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Indeno (1,2,3-cd)pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Isophorone	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Naphthalene	Comp	EPA625	0.20	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Nitrobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-dimethyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-diphenyl amine	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
N-Nitroso-di-n-propyl amine	Comp	EPA625	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Phenanthrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Pyrene	Comp	EPA625	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
1,2,4-Trichlorobenzene	Comp	EPA625	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chlorinated Pesticides																	
Aldrin		EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
alpha-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
beta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
delta-BHC	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

RB-AR15789

Mass Emission Monitoring

WEATHER CONDITION					Wet										Dry		
STATION NO.					S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14	S14
STATION NAME					San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River	San Gabriel River
EVENT CODE	Sample	EPA			2008-09Event03	2008-09Event06	2008-09Event09	2008-09Event11	2008-09Event18	2008-09Event21	2008-09Event22	2008-09Event23	2008-09Event24	2008-09Event26	2008-09Event15	2008-09Event30	2008-09Event36
DATE	Type	Method	PQL[3]	Units	11/04/2008	11/26/2008	12/15/2008	12/24/2008	01/23/2009	02/05/2009	02/08/2009	02/13/2009	02/16/2009	03/04/2009	01/12/2009	03/23/2009	05/11/2009
Gamma-BHC (Lindane)	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
alpha-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
gamma-chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Chlordane	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDD	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDE	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
4,4'-DDT	Comp	EPA608	0.01	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Dieldrin	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan I [alpha]	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan II [beta]	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endosulfan sulfate	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endrin	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Endrin aldehyde	Comp	EPA608	0.10	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Heptachlor	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Heptachlor Epoxide	Comp	EPA608	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Toxaphene	Comp	EPA608	1.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Polychlorinated Biphenyls																	
Aroclor-1016	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1221	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1232	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1242	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1248	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1254	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Aroclor-1260	Comp	EPA608	0.50	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Organophosphate Pesticides																	
Chlorpyrifos	Comp	EPA507	0.05	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Diazinon	Comp	EPA507	0.01	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Prometryn	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Atrazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Simazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Cyanazine	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Malathion	Comp	EPA507	2.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Herbicides																	
Glyphosate	Comp	EPA547	25.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4-D	Comp	EPA515.3	5.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
2,4,5-TP-SILVEX	Comp	EPA515.3	10.00	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Other																	
Ammonia	Comp	SM4500-NH3 F	0.1	mg/l	1.18	0.38	-99			-99		0.13			0.4	0.46	0.48
Endrin ketone	Comp	EPA625	1	ug/L	-99	-99	-99			-99		-99			-99	-99	-99
Methoxychlor	Comp	EPA608	0.5	ug/L	-99	-99	-99			-99		-99			-99	-99	-99

Note:
1) blank cell indicates sample was not analyzed
2) -99 indicates concentration below minimum detection level
3) PQL = minimum level
4) Highlighted cells show exceedances
5) Wet weather suspension of fecal coliform objective applies to 2008-09Event06, 2008-09Event09, and 2008-09Event21

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**9,000***	**1,300***	300	**1,400***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	40	230	300	80
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	40	230	300	80
Bacteria	Total Coliform	MPN/100mL	SM9221B	50,000	2,400	3,000	16,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	<0	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.034***	0.01	0.016	0.02
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	15.6	20	15.2	18
Conventionals	Oil and Grease	mg/L	EPA1664A	<0.4	<0.4	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.31	8.04	8.18	**8.58***
General	Alkalinity as CaCO3	mg/L	SM2320B	275	220	289	275
General	Ammonia	mg/L	SM4500-NH3 F	0.55	0.121	0.121	0.133
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	14.5	14.8	12.1	24
General	Chemical Oxygen Demand	mg/L	SM5220D	368	74.8	55.8	117
General	Chloride	mg/L	SM4110B	262	205	194	237
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.05	<0.05	<0.05	<0.05
General	Fluoride	mg/L	SM4110B	1.23	1.11	1.23	1.18
General	Hardness as CaCO3	mg/L	SM2340C	380	355	410	400
General	Kjeldahl-N	mg/L	SM4500-NHorg C	3.3	0.92	0.62	0.76
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.45	0.1	0.1	0.11
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	4.49	8.22	17.7	12.5
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	1.01	2.03	4	2.82
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.06	0.058	<0.01	0.133
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.11	<0.05	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510B	1836	1590	1800	1830
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	439	329	357	423
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	1,276	1,080	1,250	1,260
General	Total Organic Carbon	mg/L	SM5310B	11.2	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	9.74	4.7	21
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<0.4	<0.4	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	141	78	14	16
General	Turbidity	NTU	SM2130B	3.89	3.08	0.98	1.88
General	Volatile Suspended Solids	mg/L	SM2540E	38	25	2	5

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.85	0.794	0.557	0.562
Metals	Dissolved Arsenic	ug/L	EPA200.8	5.92	4.58	5.35	3.77
Metals	Dissolved Barium	ug/L	EPA200.8	55	55	49.9	49.1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.44	0.938	1.42	1.34
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	5.36	4.82	4.17	5.34
Metals	Dissolved Iron	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	>0.2&<0.5	<0.2	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.3	2.97	3.91	3.42
Metals	Dissolved Selenium	ug/L	EPA200.8	6.39	4.38	9.64	5.61
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	12.4	8.2	<1	24.3
Metals	Aluminum	ug/L	EPA200.8	303	187	<50	166
Metals	Antimony	ug/L	EPA200.8	0.93	0.875	0.663	0.644
Metals	Arsenic	ug/L	EPA200.8	6.06	4.93	5.4	4.09
Metals	Barium	ug/L	EPA200.8	73.4	74.4	59.6	61.8
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	2.01	0.965	4.28	2.14
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	14	13.5	9.12	11.3
Metals	Iron	ug/L	EPA200.8	700	417	118	<50
Metals	Lead	ug/L	EPA200.8	2.17	1.51	<0.2	1.17
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.63	4.52	4.76	4.52
Metals	Selenium	ug/L	EPA200.8	**6.49***	4.48	**9.77***	**6.08***
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	46.6	71.6	38.5	40.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.33	<0.67	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	Coyote Creek S13 2009-10Event02 07/14/2009	Coyote Creek S13 2009-10Event12 09/15/2009	Coyote Creek S13 2009-10Event14 12/01/2009	Coyote Creek S13 2009-10Event28 03/23/2010
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<0.03	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<0.04	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<0.2	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<0.1	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are

QNS = Quantity Not Sufficient

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**800***	300	230	**800***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	20	800	300	<20
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	20	800	300	<20
Bacteria	Total Coliform	MPN/100mL	SM9221B	2,200	9,000	3,000	24,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	<0	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.021	0.02	**0.025***	0.01
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.79	10.4	11.8	12.4
Conventionals	Oil and Grease	mg/L	EPA1664A	<0.4	<0.4	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.19	7.98	7.82	8.01
General	Alkalinity as CaCO3	mg/L	SM2320B	179	151	165	165
General	Ammonia	mg/L	SM4500-NH3 F	0.92	0.581	0.678	0.169
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	9.72	25.3	41.2	5.9
General	Chemical Oxygen Demand	mg/L	SM5220D	116	84.3	66.1	57.9
General	Chloride	mg/L	SM4110B	138	**161***	113	118
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.16	0.09	0.13	0.07
General	Fluoride	mg/L	SM4110B	0.59	0.314	0.417	0.244
General	Hardness as CaCO3	mg/L	SM2340C	260	265	280	20
General	Kjeldahl-N	mg/L	SM4500-NHorg C	1.64	1.36	1.94	0.58
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.76	0.48	0.56	0.14
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	24.3	22.1	27	6.17
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	5.5	4.99	6.1	1.39
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	<0.03	0.13	0.177	<0.03
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.18	0.1	0.19	0.08
General	Specific Conductance	umhos/cm	SM2510B	1027	1080	1010	1000
General	Sulfate	mg/L	EPA300.1	**NS**	NS	NS	NS
General	Sulfate	mg/L	SM4110B	**443***	172	117	199
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	694	706	668	670
General	Total Organic Carbon	mg/L	SM5310B	6.2	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	7.79	6.64	17.9
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<0.4	<0.4	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	14	31	28	23
General	Turbidity	NTU	SM2130B	1.46	1.18	0.73	2.79
General	Volatile Suspended Solids	mg/L	SM2540E	3	15	4	8

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.62	0.603	0.588	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.14	1	2.2	1.93
Metals	Dissolved Barium	ug/L	EPA200.8	44.9	50.6	52.6	73.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.95	0.808	1.74	1.19
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	3.15	3.08	4.61	2.85
Metals	Dissolved Iron	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	>0.2&<0.5	>0.2&<0.5	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.61	3.19	3.47	4.39
Metals	Dissolved Selenium	ug/L	EPA200.8	1.53	1.35	5.27	1.2
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	42.2	43.7	56.6	22.1
Metals	Aluminum	ug/L	EPA200.8	106	116	<50	453
Metals	Antimony	ug/L	EPA200.8	0.63	0.632	0.712	0.793
Metals	Arsenic	ug/L	EPA200.8	1.21	1.09	2.34	2.31
Metals	Barium	ug/L	EPA200.8	48.1	57.3	62.2	97.1
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	0.276	<0.1
Metals	Chromium	ug/L	EPA200.8	1.5	0.872	2.99	1.27
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	8.39	10.1	9.94	9.82
Metals	Iron	ug/L	EPA200.8	200	256	229	667
Metals	Lead	ug/L	EPA200.8	0.98	1.32	0.893	2.14
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.03	4.24	4.46	5.69
Metals	Selenium	ug/L	EPA200.8	1.8	1.61	**5.54***	1.37
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	61.2	103	80	45.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.33	<0.67	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1

Appendix B.2. 2009-2010 Annual Report Mass Emission and Tributary Dry Weather Concentration

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event02 07/14/2009	San Gabriel River @ SGR Parkway S14 2009-10Event12 09/15/2009	San Gabriel River @ SGR Parkway S14 2009-10Event14 12/01/2009	San Gabriel River @ SGR Parkway S14 2009-10Event28 03/23/2010
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<0.03	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<0.04	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<0.2	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	>1.7&<5	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<0.1	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	NS	NS	NS

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are

QNS = Quantity Not Sufficient

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	1,600,000**	3,000**	50,000**	90,000**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	900,000	230	240,000	240,000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	900,000	230	240,000	300,000
Bacteria	Total Coliform	MPN/100mL	SM9221B	5,000,000	9,000	240,000	160,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	NS	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.03***	0.02	0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	6.41	7.92	11.1	10
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.52	7.33	6.96	7.35
General	Alkalinity as CaCO3	mg/L	SM2320B	55	55	55	41
General	Ammonia	mg/L	SM4500-NH3 F	0.835	0.719	0.318	0.378
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	30.3	17	9.62	5.38
General	Chemical Oxygen Demand	mg/L	SM5220D	64.1	60.7	286	28.9
General	Chloride	mg/L	SM4110B	22.5	10.2	15.4	10.1
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.28	0.26	0.12	0.11
General	Fluoride	mg/L	SM4110B	0.179	0.251	0.184	0.237
General	Hardness as CaCO3	mg/L	SM2340C	110	60	70	40
General	Kjeldahl-N	mg/L	SM4500-NHorg C	4.24	2.1	1.28	2.12
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<1	<1	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.63	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	0.69	0.594	0.263	0.312
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	3.72	4.17	3.8	2.95
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	0.8	0.941	0.857	0.665
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.09	<0.01	<0.01	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.78	0.38	0.27	0.13
General	Specific Conductance	umhos/cm	SM2510B	264	138	208	105
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	35.7	13.4	24	14
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	182	94	126	70
General	Total Organic Carbon	mg/L	SM5310B	NS	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	18	15.5	8.75	7.17
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	503	184	132	440
General	Turbidity	NTU	SM2130B	6.8	17.1	13.5	18.2
General	Volatile Suspended Solids	mg/L	SM2540E	112	49	35	138
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	2.08	1.16	1.73	0.798
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.74	1.22	1.27	1.39
Metals	Dissolved Barium	ug/L	EPA200.8	27.8	17.5	20.2	17.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.879	0.964	0.791	0.807
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	10.8	**9.09***	8.6	4.37
Metals	Dissolved Iron	ug/L	EPA200.8	166	<50	<50	<50
Metals	Dissolved Lead	ug/L	EPA200.8	0.951	1.29	0.623	0.86
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	6.8	4.02	3.03	1.61
Metals	Dissolved Selenium	ug/L	EPA200.8	1.14	<0.5	<0.5	1.69
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	61.8	65.1	50.1	32.9
Metals	Aluminum	ug/L	EPA200.8	236	2140	1820	4480
Metals	Antimony	ug/L	EPA200.8	2.13	3.27	3.07	2.56
Metals	Arsenic	ug/L	EPA200.8	1.81	2.8	2.13	2.97
Metals	Barium	ug/L	EPA200.8	31.9	78.7	59.5	105
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	0.553	0.316	0.863
Metals	Chromium	ug/L	EPA200.8	1.44	6.56	5.07	9.96
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	21.6	49.6	35.7	38.2
Metals	Iron	ug/L	EPA200.8	240	3400	3640	6930
Metals	Lead	ug/L	EPA200.8	2.2	20.8	15.8	31.1
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	7.59	9.63	8.86	10.6
Metals	Selenium	ug/L	EPA200.8	1.22	<0.5	<0.5	1.74
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	62.6	257	175	258
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.67	<0.67	<0.33	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.3	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	Coyote Creek @ Spring S13 2009-10Event13 10/13/2009	Coyote Creek @ Spring S13 2009-10Event15 12/07/2009	Coyote Creek @ Spring S13 2009-10Event16 12/11/2009	Coyote Creek @ Spring S13 2009-10Event19 01/17/2010
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67	<1.67	7.38
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017	<0.017	0.622
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	0.467

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are re

QNS = Quantity Not Sufficient

* Exceedance of Water Quality Objective

** Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	5,000,000**	300	90,000**	2,200**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	1,600,000	500	160,000	130,000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	1,600,000	500	160,000	240,000
Bacteria	Total Coliform	MPN/100mL	SM9221B	24,000,000	5,000	1,600,000	240,000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endrin ketone	ug/L	EPA625	NS	NS	NS	NS
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	**0.03***	<0.005	0.008	0.02
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.41	11.1	11.1	9.9
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	7.25	7.2	7.13	7.71
General	Alkalinity as CaCO3	mg/L	SM2320B	96	83	41	69
General	Ammonia	mg/L	SM4500-NH3 F	1.89	0.138	<0.1	0.807
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	32.9	15.6	7.52	12.8
General	Chemical Oxygen Demand	mg/L	SM5220D	72.1	64.8	196	36.4
General	Chloride	mg/L	SM4110B	53.4	46.7	22.8	47.7
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.39	0.29	0.07	0.15
General	Fluoride	mg/L	SM4110B	0.274	0.347	0.129	0.243
General	Hardness as CaCO3	mg/L	SM2340C	160	140	80	30
General	Kjeldahl-N	mg/L	SM4500-NHorg C	5.3	0.96	0.718	1.76
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<1	<1	<1	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.58	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3 F	1.56	0.114	<0.1	0.667
General	Nitrate (NO3)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate (NO3)	mg/L	SM4110B	13.6	12.4	4.8	8.18
General	Nitrate-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrate-N	mg/L	SM4110B	3.1	2.79	1.08	1.85
General	Nitrite (NO2)	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	EPA300.1	NS	NS	NS	NS
General	Nitrite-N	mg/L	SM4110B	0.09	<0.01	<0.01	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.86	0.31	0.2	0.22
General	Specific Conductance	umhos/cm	SM2510B	508	493	230	393
General	Sulfate	mg/L	EPA300.1	NS	NS	NS	NS
General	Sulfate	mg/L	SM4110B	67.1	62.3	32.7	59.4
General	Total Dissolved Phosphate	mg/L	AM4500-PE	NS	NS	NS	NS
General	Total Dissolved Solids	mg/L	SM2540C	350	314	154	266
General	Total Organic Carbon	mg/L	SM5310B	NS	NS	NS	NS
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	20.2	11.7	5.78	5.6
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5
General	Total Phosphate	mg/L	SM4500-PE	NS	NS	NS	NS
General	Total Suspended Solids	mg/L	SM2540D	252	57	117	400
General	Turbidity	NTU	SM2130B	6.66	11.6	16.7	197
General	Volatile Suspended Solids	mg/L	SM2540E	51	12	17	46
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Herbicides	Glyphosate	ug/L	EPA547	<5	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	446	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	1.8	1.08	0.713	0.671
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.78	1.51	<0.2	1.71
Metals	Dissolved Barium	ug/L	EPA200.8	31.5	48.5	20.5	30.5
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.74	2	0.673	0.995
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	7.91	11.6	4.53	3.89
Metals	Dissolved Iron	ug/L	EPA200.8	133	513	<50	114
Metals	Dissolved Lead	ug/L	EPA200.8	1.39	6.61	0.722	1.03
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	6.14	>0.5&<1	2.96	2.42
Metals	Dissolved Selenium	ug/L	EPA200.8	1.77	<0.5	<0.5	1.94
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	33.1	85.5	28.3	**44.6***
Metals	Aluminum	ug/L	EPA200.8	107	1140	2490	5530
Metals	Antimony	ug/L	EPA200.8	1.86	1.52	1.24	1.37
Metals	Arsenic	ug/L	EPA200.8	1.84	1.97	1.78	3.19
Metals	Barium	ug/L	EPA200.8	35.3	62.2	57.4	116
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1	<0.1	0.55
Metals	Chromium	ug/L	EPA200.8	2.23	3.19	5.45	12.4
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	12.7	21.3	20.8	24.7
Metals	Iron	ug/L	EPA200.8	201	1270	4690	9530
Metals	Lead	ug/L	EPA200.8	1.77	8.58	9.05	17.3
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	6.81	5.91	7.47	11.8
Metals	Selenium	ug/L	EPA200.8	2.02	1.29	<0.5	2.33
Metals	Silver	ug/L	EPA200.8	0.354	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	41.9	89.9	81.9	103
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.67	<0.67	<0.33	<0.33
Organophosphate Pesticides	Malathion	ug/L	EPA625	NS	NS	NS	NS
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.3	<3.3	<3.3	<3.3
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33

Appendix B.1. 2009-2010 Annual Report Wet Weather Mass Emission and Tributary Stations Concentrations

Group	Parameter Code	Units	Analysis_Method	San Gabriel River @ SGR Parkway S14 2009-10Event13 10/13/2009	San Gabriel River @ SGR Parkway S14 2009-10Event15 12/07/009	San Gabriel River @ SGR Parkway S14 2009-10Event16 12/11/2009	San Gabriel River @ SGR Parkway S14 2009-10Event19 01/17/2010
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	>3.33&<10	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017	<0.017	<0.017

Values reported with a "< "are not detected (ND) at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected but not quantified (DNQ) between the method detection limit and reporting limit, they are re

QNS = Quantity Not Sufficient

* Exceedance of Water Quality Objective

** Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	16000*	230
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	24000	230
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	24000	230
Bacteria	Total Coliform	MPN/100mL	SM9221B	240000	240000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.014	0.014
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	10	16.1
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.33	8.27
General	Alkalinity as CaCO3	mg/L	SM2320B	289	347
General	Ammonia	mg/L	SM4500-NH3 F	0.278	0.23
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	15	23.7
General	Chemical Oxygen Demand	mg/L	SM5220D	53.3	47.4
General	Chloride	mg/L	SM4110B	213	263
General	Dissolved Phosphorus	mg/L	SM4500-PE	<0.05	<0.05

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
General	Fluoride	mg/L	SM4110B	1.05	1.32
General	Hardness as CaCO3	mg/L	SM2340C	395	510
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.92	0.88
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	0.23	0.19
General	Nitrate (NO3)	mg/L	SM4110B	10.5	21.2
General	Nitrate-N	mg/L	SM4110B	2.38	4.78
General	Nitrite-N	mg/L	SM4110B	0.0392	0.0362
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510B	1810	2250
General	Sulfate	mg/L	SM4110B	376	519
General	Total Dissolved Solids	mg/L	SM2540C	1260	1490
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	6.47	15.4
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	46	12
General	Turbidity	NTU	SM2130B	2.4	1.22
General	Volatile Suspended Solids	mg/L	SM2540E	28	8
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	7.2	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.792	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	3.06	3.04
Metals	Dissolved Barium	ug/L	EPA200.8	62.5	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	1.1	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	12.7	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	125	<50
Metals	Dissolved Lead	ug/L	EPA200.8	1.3	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	4.06	<0.5

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Metals	Dissolved Selenium	ug/L	EPA200.8	5.3	5.31
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	39.8	<1
Metals	Aluminum	ug/L	EPA200.8	285	105
Metals	Antimony	ug/L	EPA200.8	1.02	<0.2
Metals	Arsenic	ug/L	EPA200.8	4.33	3.08
Metals	Barium	ug/L	EPA200.8	77.2	<1
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	5.75	<0.5
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	13.2	<0.5
Metals	Iron	ug/L	EPA200.8	453	<50
Metals	Lead	ug/L	EPA200.8	1.57	<0.2
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.75	<0.5
Metals	Selenium	ug/L	EPA200.8	6.17	7.06
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	66.3	<1
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA625	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event2 9/21/2010	Coyote Creek @ Spring St. S13 2010-11Event13 1/24/2011
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL
NS = Not Sampled

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	NS	20
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	NS	20
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	NS	20
Bacteria	Total Coliform	MPN/100mL	SM9221B	NS	800
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	NS	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	NS	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	NS	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	NS	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	NS	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	NS	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	NS	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	NS	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	NS	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	NS	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	NS	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	NS	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	NS	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	NS	0.017
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	NS	10.2
Conventionals	Oil and Grease	mg/L	EPA1664A	NS	<1.44
Conventionals	pH	pH units	SM4500H B	NS	8.36
General	Alkalinity as CaCO3	mg/L	SM2320B	NS	173
General	Ammonia	mg/L	SM4500-NH3 F	NS	0.411
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	NS	19.9
General	Chemical Oxygen Demand	mg/L	SM5220D	NS	37.5
General	Chloride	mg/L	SM4110B	NS	130
General	Dissolved Phosphorus	mg/L	SM4500-PE	NS	0.11

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
General	Fluoride	mg/L	SM4110B	NS	0.396
General	Hardness as CaCO3	mg/L	SM2340C	NS	330
General	Kjeldahl-N	mg/L	SM4500-NHorg C	NS	10.6
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	NS	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	NS	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	NS	0.34
General	Nitrate (NO3)	mg/L	SM4110B	NS	19.4
General	Nitrate-N	mg/L	SM4110B	NS	4.38
General	Nitrite-N	mg/L	SM4110B	NS	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	NS	0.13
General	Specific Conductance	umhos/cm	SM2510B	NS	1070
General	Sulfate	mg/L	SM4110B	NS	164
General	Total Dissolved Solids	mg/L	SM2540C	NS	736
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	20
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	NS	<1.5
General	Total Suspended Solids	mg/L	SM2540D	NS	15
General	Turbidity	NTU	SM2130B	NS	2.42
General	Volatile Suspended Solids	mg/L	SM2540E	NS	7
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	NS	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	NS	<0.015
Herbicides	Glyphosate	ug/L	EPA547	NS	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	NS	62.2
Metals	Dissolved Antimony	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Barium	ug/L	EPA200.8	NS	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	NS	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	NS	138
Metals	Dissolved Lead	ug/L	EPA200.8	NS	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	NS	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	NS	<0.5

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Metals	Dissolved Selenium	ug/L	EPA200.8	NS	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	NS	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	NS	61.8
Metals	Aluminum	ug/L	EPA200.8	NS	255
Metals	Antimony	ug/L	EPA200.8	NS	<0.2
Metals	Arsenic	ug/L	EPA200.8	NS	<0.2
Metals	Barium	ug/L	EPA200.8	NS	<1
Metals	Beryllium	ug/L	EPA200.8	NS	<0.1
Metals	Cadmium	ug/L	EPA200.8	NS	<0.1
Metals	Chromium	ug/L	EPA200.8	NS	<0.5
Metals	Chromium +6	ug/L	EPA218.6	NS	<0.25
Metals	Copper	ug/L	EPA200.8	NS	<0.5
Metals	Iron	ug/L	EPA200.8	NS	440
Metals	Lead	ug/L	EPA200.8	NS	<0.2
Metals	Mercury	ug/L	EPA245.1	NS	<0.1
Metals	Nickel	ug/L	EPA200.8	NS	<0.5
Metals	Selenium	ug/L	EPA200.8	NS	<0.5
Metals	Silver	ug/L	EPA200.8	NS	<0.1
Metals	Thallium	ug/L	EPA200.8	NS	<0.1
Metals	Zinc	ug/L	EPA200.8	NS	65.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	NS	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	NS	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	NS	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	NS	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	NS	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	NS	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	NS	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	NS	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	NS	<0.065

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	NS	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA625	NS	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	NS	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	NS	<1.67

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event2 9/21/2010	San Gabriel River @ SGR Parkway S14 2010-11Event13 1/24/2011
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	NS	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	NS	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	NS	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	NS	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	NS	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	NS	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	NS	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	NS	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	NS	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL
Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL
NS = Not Sampled

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	500000*	240000*	240000*	90000**	5000*
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	1600000	240000	28000	240000	3500
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	1600000	300000	160000	240000	3500
Bacteria	Total Coliform	MPN/100mL	SM9221B	9000000	300000	240000	1600000	50000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.011	NS	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	NS	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	NS	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	NS	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	NS	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	NS	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	NS	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.01	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.033	NS	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.033	NS	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	0.012	<0.005	0.007	<0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	7.74	7.19	10	10.1	10.1
Conventionals	Oil and Grease	mg/L	EPA1664A	>1.44&<5	>1.44&<5	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.07	NS	7.14	6.34*	6.41*
General	Alkalinity as CaCO3	mg/L	SM2320B	110	NS	60.5	38.5	132
General	Ammonia	mg/L	SM4500-NH3 F	0.617	NS	0.898	0.303	0.944
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	146	NS	11.5	7.03	27.9
General	Chemical Oxygen Demand	mg/L	SM5220D	98.8	NS	21.6	20.8	61
General	Chloride	mg/L	SM4110B	33.5	NS	28.9	10.8	65
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.15	NS	0.13	0.15	0.063
General	Fluoride	mg/L	SM4110B	0.206	NS	0.327	0.246	0.434
General	Hardness as CaCO3	mg/L	SM2340C	130	NS	110	50	170
General	Kjeldahl-N	mg/L	SM4500-NHorg C	2.18	NS	3.78	0.76	5.62
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.81	NS	>0.01&<0.5	>0.01&<0.5	0.73
General	NH3-N	mg/L	SM4500-NH3	0.51	NS	0.742	0.25	0.78
General	Nitrate (NO3)	mg/L	SM4110B	5.21	NS	4.35	2.63	5.35
General	Nitrate-N	mg/L	SM4110B	1.18	NS	0.982	0.594	1.21
General	Nitrite-N	mg/L	SM4110B	0.0705	NS	<0.03	<0.03	0.0395
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	0.21	NS	0.18	0.17	0.076
General	Specific Conductance	umhos/cm	SM2510B	389	NS	359	152	562
General	Sulfate	mg/L	SM4110B	47.1	NS	49.6	17	110
General	Total Dissolved Solids	mg/L	SM2540C	270	NS	224	94	380
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	31.6	NS	39.5	20.9	42.2
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	716	417	240	85	305

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
General	Turbidity	NTU	SM2130B	25	NS	5.28	10.6	6.61
General	Volatile Suspended Solids	mg/L	SM2540E	171	NS	61	19	76
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.067	NS	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	NS	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	12.3	NS	11	<5	18.1
Metals	Dissolved Aluminum	ug/L	EPA200.8	995	NS	482	380	421
Metals	Dissolved Antimony	ug/L	EPA200.8	<0.2	NS	<0.2	<0.2	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	2.51	NS	2.31	<0.2	2.32
Metals	Dissolved Barium	ug/L	EPA200.8	127	NS	<1	<1	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	NS	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	1760	NS	1100	592	785
Metals	Dissolved Lead	ug/L	EPA200.8	22.5	NS	10.3	7.33	11.1
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	12.8	NS	<0.5	<0.5	<0.5
Metals	Dissolved Selenium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	500*	NS	150*	115*	252*
Metals	Aluminum	ug/L	EPA200.8	4980	NS	2330	1470	1330
Metals	Antimony	ug/L	EPA200.8	6.82	NS	<0.2	<0.2	<0.2
Metals	Arsenic	ug/L	EPA200.8	2.7	NS	2.34	<0.2	2.92
Metals	Barium	ug/L	EPA200.8	218	NS	<1	<1	110
Metals	Beryllium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	1.41	NS	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	15.9	NS	10.5	<0.5	10.4
Metals	Chromium +6	ug/L	EPA218.6	<0.25	NS	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	116	NS	<0.5	<0.5	<0.5
Metals	Iron	ug/L	EPA200.8	8030	NS	4780	2360	2490
Metals	Lead	ug/L	EPA200.8	32.9	NS	14	11.1	15.9
Metals	Mercury	ug/L	EPA245.1	<0.1	NS	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	23.2	NS	<0.5	<0.5	12.1
Metals	Selenium	ug/L	EPA200.8	<0.5	NS	<0.5	<0.5	<0.5
Metals	Silver	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	NS	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	640	NS	176	138	268
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.667	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	NS	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.667	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	NS	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.33	NS	<0.33	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.67	NS	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.67	NS	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	NS	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA 420.1	<0.03	<0.03	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	<2.5	<2.5	<2.5	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	NS	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.033	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.67	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.033	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33

Group	Parameter	Units	Analytical Method	Coyote Creek @ Spring St. S13 2010-11Event3 10/5/2010	Coyote Creek @ Spring St. S13 2010-11Event4 10/30/2010	Coyote Creek @ Spring St. S13 2010-11Event6 11/19/2010	Coyote Creek @ Spring St. S13 2010-11Event8 12/17/2010	Coyote Creek @ Spring St. S13 2010-11Event14 2/16/2011
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.67	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.067	NS	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.33	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.017	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.33	NS	<3.33	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	NS	30000*	3000**	170000**	800**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	NS	160000	2400	300000	2400
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	NS	160000	2400	300000	2400
Bacteria	Total Coliform	MPN/100mL	SM9221B	NS	300000	240000	2400000	90000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	NS	NS	<0.011	<0.011	<0.011
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	NS	NS	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	NS	NS	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	NS	NS	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	NS	NS	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	NS	NS	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	NS	NS	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	NS	NS	<0.01	<0.01	<0.01
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	NS	NS	<0.033	<0.033	<0.033
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	NS	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	NS	NS	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	NS	NS	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	NS	NS	<0.033	<0.033	<0.033
Conventionals	Cyanide	mg/L	SM4500-CNE	NS	<0.005	<0.005	<0.005	0.012
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	NS	8.51	9.84	10.6	11.1
Conventionals	Oil and Grease	mg/L	EPA1664A	NS	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	NS	NS	7.12	6.34*	6.48*
General	Alkalinity as CaCO3	mg/L	SM2320B	NS	NS	49.5	55	99
General	Ammonia	mg/L	SM4500-NH3 F	NS	NS	0.653	0.278	0.666
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	NS	NS	6.88	5.43	18.9
General	Chemical Oxygen Demand	mg/L	SM5220D	NS	NS	<10	30	33.1
General	Chloride	mg/L	SM4110B	NS	NS	31.5	35.9	71.3
General	Dissolved Phosphorus	mg/L	SM4500-PE	NS	NS	0.12	0.1	0.105
General	Fluoride	mg/L	SM4110B	NS	NS	0.17	0.203	0.345
General	Hardness as CaCO3	mg/L	SM2340C	NS	NS	100	115	175
General	Kjeldahl-N	mg/L	SM4500-NHorg C	NS	NS	2.24	0.72	1.22
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	NS	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	NS	NS	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH3-N	mg/L	SM4500-NH3	NS	NS	0.54	0.23	0.55
General	Nitrate (NO3)	mg/L	SM4110B	NS	NS	5.7	6.09	11.6
General	Nitrate-N	mg/L	SM4110B	NS	NS	1.29	1.37	2.62
General	Nitrite-N	mg/L	SM4110B	NS	NS	<0.03	<0.03	<0.01
General	Phosphorus- Total (as P)	mg/L	SM4500-PE	NS	NS	0.17	0.13	0.108
General	Specific Conductance	umhos/cm	SM2510B	NS	NS	321	345	577
General	Sulfate	mg/L	SM4110B	NS	NS	44	53.8	98
General	Total Dissolved Solids	mg/L	SM2540C	NS	NS	202	208	360
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	NS	NS	93.5	59.5	7.61
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	NS	<1.5	<1.5	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	NS	122	43	61	24

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
General	Turbidity	NTU	SM2130B	NS	NS	4.21	18.2	5.26
General	Volatile Suspended Solids	mg/L	SM2540E	NS	NS	10	8	21
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	NS	NS	<0.067	<0.067	<0.067
Herbicides	2-4-D	ug/L	EPA515.3	NS	NS	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	NS	NS	8.99	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	NS	NS	183	635	125
Metals	Dissolved Antimony	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Arsenic	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Barium	ug/L	EPA200.8	NS	NS	<1	<1	<1
Metals	Dissolved Beryllium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Chromium +6	ug/L	EPA218.6	NS	NS	<0.25	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Iron	ug/L	EPA200.8	NS	NS	348	875	267
Metals	Dissolved Lead	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Dissolved Mercury	ug/L	EPA245.1	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Selenium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Dissolved Silver	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	NS	NS	71.1	69.1	<1
Metals	Aluminum	ug/L	EPA200.8	NS	NS	730	2950	483
Metals	Antimony	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Arsenic	ug/L	EPA200.8	NS	NS	<0.2	<0.2	<0.2
Metals	Barium	ug/L	EPA200.8	NS	NS	<1	<1	<1
Metals	Beryllium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Chromium +6	ug/L	EPA218.6	NS	NS	<0.25	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Iron	ug/L	EPA200.8	NS	NS	1510	4780	975
Metals	Lead	ug/L	EPA200.8	NS	NS	6.06	7.9	<0.2
Metals	Mercury	ug/L	EPA245.1	NS	NS	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Selenium	ug/L	EPA200.8	NS	NS	<0.5	<0.5	<0.5
Metals	Silver	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	NS	NS	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	NS	NS	73.1	77.4	88.6
Organophosphate Pesticides	Atrazine	ug/L	EPA507	NS	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	NS	NS	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	NS	NS	<0.667	<0.667	<0.667
Organophosphate Pesticides	Diazinon	ug/L	EPA507	NS	NS	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	NS	NS	<0.33	<0.33	<0.33
Organophosphate Pesticides	Prometryn	ug/L	EPA507	NS	NS	<0.67	<0.67	<0.67
Organophosphate Pesticides	Simazine	ug/L	EPA507	NS	NS	<0.67	<0.67	<0.67
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	NS	NS	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Acids)	Phenolics-Total Recoverable	mg/L	EPA 420.1	NS	<0.03	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA625	NS	<2.5	<2.5	<2.5	<2.5
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	NS	NS	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo(b)flouranthene	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	NS	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	NS	NS	<0.67	<0.67	<0.67
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	NS	NS	<0.033	<0.033	<0.033
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33

Group	Parameter	Units	Analytical Method	San Gabriel River @ SGR Parkway S14 2010-11Event3 10/5/2010	San Gabriel River @ SGR Parkway S14 2010-11Event4 10/30/2010	San Gabriel River @ SGR Parkway S14 2010-11Event6 11/19/2010	San Gabriel River @ SGR Parkway S14 2010-11Event8 12/17/2010	San Gabriel River @ SGR Parkway S14 2010-11Event14 2/16/2011
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	NS	NS	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	NS	NS	<0.067	<0.067	<0.067
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	NS	NS	<0.33	<0.33	<0.33
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	NS	NS	<0.017	<0.017	<0.017
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	NS	NS	<3.33	<3.33	<3.33

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	240000**	160000**	16000**	50000**
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	500000	240000	30000	240000
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	500000	240000	30000	240000
Bacteria	Total Coliform	MPN/100mL	SM9221B	300000	350000	300000	500000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.01	0.014	0.008	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.39	12.8	10.8	10.1
Conventionals	Oil and Grease	mg/L	EPA1664A	>1.44&<5	<1.44	>1.44&<5	>1.44&<5
Conventionals	pH	pH units	SM4500H B	7.51	7.99	7.24	7.68
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	52.8	62.7	49.5	66
General	Ammonia	mg/L	SM4500-NH3 D	1.17	0.339	1.25	0.23
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	27.6	24.6	8.7	16.4
General	Chemical Oxygen Demand	mg/L	SM5220D	47.1	27	22	29
General	Chloride	mg/L	EPA300.0	20.9	35.5	13.7	19.7
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.263	0.13	0.0579	0.08
General	Fluoride	mg/L	EPA300.0	0.279	0.179	0.193	0.17
General	Hardness as $CaCO_3$	mg/L	SM2340C	100	120	70	90
General	Kjeldahl-N	mg/L	SM4500-NHorg C	2.34	0.88	7.62	1.18
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	0.55	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	0.97	0.28	1.03	0.19
General	Nitrate (NO_3)	mg/L	EPA300.0	7.99	4.48	3.5	3.44
General	Nitrate-N	mg/L	EPA300.0	1.8	1.01	0.79	0.776
General	Nitrite-N	mg/L	EPA300.0	0.0343	<0.01	>0.01&<0.03	<0.01
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.272	0.14	0.06	0.09
General	Specific Conductance	umhos/cm	SM2510 B	258	369	173	243
General	Sulfate	mg/L	EPA300.0	30.3	59.4	17.8	30.4
General	Total Dissolved Solids	mg/L	SM2540C	208	218	110	134
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	22.9	13.5	8.23	5.24
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
General	Total Suspended Solids	mg/L	SM2540D	402	379	253	420
General	Turbidity	NTU	SM2130B	29.3	19.5	5.75	9.5
General	Volatile Suspended Solids	mg/L	SM2540E	96	109	81	126
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	11	<5	7.83	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	910	498	348	880
Metals	Dissolved Antimony	ug/L	EPA200.8	2.09	1.41	1.01	1.38
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.89	1.57	1.27	2.59
Metals	Dissolved Barium	ug/L	EPA200.8	95.6	50.2	40.1	79
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	0.619	>0.1&<0.25	>0.1&<0.25	0.542
Metals	Dissolved Chromium	ug/L	EPA200.8	3.82	2.2	1.34	2.65
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	**39.1***	**25.8***	**19.5***	**32.7***
Metals	Dissolved Iron	ug/L	EPA200.8	1710	830	590	1610
Metals	Dissolved Lead	ug/L	EPA200.8	15.1	12.7	7.88	18.2
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	9.11	5.22	3.81	7.18
Metals	Dissolved Selenium	ug/L	EPA200.8	>0.5&<1	>0.5&<1	<0.5	>0.5&<1
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	**378***	132	**126***	**258***
Metals	Aluminum	ug/L	EPA200.8	2010	1300	1310	2880
Metals	Antimony	ug/L	EPA200.8	3.78	2.48	2.14	3.3
Metals	Arsenic	ug/L	EPA200.8	2.13	1.96	1.36	3.41
Metals	Barium	ug/L	EPA200.8	112	66.7	56.6	107
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	>0.1&<0.5
Metals	Cadmium	ug/L	EPA200.8	0.827	0.303	0.333	0.644
Metals	Chromium	ug/L	EPA200.8	8.98	5.19	4.85	8.03
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	50.6	36.5	29.2	49.1
Metals	Iron	ug/L	EPA200.8	3480	2650	2150	5100
Metals	Lead	ug/L	EPA200.8	20.5	16.9	10	25.5
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	12.3	7.8	6.78	11
Metals	Selenium	ug/L	EPA200.8	1.2	>0.5&<1	>0.5&<1	1.05
Metals	Silver	ug/L	EPA200.8	0.321	>0.1&<0.25	>0.1&<0.25	>0.1&<0.25
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	408	135	164	332
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	0.15	0.12	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street S13 2011-12Event05 10/5/2011	Coyote Creek @ Spring Street S13 2011-12Event08 11/20/2011	Coyote Creek @ Spring Street S13 2011-12Event13 1/21/12	Coyote Creek @ Spring Street S13 2011-12Event18 3/16/2012
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

^Method detection level exceeds the waer quality benchmark.

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	90000**	220000**	800**	170
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	240000	240000	800	1300
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	240000	240000	1300	1300
Bacteria	Total Coliform	MPN/100mL	SM9221B	2400000	1600000	24000	16000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.015	0.013	0.013	0.009
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	6.61	9.68	10.5	10.3
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	7.77	7.82	7.64	7.69
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	73.7	123	97.9	105
General	Ammonia	mg/L	SM4500-NH3 D	0.532	<0.1	0.496	0.411
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	13	10.9	9.1	9.18
General	Chemical Oxygen Demand	mg/L	SM5220D	>10&<20	>10&<20	>10&<20	>10&<20
General	Chloride	mg/L	EPA300.0	47.3	93.9	79.9	83
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.262	0.13	0.051	0.12
General	Fluoride	mg/L	EPA300.0	0.293	0.317	0.332	0.311
General	Hardness as $CaCO_3$	mg/L	SM2340C	130	30	200	210
General	Kjeldahl-N	mg/L	SM4500-NHorg C	1.86	0.5	4.32	1.28
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	0.44	<0.1	0.41	0.34
General	Nitrate (NO_3)	mg/L	EPA300.0	11.6	15.3	13.5	12.8
General	Nitrate-N	mg/L	EPA300.0	2.62	3.46	3.04	2.89
General	Nitrite-N	mg/L	EPA300.0	<0.01	>0.01&<0.03	0.0498	<0.01
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.28	0.16	0.06	0.14
General	Specific Conductance	umhos/cm	SM2510 B	454	798	636	712
General	Sulfate	mg/L	EPA300.0	57.7	119	87.7	102
General	Total Dissolved Solids	mg/L	SM2540C	298	472	408	402
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	11.9	7.11	8.03	5.06
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5	<1.5	<1.5

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
General	Total Suspended Solids	mg/L	SM2540D	129	100	118	42
General	Turbidity	NTU	SM2130B	21.3	12.9	5.65	6.06
General	Volatile Suspended Solids	mg/L	SM2540E	28	28	23	14
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	6.8	<5	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	660	565	337	165
Metals	Dissolved Antimony	ug/L	EPA200.8	1.14	0.842	0.597	0.899
Metals	Dissolved Arsenic	ug/L	EPA200.8	1.39	1.6	1.39	1.11
Metals	Dissolved Barium	ug/L	EPA200.8	63.9	68	55	51.8
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	>0.1&<0.25	>0.1&<0.25	>0.1&<0.25	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	2.57	2.81	1.8	1.14
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	>0.25&<5	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	15.6	**13.5***	12.8	10.5
Metals	Dissolved Iron	ug/L	EPA200.8	1140	1030	622	294
Metals	Dissolved Lead	ug/L	EPA200.8	8.39	8.09	5.13	3.3
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	5.28	5.33	5.27	6.33
Metals	Dissolved Selenium	ug/L	EPA200.8	>0.5&<1	1.51	1.36	1.15
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	132	**92.7***	70.2	69.3
Metals	Aluminum	ug/L	EPA200.8	1740	1340	1140	444
Metals	Antimony	ug/L	EPA200.8	1.77	1.37	1.13	1.23
Metals	Arsenic	ug/L	EPA200.8	1.91	1.83	1.43	1.41
Metals	Barium	ug/L	EPA200.8	78.4	88.9	73.3	62.7
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	0.429	0.251	0.266	<0.1
Metals	Chromium	ug/L	EPA200.8	7.01	5.37	4.26	2.43
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5	>0.25&<5	<0.25
Metals	Copper	ug/L	EPA200.8	19.2	23.9	18.1	12.9
Metals	Iron	ug/L	EPA200.8	3120	2910	1910	735
Metals	Lead	ug/L	EPA200.8	12.9	15.4	6.52	3.94
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	7.07	37.1	7.68	7.74
Metals	Selenium	ug/L	EPA200.8	>0.5&<1	1.62	1.57	1.51
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	150	160	87.4	73.3
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	0.183	>0.03&<0.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04	<0.04	<0.04

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event05 10/5/2011	San Gabriel River @ SGR Parkway S14 2011-12Event08 11/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event13 1/21/12	San Gabriel River @ SGR Parkway S14 2011-12Event18 3/16/2012
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

**Not an exceedance due to the High Flow Suspension Basin Plan Amendment (LARQCB 2003).

^Method detection level exceeds the waer quality benchmark.

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	**9000***	500
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	110	800
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	800	800
Bacteria	Total Coliform	MPN/100mL	SM9221B	90000	160000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	0.009	0.019
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	16.2	14.1
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	**8.51***	8.28
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	207	284
General	Ammonia	mg/L	SM4500-NH3 D	<0.1	<0.1
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	12.2	6.92
General	Chemical Oxygen Demand	mg/L	SM5220D	22	>10&<20
General	Chloride	mg/L	EPA300.0	159	229
General	Dissolved Phosphorus	mg/L	SM4500-PE	<0.05	<0.05
General	Fluoride	mg/L	EPA300.0	0.746	1.02
General	Hardness as $CaCO_3$	mg/L	SM2340C	325	440
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.74	0.58
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	<0.1	<0.1
General	Nitrate (NO_3)	mg/L	EPA300.0	6.55	16.6
General	Nitrate-N	mg/L	EPA300.0	1.48	3.75
General	Nitrite-N	mg/L	EPA300.0	>0.01&<0.03	0.112
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	<0.05	<0.05
General	Specific Conductance	umhos/cm	SM2510 B	1400	1900
General	Sulfate	mg/L	EPA300.0	267	407
General	Total Dissolved Solids	mg/L	SM2540C	840	1270
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	5.42	5.45

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	86	6
General	Turbidity	NTU	SM2130B	1.9	1.07
General	Volatile Suspended Solids	mg/L	SM2540E	31	5
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	>50&<100	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	0.651	0.542
Metals	Dissolved Arsenic	ug/L	EPA200.8	3.14	3.13
Metals	Dissolved Barium	ug/L	EPA200.8	72.5	51.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Chromium	ug/L	EPA200.8	0.915	1.43
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5
Metals	Dissolved Copper	ug/L	EPA200.8	9.45	11.7
Metals	Dissolved Iron	ug/L	EPA200.8	220	>50&<100
Metals	Dissolved Lead	ug/L	EPA200.8	3.97	1.12
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	3.89	3.73
Metals	Dissolved Selenium	ug/L	EPA200.8	3.45	5.98
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	108	51.9
Metals	Aluminum	ug/L	EPA200.8	265	>50&<100
Metals	Antimony	ug/L	EPA200.8	0.912	0.677
Metals	Arsenic	ug/L	EPA200.8	3.65	3.37
Metals	Barium	ug/L	EPA200.8	86.3	56.9
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	<0.1
Metals	Chromium	ug/L	EPA200.8	5.01	1.54
Metals	Chromium +6	ug/L	EPA218.6	<0.25	>0.25&<5
Metals	Copper	ug/L	EPA200.8	13.5	14.4
Metals	Iron	ug/L	EPA200.8	458	148
Metals	Lead	ug/L	EPA200.8	4.7	1.55
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	5.51	5.2
Metals	Selenium	ug/L	EPA200.8	4.88	7.13
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	120	63
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	<0.03	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02

Group	Parameter	Units	Analysis Method	Coyote Creek @ Spring Street Rd. S13 2011-12Event04 9/20/2011	Coyote Creek @ Spring Street S13 2011-12Event12 1/9/2012
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Bacteria	Fecal Coliform	MPN/100mL	SM9221E	20	**500***
Bacteria	Fecal Enterococcus	MPN/100mL	SM9230B	20	130
Bacteria	Fecal Streptococcus	MPN/100mL	SM9230B	20	230
Bacteria	Total Coliform	MPN/100mL	SM9221B	2200	24000
Chlorinated Pesticides	4-4'-DDD	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	4-4'-DDE	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	4-4'-DDT	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Aldrin	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Dieldrin	ug/L	EPA608	<0.002	<0.002
Chlorinated Pesticides	Endosulfan I (alpha)	ug/L	EPA608	<0.015	<0.015
Chlorinated Pesticides	Endosulfan II (beta)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	Endosulfan sulfate	ug/L	EPA608	<0.05	<0.05
Chlorinated Pesticides	Endrin	ug/L	EPA608	<0.006	<0.006
Chlorinated Pesticides	Endrin aldehyde	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Heptachlor	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	Heptachlor Epoxide	ug/L	EPA608	<0.01	<0.01
Chlorinated Pesticides	Methoxychlor	ug/L	EPA608	<0.5	<0.5
Chlorinated Pesticides	Toxaphene	ug/L	EPA608	<0.24	<0.24
Chlorinated Pesticides	alpha-BHC	ug/L	EPA608	<0.003	<0.003
Chlorinated Pesticides	alpha-chlordane	ug/L	EPA608	<0.04	<0.04
Chlorinated Pesticides	beta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	delta-BHC	ug/L	EPA608	<0.005	<0.005
Chlorinated Pesticides	gamma-BHC (lindane)	ug/L	EPA608	<0.004	<0.004
Chlorinated Pesticides	gamma-chlordane	ug/L	EPA608	<0.04	<0.04
Conventionals	Cyanide	mg/L	SM4500-CNE	<0.005	<0.005
Conventionals	Dissolved Oxygen	mg/L	SM4500 (OG)	8.96	5.8
Conventionals	Oil and Grease	mg/L	EPA1664A	<1.44	<1.44
Conventionals	pH	pH units	SM4500H B	8.2	7.85
General	Alkalinity as $CaCO_3$	mg/L	SM2320B	189	198
General	Ammonia	mg/L	SM4500-NH3 D	<0.1	0.109
General	BioChemical Oxygen Demand- Five-Day	mg/L	SM5210B	6.06	4.23
General	Chemical Oxygen Demand	mg/L	SM5220D	>10&<20	<10
General	Chloride	mg/L	EPA300.0	107	108
General	Dissolved Phosphorus	mg/L	SM4500-PE	0.097	0.13
General	Fluoride	mg/L	EPA300.0	0.379	0.395
General	Hardness as $CaCO_3$	mg/L	SM2340C	305	340
General	Kjeldahl-N	mg/L	SM4500-NHorg C	0.38	0.38
General	Methyl Tertiary Butyl Ether (MTBE)	ug/L	EPA624	<0.4	<0.4
General	Methylene Blue Active Substances (MBAS)	mg/L	SM5540-C	>0.01&<0.5	>0.01&<0.5
General	NH_3-N	mg/L	SM4500-NH3	<0.1	<0.1
General	Nitrate (NO_3)	mg/L	EPA300.0	3.34	4.86
General	Nitrate-N	mg/L	EPA300.0	0.754	1.1
General	Nitrite-N	mg/L	EPA300.0	<0.01	0.0359
General	Phosphorus - Total (as P)	mg/L	SM4500-PE	0.106	0.16
General	Specific Conductance	umhos/cm	SM2510 B	974	984
General	Sulfate	mg/L	EPA300.0	160	160
General	Total Dissolved Solids	mg/L	SM2540C	594	630
General	Total Organic Carbon	mg/L	SM5310B/EPA415.1	2.3	2.56

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
General	Total Petroleum Hydrocarbons	mg/L	EPA418.1	<1.5	<1.5
General	Total Suspended Solids	mg/L	SM2540D	10	14
General	Turbidity	NTU	SM2130B	0.95	1.11
General	Volatile Suspended Solids	mg/L	SM2540E	7	4
Herbicides	2-4-5-TP-SILVEX	ug/L	EPA515.3	<0.07	<0.07
Herbicides	2-4-D	ug/L	EPA515.3	<0.015	<0.015
Herbicides	Glyphosate	ug/L	EPA547	<5	<5
Metals	Dissolved Aluminum	ug/L	EPA200.8	<50	<50
Metals	Dissolved Antimony	ug/L	EPA200.8	>0.2&<0.5	>0.2&<0.5
Metals	Dissolved Arsenic	ug/L	EPA200.8	>0.2&<1	2.48
Metals	Dissolved Barium	ug/L	EPA200.8	88.9	97.6
Metals	Dissolved Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Cadmium	ug/L	EPA200.8	<0.1	>0.1&<0.25
Metals	Dissolved Chromium	ug/L	EPA200.8	0.57	0.709
Metals	Dissolved Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Dissolved Copper	ug/L	EPA200.8	6.27	5.62
Metals	Dissolved Iron	ug/L	EPA200.8	113	133
Metals	Dissolved Lead	ug/L	EPA200.8	1.78	0.827
Metals	Dissolved Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Dissolved Nickel	ug/L	EPA200.8	5.49	4.93
Metals	Dissolved Selenium	ug/L	EPA200.8	1.02	>0.5&<1
Metals	Dissolved Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Dissolved Zinc	ug/L	EPA200.8	69.8	49.6
Metals	Aluminum	ug/L	EPA200.8	174	136
Metals	Antimony	ug/L	EPA200.8	0.652	0.624
Metals	Arsenic	ug/L	EPA200.8	2.54	2.65
Metals	Barium	ug/L	EPA200.8	110	111
Metals	Beryllium	ug/L	EPA200.8	<0.1	<0.1
Metals	Cadmium	ug/L	EPA200.8	<0.1	>0.1&<0.25
Metals	Chromium	ug/L	EPA200.8	4.44	1.1
Metals	Chromium +6	ug/L	EPA218.6	<0.25	<0.25
Metals	Copper	ug/L	EPA200.8	7.94	7.62
Metals	Iron	ug/L	EPA200.8	234	333
Metals	Lead	ug/L	EPA200.8	2.91	1.52
Metals	Mercury	ug/L	EPA245.1	<0.1	<0.1
Metals	Nickel	ug/L	EPA200.8	8.22	6.66
Metals	Selenium	ug/L	EPA200.8	2.01	1.65
Metals	Silver	ug/L	EPA200.8	<0.1	<0.1
Metals	Thallium	ug/L	EPA200.8	<0.1	<0.1
Metals	Zinc	ug/L	EPA200.8	86.4	55.1
Organophosphate Pesticides	Atrazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Chlorpyrifos	ug/L	EPA507	<0.02	<0.02
Organophosphate Pesticides	Cyanazine	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Diazinon	ug/L	EPA507	<0.003	<0.003
Organophosphate Pesticides	Malathion	ug/L	EPA507	<0.4	<0.4
Organophosphate Pesticides	Prometryn	ug/L	EPA507	<0.7	<0.7
Organophosphate Pesticides	Simazine	ug/L	EPA507	<0.7	<0.7
Polychlorinated Biphenyls	PCB-1016 (Aroclor 1016)	ug/L	EPA608	<0.065	<0.065

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Polychlorinated Biphenyls	PCB-1221 (Aroclor 1221)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1232 (Aroclor 1232)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1242 (Aroclor 1242)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1248 (Aroclor 1248)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1254 (Aroclor 1254)	ug/L	EPA608	<0.065	<0.065
Polychlorinated Biphenyls	PCB-1260 (Aroclor 1260)	ug/L	EPA608	<0.065	<0.065
Semivolatile Organic Compounds (Acids)	2-4-6-Trichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dichlorophenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	2-4-Dimethylphenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-4-Dinitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	2-Chlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	2-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Chloro-3-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	4-Nitrophenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Acids)	Pentachlorophenol	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Acids)	Phenol	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Acids)	Phenolics - Total recoverable	mg/L	EPA420.1	>0.03&<0.1	<0.03
Semivolatile Organic Compounds (Base/Neutral)	1-2-4-Trichlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-2-Benzanthracene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	1-2-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-2-Diphenylhydrazine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	1-3-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	1-4-Dichlorobenzene	ug/L	EPA625	<0.2	<0.2
Semivolatile Organic Compounds (Base/Neutral)	2-4-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-6-Dinitrotoluene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	2-Chloroethyl vinyl ether	ug/L	EPA624	<0.83	<0.83
Semivolatile Organic Compounds (Base/Neutral)	2-Chloronaphthalene	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	3-3-Dichlorobenzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	4-6-Dinitro-2-methylphenol	ug/L	EPA625	<1	<1
Semivolatile Organic Compounds (Base/Neutral)	4-Bromophenyl phenyl ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	4-Chlorophenyl phenyl ether	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Acenaphthylene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Anthracene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzidine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(a)pyrene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo(k)flouranthene	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Benzo[b]fluoranthene	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Benzo[g-h-i]perylene	ug/L	EPA625	<1.67	<1.67
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethoxy) methane	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroethyl) ether	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Chloroisopropyl) ether	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Bis(2-Ethylhexl) phthalate	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Butyl benzyl phthalate	ug/L	EPA625	<3.33	<3.33
Semivolatile Organic Compounds (Base/Neutral)	Chrysene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Dibenzo(a-h)anthracene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Diethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Dimethyl phthalate	ug/L	EPA625	<0.7	<0.7
Semivolatile Organic Compounds (Base/Neutral)	Fluoranthene	ug/L	EPA625	<0.02	<0.02

Group	Parameter	Units	Analysis Method	San Gabriel River @ SGR Parkway S14 2011-12Event04 9/20/2011	San Gabriel River @ SGR Parkway S14 2011-12Event12 1/9/2012
Semivolatile Organic Compounds (Base/Neutral)	Fluorene	ug/L	EPA625	<0.04	<0.04
Semivolatile Organic Compounds (Base/Neutral)	Hexachloro-cyclopentadiene	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachlorobutadiene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Hexachloroethane	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Indeno(1-2-3-c-d)pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Isophorone	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-di-n-propyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-dimethyl amine	ug/L	EPA625	<1.7	<1.7
Semivolatile Organic Compounds (Base/Neutral)	N-Nitroso-diphenyl amine	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Naphthalene	ug/L	EPA625	<0.07	<0.07
Semivolatile Organic Compounds (Base/Neutral)	Nitrobenzene	ug/L	EPA625	<0.4	<0.4
Semivolatile Organic Compounds (Base/Neutral)	Phenanthrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	Pyrene	ug/L	EPA625	<0.02	<0.02
Semivolatile Organic Compounds (Base/Neutral)	di-n-Butyl phthalate	ug/L	EPA625	<3.4	<3.4
Semivolatile Organic Compounds (Base/Neutral)	di-n-Octyl phthalate	ug/L	EPA625	<3.4	<3.4

Values reported with a "< "are not detected at the method detection level, and reported as <MDL

Values reported with a "<" and a ">" were detected between the method detection limit and reporting limit, they are reported as >MDL& <RL

NS = Not Sampled

*Exceedance of Water Quality Objective

Watershed Management Program Appendix 3

A-3-1 MCM Guidance

Public Information and Participation Program

Introduction *Permit §VI.D.5.a (LA)/ §VII.F.1 (LB)*

Each participating city is required to develop and implement a Public Information and Participation Program (PIPP) that includes the requirements listed in Permit §VI.D.5.a (LB §VII.F). This document provides guidance that the participating cities can follow to implement a PIPP in compliance with the Permit.

The objectives of the PIPP are to:

- Measurably increase the knowledge of the target audiences about the MS4, the adverse impacts of stormwater pollution on receiving waters and potential solutions to mitigate the impacts.
- Measurably change the waste disposal and stormwater pollution generation behavior of target audiences by developing and encouraging the implementation of appropriate alternatives.
- Involve and engage a diversity of socio-economic groups and ethnic communities in Los Angeles County to participate in mitigating the impacts of stormwater pollution.

PIPP Implementation *Permit §VI.D.5.b (LA)/§VII.F.2 (LB)*

The PIPP is implemented using the following approaches:

- By participating in a County-wide PIPP,
- By participating in one or more Watershed Group sponsored PIPPs, and
- individually within its jurisdiction.

Cities participating in a County-wide or Watershed Group PIPP provide contact info for their staff responsible for stormwater public education activities to the designated PIPP coordinator. Changes in contact information are provided within 30 days of the date that the change occurred.

Public Participation *Permit §VI.D.5.c (LA)/§VII.F.3 (LB)*

Public Reporting

The means for public reporting of clogged catch basin inlets and illicit discharges/dumping, faded or missing catch basin labels, and general stormwater and non-stormwater pollution prevention information is provided through the use of the countywide 888-CLEAN-LA hotline. In addition, each participating city:

- Includes the reporting information – updated when necessary – in public information and the government pages of the telephone book as they are developed or published.
- Identifies staff or departments who will serve as the contact person(s) and will make this information available on its website.
- Provides current, updated hotline contact information to the general public within its jurisdiction.

Events

Events are organized to target residents and population subgroups. The purpose of the events is to educate and involve the community in stormwater and non-stormwater pollution prevention activities, such as education seminars, clean-ups, and community catch basin stenciling.

Residential Outreach Program *Permit §VI.D.5.d (LA)/§VII.F.4 (LB)*

With the exception of item 5, which is no longer an element of the countywide PIP Program, each city implements the following activities for the Residential Outreach Program as part of a countywide program:

1. Conduct stormwater pollution prevention public service announcements and advertising campaigns
2. Prepare public education materials that include information on the proper handling (i.e., disposal, storage and/or use) of:
    a. Vehicle waste fluids
    b. Household waste materials (i.e., trash and household hazardous waste, including personal care products and pharmaceuticals)
    c. Construction waste materials
    d. Pesticides and fertilizers (including integrated pest management (IPM) practices to promote reduced use of pesticides)
    e. Green waste (including lawn clippings and leaves)
    f. Animal wastes
3. Distribute activity specific stormwater pollution prevention public education materials at the following points of purchase:
    a. Automotive parts stores
    b. Home improvement centers / lumber yards / hardware stores/paint stores
    c. Landscaping / gardening centers
    d. Pet shops / feed stores
4. Maintain stormwater websites or provide links to stormwater websites via each participating city's website. This includes educational material and opportunities for the public to participate in stormwater pollution prevention and clean-up activities listed in Part VI.D.4 of the Permit.
5. Provide independent, parochial, and public schools within each participating city's jurisdiction with materials to educate school children (K-12) on stormwater pollution. Material may include videos, live presentations and other information. A useful source of materials to work with, or leverage, is other statewide agencies and associations. These associations include the State Water Board's "Erase the Waste" educational program and the California Environmental Education Interagency Network (CEEIN) to implement this requirement.
6. When implementing the above activities, use effective strategies to educate and involve ethnic communities in stormwater pollution prevention through culturally effective methods.

Industrial/Commercial Facilities Program

Each participating city is required to implement an industrial/commercial facilities program that includes the provisions listed in Permit § VI.D.6 (LB §VII.G). This document provides guidance that the participating cities can follow to implement an industrial/commercial facilities program in compliance with the Permit.

Introduction *Permit § VI.D.6.a (LA)/ §VII.G.1 (LB)*

The Industrial/Commercial Facilities Program is designed to prevent illicit discharges into the MS4 and receiving waters, reduce industrial/commercial discharges of stormwater to the maximum extent practicable, and prevent industrial/commercial discharges from the MS4 from causing or contributing to a violation of receiving water limitations. The program consists of the following components:

- Track,
- Educate,
- Inspect and
- Ensure compliance with municipal ordinances at industrial/commercial facilities determined to be critical sources of pollutants in stormwater.

Track Critical Industrial/Commercial Sources *Permit § VI.D.6.b (LA)/ §VII.G.2 (LB)*

The critical sources to be tracked are listed in Table ICF-1.

Table ICF-1: Critical Sources

<table>
<tr><th>Facility Category</th><th colspan="2">Facility</th></tr>
<tr><td rowspan="4">Commercial Facilities</td><td colspan="2">Restaurants</td></tr>
<tr><td colspan="2">Automotive service facilities (including those located at automotive dealerships)</td></tr>
<tr><td colspan="2">Retail Gasoline Outlets</td></tr>
<tr><td colspan="2">Nurseries and Nursery Centers (Merchant Wholesalers, Nondurable Goods, and Retail Trade)</td></tr>
<tr><td rowspan="4">Industrial Facilities</td><td colspan="2">USEPA “Phase I” Facilities[1]</td></tr>
<tr><td rowspan="3">Other federally-mandated facilities[2]</td><td>Municipal landfills</td></tr>
<tr><td>Hazardous waste treatment, disposal, and recovery facilities</td></tr>
<tr><td>Industrial facilities subject to § 313 “Toxic Release Inventory” reporting requirements of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)[3]</td></tr>
<tr><td>General Facilities</td><td colspan="2">All other commercial or industrial facilities determined to potentially contribute a substantial pollutant load to the MS4.</td></tr>
</table>

[1] as specified in 40 CFR §122.26(b)(14)(i)-(xi)
[2] as specified in 40 CFR §122.26(d)(2)(iv)(C)
[3] 42 U.S.C. § 11023

Critical source facilities are tracked in an electronic database management system. The information stored for each critical source in the inventory is listed in Table ICF-2.

Table ICF-2: Inventory Information for Critical Sources

Information Category		Information
General	Name	Facility Name
	Location	Facility address
		Facility latitude and longitude coordinates
		Receiving water
	Contact	Owner/operator name
		Mailing address
		Phone number
		Email (if available)
Business Type		Standard Industrial Classification (SIC) code and/or North American Industry Classification System (NAICS) code
		Narrative description of the activities performed and/or principal products produced
Water quality		Status of exposure of materials to stormwater
		Pollutants generated by facility activities (A-ICF-1)
		Identification of whether the facility is tributary to a waterbody segment with impairments[4] for pollutants that are also generated by the facility.
Prioritization		High, medium or low. The default priority is medium.
NPDES Permit		For applicable facilities, identify coverage under the State Water Board's General NPDES Permit for the Discharge of Stormwater Associated with Industrial Activities (Industrial General Permit) or other individual or general NPDES permits or any waiver issued by the Regional or State Water Board pertaining to stormwater discharges.
		For Industrial General Permit facilities, identify whether the facility has filed a No Exposure Certification with the State Water Board.

Update Inventory

The critical sources inventory is updated at least annually. The update is accomplished through the collection of new information from sources such as field activities and readily available inter/intra-agency records (e.g. business licenses, pretreatment permits, sanitary sewer connection permits and the State Water Resources Control Board's Storm Water Multiple Application and Report Tracking System (SMARTS)).

[4] CWA § 303(d) listed or subject to a TMDL

Prioritization

Prioritizing facilities by their potential water quality impact provides an excellent opportunity to optimize the effectiveness of the Industrial/Commercial Facilities Program. The three inventory fields under the “Water Quality” category of Table ICF-2 provide information that allows for such a facility prioritization. Based on these fields, the following tables establish a method to prioritize all industrial/commercial facilities into three graded tiers – High, Medium and Low. The City may follow an alternative prioritization method provided it is based on water quality impact and results in a similar three-tiered scheme. In order to maintain a minimum inspection frequency equivalent to the mandates of the MS4 Permit, a condition must be applied to the prioritization process. This condition is explained on the following page.

Prioritization factors

Factor	Description
A	Status of exposure of materials and industrial/commercial activities to stormwater
B	Identification of whether the facility is tributary to a waterbody segment with impairments[5] for pollutants that are also generated by the facility
C	Other factors determined by the City, such as size of facility, presence of exposed soil or history of stormwater violations

Utilizing these factors, follow steps 1, 2 and 3 below:

1. Collect necessary information to evaluate factors

Factor	Initial method	Subsequent method
A	Satellite imagery	Results of stormwater inspection
B	Cross reference Table 4 or Table 5* with tributary TMDL/ 303(d) pollutants	Cross reference inspection results with tributary TMDL/ 303(d) pollutants
C	Varies	

* See pages 9 and 10 of Appendix A-3-1 ICF (guidance for the Industrial/Commercial Facilities Program)

2. Evaluate factors

Factor	Result	Score
	Low or no exposure	0
A	Moderate exposure	½
	Significant exposure	1
B	No**	0
	Yes***	1
	Low	0
C	Medium	½
	High	1

** No pollutant generation/impairment matches
*** ≥ 1 pollutant generation/impairment matches

3. Prioritize facilities

		C Score		
		0	**½**	**1**
A×B Score	**0**	Low	Medium	High
	½	Medium	High	High
	1	High	High	High

This method serves only as a guide to prioritization. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C.

Figure ICF-1: Industrial/Commercial Facility Prioritization Scheme

Step 3 may also be expressed by the relationships $A \cdot B + C \geq 1 \rightarrow$ High, $1 > A \cdot B + C > 0 \rightarrow$ Medium and $A \cdot B + C = 0 \rightarrow$ Low. The purpose of multiplying A and B is to scale the impact of the presence of the

[5] CWA §303(d) listed or subject to a TMDL

pollutants at a facility (B) by the likelihood that they will be discharged to the MS4 (A). Factor C quantifies water quality concerns that are independent of A or B and as such is incorporated through addition. The purpose of this numerical approach is to provide consistency to the prioritization process. It is intended solely as a guide. The City may also prioritize facilities based on a qualitative assessment of factors A, B and C as listed in Figure ICF-1.

Prioritization Condition

The facility prioritization impacts the inspection frequency. In fact the main objective of prioritizing the facilities is to adjust the inspection schedule to focus efforts on water quality priorities. The intent is not to reduce the total number of inspections. In order to maintain a total number of inspections in line with the expectations of the MS4 Permit (i.e. result in the same number of average inspections per year as a semi-quinquennial frequency), one additional condition must be imposed:

The total number of low priority facilities is less than or equal to 3 times the number of high priority facilities.

Prioritization condition

Prioritization Frequency

The default priority for a facility is Medium. Facilities will be reprioritized as necessary following the results of routine inspections. The City may also use any readily available information that clarifies potential water quality impacts (e.g., satellite imagery) in order to prioritize a facility before the initial inspection. Reprioritization may also be conducted at any time as new water quality based information on a facility becomes available. During reprioritization, the ratio of low priority to high priority facilities will remain at 3:1 or lower. Figure ICF-2 is a flowchart of the prioritization process.

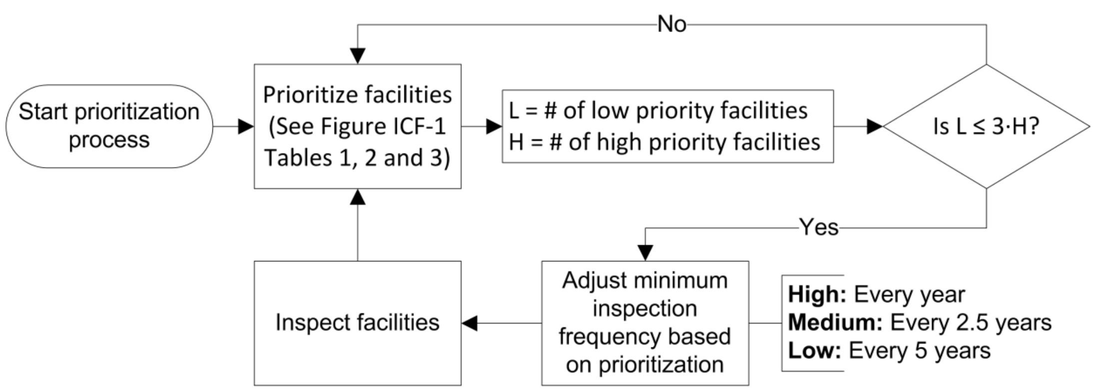

Figure ICF-2: Prioritization Process

Educate Industrial/Commercial Sources

Permit § VI.D.6.c (LA)/ §VII.G.3 (LB)

At least once during the five-year period of the MS4 Permit, the owner/operator of each of the inventoried critical sources is notified of the BMP requirements applicable to the facility/source.

Business Assistance Program

The Business Assistance Program provides technical information to businesses to facilitate their efforts to reduce the discharge of pollutants in stormwater. Assistance is targeted to select business sectors or small businesses upon a determination that their activities may be contributing substantial pollutant loads to the MS4 or receiving water. Assistance may include technical guidance and provision of educational materials. The Program includes at least one of the following components:

- **Technical Guidance** – Provide on-site technical assistance, telephone, or e-mail consultation regarding the responsibilities of businesses to reduce the discharge of pollutants, procedural requirements, and available guidance documents. Guidance methods include but are not limited to:
    - Technical guidance through the critical source inspection program. During an inspection the inspector provides to the business owner/operator 1) on-site technical assistance and 2) contact information for continued consultation. The inspector may also refer staff to relevant fact sheets from the *CASQA Industrial and Commercial BMP Handbook*.
    - Technical guidance initiated with businesses through an informational letter, email, webpage or social media. The notice provides contact information of relevant stormwater staff for business assistance as well as hyperlinks to available guidance documents such as the *CASQA Industrial and Commercial BMP Handbook*.
- **Educational Materials** – Distribute stormwater pollution prevention educational materials to operators of 1) auto repair shops, car wash facilities, restaurants and 2) mobile sources including automobile/equipment repair, washing, or detailing, power washing services, mobile carpet, drape, or upholstery cleaning services, swimming pool, water softener, and spa services, portable sanitary services and commercial applicators and distributors of pesticides, herbicides and fertilizers, if present. Material sources and distribution methods include but are not limited to:
    - Distribution method – The presence of these businesses within an agency's jurisdiction may be determined through business licenses or other readily available inter/intra-agency records.
    - Material sources – Educational materials are available at USEPA's Nonpoint Source (NPS) Outreach Toolbox at http://cfpub.epa.gov/npstbx/index.html. The toolbox is a database of nationwide public education materials that is intended for use by state and local campaigns. The toolbox contains a variety of resources to help develop an effective and targeted outreach campaign.

Inspect Critical Industrial/Commercial Sources

Modified from Permit §VI.D.6.d-e (LA)/ §VII.G.4-5(LB)

Frequency of Inspections

Following the facility prioritization method described in this guidance document, the City will inspect high priority facilities annually, medium priority facilities semi-quinquennially (once every 2.5 years) and low priority facilities quinquennially (once every five years). The frequencies may be altered by the exclusions defined in the following section. The prioritization condition on Page ICF-4 ensures at least the same average number of inspections conducted per year as the semi-quinquennial frequency defined in the MS4 Permit.

The City will conduct the first compliance inspection of industrial/commercial facilities within one year of the approval of the Watershed Management Program by the Executive Officer. There will be a minimum interval of six months between the first and the second mandatory compliance inspections.

Exclusions to the Frequency of Industrial Inspections

<u>Exclusion of Facilities Previously Inspected by the Regional Water Board</u>
The State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS) database[6] is reviewed at defined intervals to determine if an industrial facility has recently been inspected by the Regional Water Board. The first interval is two years after the effective date of the MS4 Permit (LA: December 28, 2014, LB: March 28,, 2016) and the second interval is four years after the effective date (LA: December 28, 2016, LB: March 28, 2018). If it is determined through the review that the Regional Water Board conducted an inspection of a facility within the prior 24 month period, then the facility does not require an inspection.

<u>No Exposure Verification</u>
The initial inspection identifies those facilities that have filed a No Exposure Certification with the State Water Board. Three to four years after the effective date of the MS4 Permit, a second inspection is performed for at least 25% of the facilities identified to have filed a No Exposure Certification. The purpose of this inspection is to verify the continuity of the no exposure status.

Scope of Inspections

A template inspection form is included as Attachment ICF-A.

Scope of Commercial Inspections
Commercial critical source facilities are inspected to confirm that stormwater and non-stormwater BMPs are effectively implemented in compliance with municipal ordinances. At each facility, inspectors verify that the operator is implementing effective source control BMPs for each corresponding activity. The implementation of additional BMPs is required where stormwater from the MS4 discharges to a significant ecological area (SEA), a water body subject to TMDL provisions[7], or a CWA §303(d) listed impaired water body. For those BMPs that are not adequately protective of water quality standards, additional site-specific controls may be required.

Scope of Mandatory Industrial Facility Inspections
At each industrial critical source the inspector confirms that the facility

- Has a current Waste Discharge Identification (WDID) number for coverage under the Industrial General Permit, and that a Storm Water Pollution Prevention Plan (SWPPP) is available on-site; or
- Has applied for, and has received a current No Exposure Certification for facilities subject to this requirement;
- Is effectively implementing BMPs in compliance with municipal ordinances. Facilities must implement the source control BMPs identified in Table ICF-3, unless the pollutant generating activity does not occur. Additional BMPs must be implemented where stormwater from the MS4

[6] SMARTS is accessible at https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp
[7] As described in Part VI.E of the MS4 Permit

discharges to a water body subject to TMDL Provisions in Part VI.E of the MS4 Permit, or a CWA § 303(d) listed impaired water body. If the specified BMPs are not adequately protective of water quality standards, additional site-specific controls may be required. For critical sources that discharge to MS4s that discharge to SEAs, operators must implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards.

- Applicable industrial facilities identified as not having either a current WDID or No Exposure Certification are notified that they must obtain coverage under the Industrial General Permit and will be referred to the Regional Water Board per the Progressive Enforcement Policy procedures identified in Part VI.D.2 of the MS4 Permit.

Source Control BMPs

Permit § VI.D.6.f (LA)/ §VII.G.6 (LB)

Effective source control BMPs for the activities listed in Table ICF-3 are implemented at commercial and industrial facilities, unless the pollutant generating activity does not occur:

Significant Ecological Areas (SEAs)

Permit § VI.D.6.g (LA)/ §VII.H (LB)

For critical sources that discharge to MS4s that discharge to SEAs, each Permittee will require operators to implement additional pollutant-specific controls to reduce pollutants in stormwater runoff that are causing or contributing to exceedances of water quality standards.

Progressive Enforcement

Permit § VI.D.6.h (LA)/ §VII.I (LB)

Each Permittee will implement its Progressive Enforcement Policy to ensure that Industrial / Commercial facilities are brought into compliance with all stormwater requirements within a reasonable time period. See Part VI.D.2 of the MS4 Permit for requirements for the development and implementation of a Progressive Enforcement Policy.

Table ICF-3: Source Control BMPs at Commercial and Industrial Facilities

Pollutant-Generating Activity	**BMP Description**	**BMP Fact Sheet***
Unauthorized Non-Storm water Discharges	Effective elimination of non-stormwater discharges	SC-10
Accidental Spills/ Leaks	Implementation of effective spills/ leaks prevention and response procedures	SC-11
Vehicle/ Equipment Fueling	Implementation of effective fueling source control devices and practices	SC-20
Vehicle/ Equipment Cleaning	Implementation of effective equipment/vehicle cleaning practices and appropriate wash water management practices	SC-21
Vehicle/ Equipment Repair	Implementation of effective vehicle/ equipment repair practices and source control devices	SC-22
Outdoor Liquid Storage	Implementation of effective outdoor liquid storage source controls and practices	SC-31
Outdoor Equipment Operations	Implementation of effective outdoor equipment source control devices and practices	SC-32
Outdoor Storage of Raw Materials	Implementation of effective source control practices and structural devices	SC-33
Storage and Handling of Solid Waste	Implementation of effective solid waste storage/ handling practices and appropriate control measures	SC-34
Building and Grounds Maintenance	Implementation of effective facility maintenance practices	SC-41
Parking/ Storage Area Maintenance	Implementation of effective parking/ storage area designs and housekeeping/ maintenance practices	SC-43
Stormwater Conveyance System Maintenance	Implementation of proper conveyance system operation and maintenance protocols	SC-44
Pollutant-Generating Activity	**BMP Description from Regional Water Board Resolution No. 98-08**	
Sidewalk Washing	1. Remove trash, debris, and free standing oil/grease spills/leaks (use absorbent material, if necessary) from the area before washing; and 2. Use high pressure, low volume spray washing using only potable water with no cleaning agents at an average usage of 0.006 gallons per square feet of sidewalk area.	
Street Washing	Collect and divert wash water to the sanitary sewer – publically owned treatment works (POTW). Note: POTW approval may be needed.	

* Source: CASQA Industrial and Commercial Stormwater BMP Handbook, 2003

Table ICF-4: Potential Pollutants from Industrial Activities*

Activity or Facility Type	Potential Pollutants								
	Sediments	Nutrients	Metals	Organics and Toxicants**	Floatable Materials	Oxygen-Demanding Substances	Oil and Grease	Bacteria	Pesticides
Vehicle & Equipment Fueling			✕	✕					
Vehicle & Equipment Washing and Steam Cleaning	✕	✕	✕	✕		✕	✕		
Vehicle & Equipment Maintenance and Repair			✕	✕			✕		
Outdoor Loading & Unloading of Materials	✕	✕	✕	✕	✕	✕	✕		
Outdoor Container Storage of Liquids		✕	✕	✕		✕	✕		✕
Outdoor Process Equipment Operations and Maintenance	✕		✕	✕			✕		
Outdoor Storage of Raw Materials, Products, and Byproducts	✕	✕	✕	✕	✕	✕	✕		
Waste Handling & Disposal			✕	✕	✕	✕	✕	✕	
Contaminated or Erodible Surface Areas	✕	✕	✕	✕	✕	✕	✕	✕	
Building and Grounds Maintenance	✕	✕	✕		✕	✕		✕	✕
Building Repair, Remodeling, and Construction	✕		✕		✕	✕			
Parking/Storage Area Maintenance			✕	✕	✕		✕		

* Source: CASQA Industrial and Commercial Stormwater BMP Handbook, 2003

** This includes all toxic pollutants other than pesticides

Table ICF-5: Potential Pollutants by Industrial/Commercial Facility Type*

Activity or Facility Type	Potential Pollutants								
	Sediments	Nutrients	Metals	Organics and Toxicants**	Floatable Materials	Oxygen-Demanding Substances	Oil and Grease	Bacteria	Pesticides
Vehicle mechanical repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Airplane mechanical repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Boat mechanical repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Equipment repair, maintenance, fueling, or cleaning	✕	✕	✕	✕		✕	✕		
Automobile and other vehicle body repair or painting			✕	✕			✕		
Mobile automobile or other vehicle washing	✕	✕	✕			✕	✕		
Automobile (or other vehicle) parking lots and storage			✕		✕		✕		
Retail or wholesale fueling			✕	✕	✕		✕		
Pest control services									✕
Eating or drinking establishments		✕		✕	✕	✕	✕	✕	✕
Mobile carpet, drape or furniture cleaning	✕			✕					
Cement mixing or cutting	✕								
Masonry	✕								
Painting and coating			✕	✕			✕		
Botanical or zoological gardens and exhibits	✕	✕			✕	✕		✕	✕
Landscaping	✕	✕			✕	✕		✕	✕
Nurseries and greenhouses	✕	✕			✕	✕		✕	✕
Golf courses, parks and other recreational areas/facilities	✕	✕			✕	✕		✕	✕
Cemeteries	✕	✕			✕	✕		✕	✕
Pool and fountain cleaning		✕	✕	✕	✕	✕		✕	
Marinas			✕	✕	✕	✕	✕	✕	
Port-a-Potty servicing		✕			✕	✕		✕	

* Source: Orange County Drainage Area Management Plan, 2003

** This includes all toxic pollutants other than pesticides

Planning and Land Development Program

The Cities are required to implement a Planning and Land Development program that includes the provisions listed in the MS4 Permit (LA MS4 Permit §VI.D.7, LB MS4 Permit §VII.J). This document provides guidance that the participating cities can follow to implement a Planning and Land Development program in compliance with the MS4 Permit.

Introduction

Permit §VI.D.7.a (LA)/§VII.J.1 (LB)

The Planning and Land Development Program for all New Development and Redevelopment projects subject to the MS4 Permit includes measures to:

- Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.
- Minimize the adverse impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code §21000 et seq.).
- Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing Low Impact Development (LID) design principles to mimic pre-development hydrology through infiltration, evapotranspiration and rainfall harvest and use.
- Maintain existing riparian buffers and enhance riparian buffers when possible.
- Minimize pollutant loadings from impervious surfaces such as roof tops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including Source Control BMPs such as good housekeeping practices), LID Strategies, and Treatment Control BMPs.
- Properly select, design and maintain LID and Hydromodification Control BMPs to address pollutants that are likely to be generated, reduce changes to pre-development hydrology, assure long-term function, and avoid the breeding of vectors.[1]
- Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources in the following order of preference:
  - On-site infiltration, bioretention and/or rainfall harvest and use.
  - On-site biofiltration, off-site groundwater replenishment, and/or off-site retrofit.

[1] Treatment BMPs when designed to drain within 96 hours of the end of rainfall minimize the potential for the breeding of vectors. See California Department of Public Health *Best Management Practices for Mosquito Control in California* (2012) at http://www.westnile.ca.gov/resources.php

Applicability

Permit §VI.D.7.b (LA)/§VII.J.2-3 (LB)

New Development Projects

The New Development and Redevelopment categories below will require a Standard Urban Stormwater Mitigation Plan (SUSMP), also known as a Low Impact Development (LID) Plan, containing stormwater mitigation measures in compliance with MS4 Permit requirements. Development projects subject to conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s), are listed below:

1. All development projects (including single family hillside homes) equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious surface area
2. Industrial parks with 10,000 square feet or more of surface area
3. Commercial malls with 10,000 square feet or more surface area
4. Retail gasoline outlets with 5,000 square feet or more of surface area
5. Restaurants (SIC 5812) with 5,000 square feet or more of surface area
6. Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces
7. Automotive service facilities (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area
8. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA), where the development will:
   a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and
   b. Create 2,500 square feet or more of impervious surface area
9. Redevelopment projects in subject categories that meet Redevelopment thresholds identified below

Redevelopment Projects

Redevelopment projects subject to agency conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, prior to completion of the project(s), are:

1. Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on development categories identified above.
2. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.
3. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire

development.

4. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency Redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.
5. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add, or replace 10,000 square feet of impervious surface area.

Special Provisions

1. Street and road construction of 10,000 square feet or more of impervious surface area
   a. These projects will follow an approved green streets manual to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects. The Cities will require a Standard Urban Mitigation Plan (SUSMP), also known as a Low Impact Development (LID) Plan, containing stormwater mitigation measures in compliance with the approved green streets manual requirements.
2. Single family hillside homes will require a less extensive plan. To the extent that an agency may lawfully impose conditions, mitigation measures or other requirements on the development or construction of a single-family home in a hillside area as defined in the applicable agency's Code and Ordinances, the Cities will require that during the construction of a single-family hillside home, the following measures are implemented:
   a. Conserve natural areas
   b. Protect slopes and channels
   c. Provide storm drain system stenciling and signage
   d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability
   e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

New Development/ Redevelopment
Project Performance Criteria

Permit §VI.D.7.c (LA)/§VII.J.4 (LB)

Integrated Water Quality/Flow Reduction/Resources Management Criteria

All New Development and Redevelopment projects identified above will control pollutants, pollutant loads, and runoff volume emanating from the project site by: (1) minimizing the impervious surface area and (2) controlling runoff from impervious surfaces through infiltration, bioretention and/or rainfall harvest and use.

Projects will retain on-site the Stormwater Quality Design Volume (SWQDv) defined as the runoff from the 0.75-inch, 24-hour rain event or the 85th percentile, 24-hour rain event, as determined from the Los Angeles County 85th percentile precipitation isohyetal map[2], *whichever is greater*. Exceptions include technical infeasibility, opportunity for regional groundwater replenishment, local ordinance equivalence, or hydromodification, as described in the sections below.

When evaluating the potential for on-site retention, the Cities will consider the maximum potential for evapotranspiration from green roofs and rainfall harvest and use.

Alternative Compliance for Technical Infeasibility or Opportunity for Regional Groundwater Replenishment

In instances of technical infeasibility or where a project has been determined to provide an opportunity to replenish regional groundwater supplies at an offsite location, the Cities may allow projects to comply with the MS4 Permit through the alternative compliance measures as described below:

1. To demonstrate technical infeasibility, the project applicant must demonstrate that the project cannot reliably retain 100 percent of the SWQDv on-site, even with the maximum application of green roofs and rainwater harvest and use, and that compliance with the applicable post-construction requirements would be technically infeasible by submitting a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect. Conditions where technical infeasibility may result including those indicated in

[2] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

2. Table PLD- **1** below. To utilize alternative compliance measures to replenish groundwater at an offsite location, the project applicant will demonstrate *(i)* why it is not advantageous to replenish groundwater at the project site, *(ii)* that groundwater can be used for beneficial purposes at the offsite location, and *(iii)* that the alternative measures will also provide equal or greater water quality benefits to the receiving surface water than the Water Quality/Flow Reduction/Resource Management Criteria.

Table PLD- 1: Technical Infeasibility Criteria

1.	The infiltration rate of saturated in-situ soils is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of infiltration or bioretention BMPs in retaining the SWQDv on-site.
2.	Locations where seasonal high groundwater is within 5 to 10 feet of the surface,
3.	Locations within 100 feet of a groundwater well used for drinking water,
4.	Brownfield development sites where infiltration poses a risk of causing pollutant mobilization,
5.	Other locations where pollutant mobilization is a documented concern. Pollutant mobilization is considered a documented concern at or near properties that are contaminated or store hazardous substances underground.
6.	Locations with potential geotechnical hazards
7.	Smart growth and infill or Redevelopment locations where the density and/ or nature of the project would create significant difficulty for compliance with the on-site volume retention requirement.

Alternative Compliance Measures

When a project applicant has demonstrated that it is technically infeasible to retain 100 percent of the SWQDv on-site, or is proposing an alternative offsite project to replenish regional groundwater supplies, the agency will require one of the following mitigation options:

1. On-site Biofiltration

   If using biofiltration due to demonstrated technical infeasibility, then the project must biofiltrate 1.5 times the portion of the SWQDv that is not reliably retained on-site, as calculated by Equation 1 below.

$$B_v = 1.5 * [SWQD_v - R_V] \qquad \textit{Equation 1}$$

   Where:

   Bv = biofiltration volume

   SWQDv = the stormwater runoff from a 0.75 inch, 24-hour storm or the 85th percentile storm[3], *whichever is greater*.

   Rv = volume reliably retained on-site

The MS4 Permit does not mention flowrate based biotreatment BMPs; however, proprietary biotreatment systems are often sized using flowrate rather than volume. Additionally, in cases where a pump is needed prior to entering the biotreatment BMP, the system requires sizing based on the controlled flow from the pump. Therefore, if it is infeasible to size a biotreatment BMP with volume-based calculations, the flowrate may be substituted in lieu of volume. Similarly, the flow rate must be determined using the design storm of 0.75 inch, 24-hour storm event or the 85th percentile storm[1], whichever is greater.

   Conditions for On-site Biofiltration include the following:

   a. Biofiltration systems will meet the design specifications provided in Attachment H to the MS4 Permit unless otherwise approved by the Regional Water Board Executive Officer.

[3] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

RB-AR15855

b. Biofiltration systems discharging to a receiving water that is included on the Clean Water Act section 303(d) list of impaired water quality-limited water bodies due to nitrogen compounds or related effects will be designed and maintained to achieve enhanced nitrogen removal capability. See Attachment H of the MS4 Permit for design criteria for underdrain placement to achieve enhanced nitrogen removal.

2. Offsite Infiltration

Offsite infiltration when implemented will use infiltration or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv, less the volume of stormwater runoff reliably retained on-site, at an approved offsite project and provide pollutant reduction (treatment) of the stormwater runoff discharged from the project site in accordance with the Water Quality Mitigation Criteria. The required offsite mitigation volume will be calculated by Equation 2 below.

$$M_v = 1.0 * [SWQD_v - R_v] \qquad \textit{Equation 2}$$

Where:

M_v = mitigation volume

$SWQD_v$ = runoff from the 0.75 inch, 24-hour storm event or the 85th percentile storm[4], *whichever is greater*

R_v = the volume of stormwater runoff reliably retained on-site.

3. Groundwater Replenishment Projects

Regional projects to replenish regional groundwater supplies at offsite locations may be proposed, provided the groundwater supply has a designated beneficial use in the Basin Plan. Regional groundwater replenishment projects must use infiltration, groundwater replenishment, or bioretention BMPs to intercept a volume of stormwater runoff equal to the SWQDv for New Development and Redevelopment projects, subject to conditioning and approval for the design and implementation of post-construction controls, within the approved project area. The projects must provide pollutant reduction (treatment) of the stormwater runoff discharged from development projects, within the project area, subject to conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution in accordance with the Water Quality Mitigation Criteria.

Regional groundwater replenishment projects being implemented in lieu of onsite controls will mitigate the volume as calculated using Equation 2 above.

Regional groundwater replenishment projects will be located in the same sub-watershed (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) as the New Development or Redevelopment projects which did not implement on-site retention BMPs. Locations outside of the HUC-12 but within the HUC-10 subwatershed area may be considered if there are no opportunities within the HUC-12 subwatershed or if greater pollutant reductions and/or groundwater

[4] Found at <http://ladpw.org/wrd/publication/engineering/Final_Report-Probability_Analysis_of_85th_Percentile_24-hr_Rainfall1.pdf>

replenishment can be achieved at a location within the expanded HUC-10 subwatershed. *The use of a mitigation, groundwater replenishment, or retrofit project outside of the HUC-12 subwatershed is subject to the approval of the Executive Officer of the Regional Water Board*.

4. Offsite Project -Retrofit Existing Development

   Use infiltration, bioretention, rainfall harvest and use and/or biofiltration BMPs to retrofit an existing development, with similar land uses as the New Development or land uses associated with comparable or higher stormwater runoff event mean concentrations (EMCs) than the new development. Comparison of EMCs for different land uses will be based on published data from studies performed in southern California. The retrofit plan will be designed and constructed to:

   a. Intercept a volume of stormwater runoff equal to the mitigation volume (Mv) as described above in Equation 2, except biofiltration BMPs will be designed to meet the biofiltration volume or flowrate as described in Equation 1, and

   b. Provide pollutant reduction (treatment) of the stormwater runoff from the project site as described in the Water Quality Mitigation Criteria.

5. Conditions for Offsite Projects

   Project applicants seeking to utilize these alternative compliance provisions may propose other offsite projects, which the agency in which the project is located may approve if they meet the requirements of this subpart.

   a. Location of offsite projects. Offsite projects will be located in the same sub-watershed (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) as the New Development or Redevelopment project. Locations outside of the HUC-12 but within the HUC-10 subwatershed area may be considered if there are no opportunities within the HUC-12 subwatershed or if greater pollutant reductions and/or groundwater replenishment can be achieved at a location within the expanded HUC-10 subwatershed. *The use of a mitigation, groundwater replenishment, or retrofit project outside of the HUC-12 subwatershed is subject to the approval of the Executive Officer of the Regional Water Board.*

   b. Project applicant must demonstrate that equal benefits to groundwater recharge can be met on the project site.

   c. A prioritized list of potential offsite mitigation, groundwater replenishment and/or retrofit projects will be developed within each agency, and when feasible, the mitigation will be directed to the highest priority project within the same HUC-12 or if approved by the Regional Water Board Executive Officer, the HUC-10 drainage area, as the New Development project.

   d. Infiltration/bioretention will be the preferred LID BMP for offsite mitigation or groundwater replenishment projects. Offsite retrofit projects may include green streets, parking lot retrofits, green roofs, and rainfall harvest and use. Biofiltration BMPs may be considered for retrofit projects when infiltration, bioretention or rainfall harvest and use is technically infeasible.

   e. The agency in which the project is located will develop a schedule for the completion of offsite projects, including milestone dates to identify, fund, design, and construct the projects. Offsite

projects will be completed as soon as possible, and at the latest, within 4 years of the certificate of occupancy for the first project that contributed funds toward the construction of the offsite project, unless a longer period is otherwise authorized by the Executive Officer of the Regional Water Board. For public offsite projects, the agency in which the project is located must provide in their annual reports a summary of total offsite project funds raised to date and a description (including location, general design concept, volume of water expected to be retained, and total estimated budget) of all pending public offsite projects. Funding sufficient to address the offsite volume must be transferred to the agency (for public offsite mitigation projects) or to an escrow account (for private offsite mitigation projects) within one year of the initiation of construction.

f. Offsite projects must be approved by the agency in which the project is located and may be subject to approval by the Regional Water Board Executive Officer, if a third-party petitions the Executive Officer to review the project. Offsite projects will be publicly noticed on the Regional Water Board's website for 30 days prior to approval.

g. The project applicant must perform the offsite projects as approved by either the agency or the Regional Water Board Executive Officer or provide sufficient funding for public or private offsite projects to achieve the equivalent mitigation stormwater volume.

6. Regional Stormwater Mitigation Program

An agency or agency group may apply to the Regional Water Board for approval of a regional or sub-regional stormwater mitigation program to substitute in part or wholly for New and Redevelopment requirements for the area covered by the regional or sub-regional stormwater mitigation program. Upon review and a determination by the Regional Water Board Executive Officer that the proposal is technically valid and appropriate, the Regional Water Board may consider for approval such a program if its implementation meets all of the following requirements:

a. Retains the runoff from the 85th percentile, 24-hour rain event or the 0.75 inch, 24-hour rain event, whichever is greater;

b. Results in improved stormwater quality;

c. Protects stream habitat;

d. Promotes cooperative problem solving by diverse interests;

e. Is fiscally sustainable and has secure funding; and

f. Is completed in five years including the construction and start-up of treatment facilities.

7. Water Quality Mitigation Criteria

All New Development and Redevelopment projects that have been approved for offsite mitigation or groundwater replenishment projects will also provide treatment of stormwater runoff from the project site. These projects will design and implement post-construction stormwater BMPs and control measures to reduce pollutant loading as necessary to:

a. Meet the pollutant specific benchmarks listed in Table PLD2 at the treatment systems outlet or prior to the discharge to the MS4, and

b. Ensure that the discharge does not cause or contribute to an exceedance of water quality standards at the agency's downstream MS4 outfall.

The project proponent may be allowed to install flow-through modular treatment systems including sand filters, or other proprietary BMP treatment systems with a demonstrated efficiency at least equivalent to a sand filter. The sizing of the flow through treatment device will be based on a rainfall intensity of 0.2 inches per hour, or the one year, one-hour rainfall intensity as determined from the most recent Los Angeles County isohyetal map, *whichever is greater*.

Table PLD- 2: Benchmarks Applicable to New Development Treatment BMPs.

Conventional Pollutants					
Pollutant	Suspended Solids mg/L	Total P mg/L	Total N mg/L	TKN mg/L	
Effluent Concentration	14	0.13	1.28	1.09	
Metals					
Pollutant	Total Cd µg/L	Total Cu µg/L	Total Cr µg/L	Total Pb µg/L	Total Zn µg/L
Effluent Concentration	0.3	6	2.8	2.5	23

New developments and redevelopments will not cause or contribute to an exceedance of applicable water quality-based effluent limitations established in the MS4 Permit pursuant to Total Maximum Daily Loads (TMDLs).

8. Hydromodification (Flow/ Volume/ Duration) Control Criteria

All New Development and Redevelopment projects located within natural drainage systems will implement hydrologic control measures, to prevent accelerated downstream erosion and to protect stream habitat in natural drainage systems. The purpose of the hydrologic controls is to minimize changes in post-development hydrologic stormwater runoff discharge rates, velocities, and duration. This will be achieved by maintaining the project's pre-project stormwater runoff flow rates and durations.

<u>*Description*</u>

Hydromodification control in natural drainage systems will be achieved by maintaining the Erosion Potential (Ep) in streams at a value of 1, unless an alternative value can be shown to be protective of the natural drainage systems from erosion, incision, and sedimentation that can occur as a result of flow increases from impervious surfaces and prevent damage to stream habitat in natural drainage system tributaries[5]. Hydromodification mitigation approaches should meet the criteria below:

a. Hydromodification control may include one, or a combination of on-site, regional or sub-regional hydromodification control BMPs, LID strategies, or stream and riparian buffer restoration measures. Any in-stream restoration measure shall not adversely affect the beneficial uses of the natural drainage systems.

b. Natural drainage systems that are subject to the hydromodification assessments and controls,

[5] See Attachment J of the MS4 Permit, "*Determination of Erosion Potential*"

as described in this section, include all drainages that have not been improved (e.g., channelized or armored with concrete, shotcrete, or rip-rap) or drainage systems that are tributary to a natural drainage system, except as provided in Exemptions to Hydromodification Controls, see below. The clearing or dredging of a natural drainage system does not constitute an "improvement."

c. Until the State Water Board or the Regional Water Board adopts a final Hydromodification Policy or criteria, the Hydromodification Control Criteria described in this section will be implemented to control the potential adverse impacts of changes in hydrology that may result from New Development and Redevelopment projects located within natural drainage systems.

Exemptions to Hydromodification Controls

New Development and Redevelopment projects may be exempt from implementation of hydromodification controls where assessments of downstream channel conditions and proposed discharge hydrology indicate that adverse hydromodification effects to beneficial uses of Natural Drainage Systems are unlikely. Conditions for exemptions include the following:

a. Projects involving replacement, maintenance or repair of an agency's existing flood control facility, storm drain, or transportation network.

b. Redevelopment Projects in the center of urban areas that do not increase the effective impervious area or decrease the infiltration capacity of pervious areas compared to the pre-project conditions.

c. Projects that have any increased discharge directly or via a storm drain to a sump, lake, area under tidal influence, into a waterway that has a 100-year peak flow (Q100) of 25,000 cfs or more, or other receiving water that is not susceptible to hydromodification impacts.

d. Projects that discharge directly or via a storm drain into concrete or otherwise engineered (not natural) channels (e.g., channelized or armored with rip rap, shotcrete, etc.), which, in turn, discharge into receiving water that is not susceptible to hydromodification impacts.

e. LID BMPs implemented on single family homes are sufficient to comply with hydromodification criteria.

Hydromodification Control Criteria

The Hydromodification Control Criteria to protect natural drainage systems are as follows:

a. Except for exemptions described above, projects disturbing an area greater than 1 acre but less than 50 acres within natural drainage systems will be presumed to meet pre-development hydrology if one of the following demonstrations is made:

    i. The project is designed to retain on-site, through infiltration, evapotranspiration, and/or harvest and use, the stormwater volume from the runoff of the 95th percentile, 24-hour storm, or

ii. The runoff flow rate, volume, and velocity for the post-development condition do not exceed the pre-development condition for the 2-year, 24-hour rainfall event and the duration for the post-development condition is not less than the pre-development condition for the 2-year, 24-hour rainfall event. This condition may be substantiated by simple screening models, including those described in Hydromodification Effects on Flow Peaks and Durations in Southern California Urbanizing Watersheds (Hawley et al., 2011) or other models acceptable to the Executive Officer of the Regional Water Board, or

> The MS4 Permit states projects will meet Hydromodification Control Criteria if "*The...duration for the post-development condition **do[es] not exceed** the pre-development condition for the 2-year, 24-hour rainfall event*." The runoff duration (Tc) is generally associated with longer values resulting in lower concern for hydromodification impacts. Implementation of LID BMPs generally results in runoff not immediately (or not at all) discharging from the site, increasing the time of concentration. Thus, the interpretation presented herein is that Hydromodification Control Criteria would be met if the runoff duration for the post-development condition is **not less than** the pre-development condition for the 2-year, 24-hour rainfall event.

iii. The Erosion Potential (Ep) in the receiving water channel will approximate 1, as determined by a Hydromodification Analysis Study and the equation presented in Attachment J of the MS4 Permit. Alternatively, agencies can opt to use other work equations to calculate Erosion Potential with Executive Officer approval.

b. Projects disturbing 50 acres or more within natural drainage systems will be presumed to meet pre-development hydrology based on the successful demonstration of one of the following conditions:

i. The site infiltrates on-site at least the runoff from a 2-year, 24hour storm event, or

ii. The runoff flow rate, volume, and velocity for the post-development condition does not exceed the pre-development condition for the 2-year, 24-hour rainfall event and the duration for the post-development condition is not less than the pre-development condition for the 2-year, 24-hour rainfall event. These conditions must be substantiated by hydrologic modeling acceptable to the Regional Water Board Executive Officer, or

iii. The Erosion Potential (Ep) in the receiving water channel will approximate 1, as determined by a Hydromodification Analysis Study and the equation presented in Attachment J of the MS4 Permit.

Alternative Hydromodification Criteria

The requirement for Hydromodification Controls will be satisfied by implementing the hydromodification requirements in the County of Los Angeles Low Impact Development Manual (2009) for all projects disturbing an area greater than 1 acre within natural drainage systems.

3. Watershed Equivalence

Regardless of the methods through which applicants implement alternative compliance measures,

the subwatershed-wide (defined as draining to the same HUC-12 hydrologic area in the Basin Plan) result of all development must be at least the same level of water quality protection as would have been achieved if all projects utilizing these alternative compliance provisions had complied with the Integrated Water Quality/Flow Reduction/Resource Management Criteria, described herein.

4. Annual Report

Annual Reports will be provided to the Regional Water Board to include a list of mitigation project descriptions and estimated pollutant and flow reduction analyses (compiled from design specifications submitted by project applicants, as approved. Within 4 years of the MS4 Permit adoption, the Annual Reports will include a comparison of the expected aggregate results of alternative compliance projects to the results that would otherwise have been achieved by retaining on site the SWQDv.

Implementation *Permit §VI.D.7.d (LA)/§VII.J.5 (LB)*

Local Ordinance Equivalence

Alternative requirements in the local ordinances for the agencies of this WMP will provide equal or greater reduction in stormwater discharge pollutant loading and volume as would have been obtained through strict conformance with the Integrated Water Quality/Flow Reduction Resources Management Criteria, Alternative Compliance Measures for Technical Infeasibility, or Opportunity for Regional Groundwater Replenishment sections herein and, if applicable, the Hydromodification (Flow/Volume Duration) Control Criteria section herein.

Project Coordination

A process for effective approval of post-construction stormwater control measures will be developed to include:

a. Detailed LID site design and BMP review including review of BMP sizing calculations, BMP pollutant removal performance, and municipal approval; and

b. An established structure for communication and delineated authority between and among municipal departments that have jurisdiction over project review, plan approval, and project construction through memoranda of understanding or an equivalent agreement.

Maintenance Agreement and Transfer

Prior to issuing approval for final occupancy, the Cities will require that all New Development and Redevelopment projects subject to post-construction BMP requirements, with the exception of simple LID BMPs implemented on single family residences, provide an operation and maintenance plan, monitoring plan, where required, and verification of ongoing maintenance provisions for LID practices, Treatment Control BMPs, and Hydromodification Control BMPs including but not limited to: final map conditions, legal agreements, covenants, conditions or restrictions, CEQA mitigation requirements, conditional use permits, and/ or other legally binding maintenance agreements (see Attachments PLD-A and PLD-B for MCA and MCA Termination sample templates, respectively). Agencies will require maintenance records be kept on site.

Verification at a minimum will include the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either:

a. A signed statement from the public entity assuming responsibility for BMP maintenance; or

b. Written conditions in the sales or lease agreement, which require the property owner or tenant to assume responsibility for BMP maintenance and conduct a maintenance inspection at least once a year; or

c. Written text in project covenants, conditions, and restrictions (CCRs) for residential properties assigning BMP maintenance responsibilities to the Home Owners Association; or

d. Any other legally enforceable agreement or mechanism that assigns responsibility for the maintenance of BMPs.

All development projects subject to post-construction BMP requirements will provide a plan for the operation and maintenance of all structural and treatment controls. The plan will be submitted for examination of relevance to keeping the BMPs in proper working order. Where BMPs are transferred to agency for ownership and maintenance, the plan will also include all relevant costs for upkeep of BMPs in the transfer. Operation and Maintenance plans for private BMPs will be kept on-site for periodic review by agency inspectors.

A tracking system and an inspection and enforcement program will be maintained for New Development and Redevelopment post-construction stormwater as shown in Table PLC-3. Enforcement action will be taken per the established Progressive Enforcement Policy as appropriate based on the results of the inspection. See Section for requirements for the development and implementation of a Progressive Enforcement Policy (Appendix A-3-1_PEP).

Table PLD-3: Tracking, Inspection, and Enforcement Program Components

Program	Description	Components	
GIS or other Electronic System	A GIS or other electronic system will be implemented for tracking projects that have been conditioned for post-construction BMPs.	− Municipal Project ID − State WDID No. − Project Acreage − BMP Type and Description − BMP Location (coordinates) − Date of Maintenance Agreement − Date of Acceptance	− Maintenance Records − Inspection Date and Summary − Corrective Action − Date Certificate of Occupancy Issued − Replacement or Repair Date
Inspections[6]	Inspect all development sites upon completion of construction and prior to the issuance of occupancy	Proper installation of: − LID measures, − Structural BMPs,	

[6] The inspection may be combined with other inspections provided it is conducted by trained personnel.

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	certificates.	– Treatment control BMPs, and – Hydromodification control BMPs.
Operation and Maintenance[7]	Verify proper operation and maintenance of post-construction BMPs. Inspection at least once every 2 years after project completion.	– Follow a Post-construction BMP Maintenance Inspection checklist (See Attachment PLD-C) – Assess operation and maintenance conditions relating to post-construction BMPs, including BMP repair, replacement, or re-vegetation.

Plan Certification

Each SUSMP/LID Plan should contain proper certifications. The following approach is suggested for SUSMP/LID Plan submittals:

- Form signed by the property owner/applicant stating the category in which the project falls under to easily define the NPDES requirements (see Attachment PLD-D for Form PC sample template).
- Form signed by the property owner/applicant certifying that the BMPs will be implemented, monitored, and maintained per SUSMP/LID Plan requirements (see Attachment PLD-E for Form P1 sample template).
- Form signed and stamped by a California registered civil engineer stating the proposed structural BMPs and certifying the methods and requirements are in compliance with the MS4 Permit requirements (see Attachment PLD-F for Form P2 sample template).

[7] For post-construction BMPs operated and maintained by parties other than the agency in which the BMP(s) is located, the agency will require the other parties to document proper maintenance and operations.

Development Construction Program

The Cities are required to develop, implement and enforce a construction program that includes the provisions listed in MS4 Permit §VI.D.8 (LB §VII.K). This document provides guidance to assist the Cities in implementing a construction program in compliance with the MS4 Permit.

Objectives

Permit §VI.D.8.a (LA)/§VII.K.1 (LB)

The objectives of the construction program are to:

- Prevent illicit construction-related discharges of pollutants into the MS4 and receiving waters.
- Implement and maintain structural and non-structural BMPs to reduce pollutants in stormwater runoff from construction sites.
- Reduce construction site discharges of pollutants to the MS4 to the MEP.
- Prevent construction site discharges to the MS4 from causing or contributing to a violation of water quality standards.

Erosion and Sediment Control Ordinance

Permit §VI.D.8.b (LA)/ §VII.K.1 (LB)

The construction program requires an established, enforceable erosion and sediment control ordinance for all construction sites that disturb soil.

Applicability

Permit §VI.D.8.c (LA)/ §VII.K.1.v (LB)

The construction program addresses construction activity as defined in Table DC-1.

Table DC-1: Definitions

Construction Activity	
Definition	Any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in land disturbance.
Examples	Grading, vegetation clearing, soil compaction, paving, repaving and linear underground/overhead projects (LUPs) that result in land disturbance.
Exclusions	Emergency construction required to immediately protect public health and safety, *routine maintenance* as defined below and agricultural activities.
Routine Maintenance (construction program exclusion)	
Definition	Projects required to maintain the integrity of structures, including but not limited to the following:
Examples	Maintaining the original line and grade, hydraulic capacity, or original purpose of the facility.
	Performing restoration work to preserve the original design grade, integrity and hydraulic capacity of flood control facilities.
	Performing road shoulder work, regrading dirt/gravel roadways/shoulders and cleaning out ditches.
	Update existing lines (includes replacing with new materials or pipe) and facilities to comply with applicable codes, standards, and regulations regardless if such projects result in increased capacity.
	Repair leaks
Exclusion	New lines (i.e. not associated with existing facilities and not part of a project to update or replace existing lines) or facilities constructed to comply with applicable codes, standards and regulations.

The greater part of the construction program is dedicated to construction sites that disturb one acre or more of soil (with the exception of agricultural activities). This coincides with the size threshold for coverage under the State Water Resources Control Board's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. The program provisions exclusive to sites less than one acre are addressed first.

Construction Sites Less than One Acre

Permit §VI.D.8.d (LA)/§VII.K.1.vi (LB)

BMPs (< 1 acre)

Through the use of the erosion and sediment control ordinance and/or building permit, construction sites are required have in place an effective combination of erosion and sediment control BMPs from Table DC-2 to prevent erosion and sediment loss and the discharge of construction wastes.

Table DC-2: Applicable Set of BMPs for All Construction Sites

BMP Type	BMP
Erosion Controls	Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Site Entrance/Exit
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

Inventory (< 1 acre)

All construction sites with soil disturbing activities that require a permit, regardless of size, are identified and stored in an inventory. Existing permit databases or other tracking systems may be used to file this information. The list of permitted sites is provided to the Regional Water Board upon request.

Inspections (< 1 acre)

Construction sites are inspected on as needed based on the evaluation of the factors that are a threat to water quality. In evaluating the threat to water quality, the following factors are considered: soil erosion potential, site slope, project size and type, sensitivity of receiving water bodies, proximity to receiving water bodies, nonstormwater discharges, past record of noncompliance by the operators of the construction site and any water quality issues relevant to the particular MS4.

Enforcement (< 1 acre)

The Progressive Enforcement Policy (MS4 Permit §VI.D.2) is implemented to ensure that construction sites are brought into compliance with the erosion and sediment control ordinance within a reasonable time period.

Construction Sites One Acre or Greater

Operators of public and private construction sites within a city's jurisdiction are required to select, install, implement, and maintain BMPs that comply with the erosion and sediment control ordinance.

Construction Site Inventory / Electronic Tracking System *Permit §VI.D.8.g (LA)/§VII.K.1.ix (LB)*

An electronic system is used to inventory all issued grading permits, encroachment permits, demolition permits, building permits, or construction permits (and any other municipal authorization to move soil and/ or construct or destruct that involves land disturbance). A database management system or GIS system is recommended. This inventory is continuously updated as new sites are permitted and sites are completed. The inventory / tracking system contains at a minimum the items listed in Table DC-3.

Table DC-3: Inventory Information for Constructions Sites

Information Type		Information
General	Name	Project Name
	Location	Site address and/or latitude and longitude coordinates
		Receiving water
	Contact	Names of owner and contractor
		Mailing addresses of owner and contractor
		Phone numbers of owner and contractor
		Emails (if available) of owner and contractor
Status		Start and end dates
		Permit approval date and anticipated completion date
		Erosion and Sediment Control Plan (ESCP) approval date
		Status of NOI submittal and CGP coverage
		Current construction phase (where feasible)
Size		Size of project and area of disturbance
Water quality		Proximity to waterbodies listed as impaired[1] by sediment related pollutants
		Proximity to waterbodies for which a sediment-related TMDL has been adopted and approved by USEPA
		Status as a significant threat to water quality (based on a consideration of factors listed in Appendix 1 to the CGP)
Inspection		Inspection frequency
Post construction		List of post-construction structural BMPs subject to O&M requirements

Construction Plan Review and Approval Procedures *Permit §VI.D.8.h (LA)/§VII.K.1.x (LB)*

Plan review procedures are developed and implemented such that the following minimum requirements are met:

- Prior to issuing a grading or building permit, each operator of a construction activity within the city's jurisdiction of which the project is located is required to prepare and submit an ESCP prior to the disturbance of land for review and written approval. The construction site operator is prohibited from commencing construction activity prior to receipt of written approval by the city of which the project is located. An ESCP is not approved unless it contains appropriate site-

[1] CWA §303(d) listed or subject to a TMDL

specific construction site BMPs that meet the minimum requirements of the erosion and sediment control ordinance.

- ESCPs must include the elements of a Storm Water Pollution Prevention Plan (SWPPP). SWPPPs prepared in accordance with the requirements of the Construction General Permit can be accepted as ESCPs.
- At a minimum, the ESCP must address the following elements:
    - Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside of the disturbed area.
    - Methods used to protect native vegetation and trees.
    - Sediment/Erosion Control.
    - Controls to prevent tracking on and off the site.
    - Nonstormwater controls (e.g., vehicle washing, dewatering, etc.).
    - Materials Management (delivery and storage).
    - Spill Prevention and Control.
    - Waste Management (e.g., concrete washout/waste management; sanitary waste management).
    - Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
- The ESCP must include the rationale for the selection and design of the proposed BMPs, including quantifying the expected soil loss from different BMPs.
- The ESCP must be developed and certified by a Qualified SWPPP Developer (QSD).
- All structural BMPs must be designed by a licensed California Engineer.
- The landowner or the landowner's agent must sign a statement on the ESCP as follows (see Attachment DC-A for sample OC-1 template):

  "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law."

- Prior to issuing a grading or building permit, the city of which the project is located verifies that the construction site operators have existing coverage under applicable permits, including, but not limited to the State Water Board's Construction General Permit, and State Water Board 401 Water Quality Certification.
- A checklist is used to conduct and document review of each ESCP (see Attachment DC-B for the ESCP Checklist sample template).

BMP Implementation Level *Permit §VI.D.8.i (LA)/§VII.K.1.xi (LB)*

The Cities will implement technical standards for the selection, installation and maintenance of construction BMPs for all construction sites within its jurisdiction.

The BMP technical standards require:

- The use of BMPs that are tailored to the risks posed by the project. Sites are ranked from Low Risk (Risk 1) to High Risk (Risk 3). Project risks are calculated based on the potential for erosion from the site and the sensitivity of the receiving water body. Receiving water bodies that are listed on the Clean Water Act (CWA) Section 303(d) list for sediment or siltation are considered High Risk. Likewise, water bodies with designated beneficial uses of SPWN, COLD, and MIGR are also considered High Risk. The combined (sediment/receiving water) site risk is calculated using the methods provided in Appendix 1 of the Construction General Permit. At a minimum, the BMP technical standards include requirements for High Risk sites as defined in Table DC-7.
- The use of BMPs for all construction sites, sites equal or greater to 1 acre, and for paving projects per Table DC-6 and Table DC-8.
- Detailed installation designs and cut sheets for use within ESCPs.
- Maintenance expectations for each BMP, or category of BMPs, as appropriate.

Permittees are encouraged to adopt respective BMPs from latest versions of the California BMP Handbook, Construction or Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual and addenda. Alternatively, Permittees are authorized to develop or adopt equivalent BMP standards consistent for Southern California and for the range of activities presented in Tables DC-5 through DC-8.

The local BMP technical standards are readily available to the development community and are clearly referenced within the Cities' stormwater or development services websites, ordinances, permit approval processes and/or ESCP review forms. The local BMP technical standards are also readily available to the Regional Water Board upon request.

Local BMP technical standards are available for the BMPs listed in Tables DC-5 through DC-8.

Table DC-4: Minimum Set of BMPs for All Construction Sites

BMP Type	BMP
Erosion Controls	Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Site Entrance/Exit
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

Table DC-5: Additional BMPs Applicable to Construction Sites Disturbing 1 Acre or More

BMP Type	BMP
Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
Sediment Controls	Fiber Rolls
	Gravel Bag Berm
	Street Sweeping and/ or Vacuum
	Storm Drain Inlet Protection
	Scheduling
	Check Dam
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/ Exit
	Stabilized Construction Roadway
	Entrance/ Exit Tire Wash
Non-Storm Management	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Spill Prevention and Control

Table DC-6: Additional Enhanced BMPs for High Risk Sites

BMP Type	BMP
Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
	Slope Drains
Sediment Controls	Silt Fence
	Fiber Rolls
	Sediment Basin
	Check Dam
	Gravel Bag Berm
	Street Sweeping and/or Vacuum
	Sand Bag Barrier
	Storm Drain Inlet Protection
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/Exit
	Stabilized Construction Roadway
	Entrance/Exit Tire Wash
	Advanced Treatment Systems*
Nonstormwater Management	Water Conservation Practices
	Dewatering Operations (Ground water dewatering only under NPDES Permit No. CAG994004)
	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management

*Applies to public roadway projects.

Table DC-7: Minimum Required BMPs for Roadway Paving or Repair Operation (For Private or Public Projects)

#	BMP
1.	Restrict paving and repaving activity to exclude periods of rainfall or predicted rainfall unless required by emergency conditions.
2.	Install gravel bags and filter fabric or other equivalent inlet protection at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat.
3.	Prevent the discharge of release agents including soybean oil, other oils, or diesel to the stormwater drainage system or receiving waters.
4.	Minimize non stormwater runoff from water use for the roller and for evaporative cooling of the asphalt.
5.	Clean equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
6.	Collect liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.
7.	Collect solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
8.	Cover the “cold-mix” asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
9.	Cover loads with tarp before haul-off to a storage site, and do not overload trucks.
10.	Minimize airborne dust by using water spray or other approved dust suppressant during grinding.
11.	Avoid stockpiling soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near stormwater drainage system or receiving waters.
12.	Protect stockpiles with a cover or sediment barriers during a rain.

Construction Site Inspection *Permit §VI.D.8.j (LA)/§VII.K.1.xii (LB)*

The Cities’ legal authority is used to implement procedures for inspecting public and private construction sites. The inspection procedures are implemented as follows:

Inspection Frequency

- Inspect the public and private construction sites as specified in Table DC-8.
- All phases of construction are inspected as follows:
    - Prior to Land Disturbance – Prior to allowing an operator to commence land disturbance, each Permittee shall perform an inspection to ensure all necessary erosion and sediment structural and non-structural BMP materials and procedures are available per the erosion and sediment control plan.
    - During Active Construction, including Land Development[2] and Vertical Construction[3] – In accordance with the frequencies specified in Table DC-8, inspections are performed to ensure all necessary erosion and sediment structural and non-structural BMP materials and procedures are available per the erosion and sediment control plan throughout the construction process.
    - Final Landscaping / Site Stabilization[4] – At the conclusion of the project and as a condition of approving and/or issuing a Certificate of Occupancy, the constructed site is inspected to ensure that all graded areas have reached final stabilization and that all

[2] Activities include cuts and fills, rough and finished grading; alluvium removals; canyon cleanouts; rock undercuts; keyway excavations; stockpiling of select material for capping operations; and excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer system and/or other drainage improvement.
[3] The build out of structures from foundations to roofing, including rough landscaping.
[4] All soil disturbing activities at each individual parcel within the site have been completed.

trash, debris, and construction materials, and temporary erosion and sediment BMPs are removed.

- Based on the required frequencies above, each construction project is inspected a minimum of three times.

Table DC-8: Inspection Frequencies for Sites One Acre or Greater

<table>
<tr><th>Site</th><th>Inspection Frequency Shall Occur</th></tr>
<tr><td>All sites 1 acre or larger that discharge to a tributary listed by the state as an impaired water for sediment or turbidity under the CWA §303(d)</td><td rowspan="2">(1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA[5], (2) within 48 hours of a ½-inch rain event and at (3) least once every two weeks</td></tr>
<tr><td>Other sites 1 acre or more determined to be a significant threat to water quality[6]</td></tr>
<tr><td>All other construction sites with 1 acre or more of soil disturbance not meeting the criteria above</td><td>At least monthly</td></tr>
</table>

<u>Inspection Standard Operating Procedures</u>

Standard operating procedures are implemented, and revised as necessary, that identify the inspection procedures followed by the Cities' inspectors (see Attachment DC-C for suggested standard operating procedures). Inspections of construction sites – and the standard operating procedures – include, but are not limited to:

1. Verification of active coverage under the Construction General Permit for sites disturbing 1 acre or more, or that are part of a planned development that will disturb 1 acre or more and a process for referring non-filers to the Regional Water Board.
2. Review of the applicable ESCP and inspection of the construction site to determine whether all BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions (see Attachment DC-B for the ESCP Checklist sample template).
3. Assessment of the appropriateness of the planned and installed BMPs and their effectiveness.
4. Visual observation and record keeping of nonstormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff.
5. Development of a written or electronic inspection report generated from an inspection checklist used in the field (see Attachment DC-D and DC-E for the Large Site and Small Site[7] Inspection Forms, respectively).
6. Tracking of the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies listed in Table DC-8.

Enforcement *Permit §VI.D.8.k (LA)/§VII.K.1.xiii (LB)*

The Progressive Enforcement Policy is implemented to ensure that construction sites are brought into compliance with all stormwater requirements within a reasonable time period.

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[5] www.srh.noaa.gov/forecast

[6] In evaluating the threat to water quality, the following factors shall be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving water bodies; proximity to receiving water bodies; nonstormwater discharges; past record of non-compliance by the operators of the construction site; and any water quality issues relevant to the particular MS4.

[7] A "large site" refers to a site greater than or equal to 1 acre while a "small site" refers to a site less than one acre.

Permittee Staff Training *Permit §VI.D.8.l(LA)/§VII.K.1.xiv(LB)*

Staff whose primary job duties are related to implementing the construction stormwater program are adequately trained.

The Cities may conduct in-house training or contract with consultants. Training is provided to the following staff positions of the MS4:

- Plan Reviewers and Permitting Staff – Staff and consultants are trained as qualified individuals, knowledgeable in the technical review of local erosion and sediment control ordinance, local BMP technical standards, ESCP requirements, and the key objectives of the State Water Board QSD program. The training is provided either internally to staff or staff is required to obtain QSD certification.
- Erosion Sediment Control/Stormwater Inspectors – Inspectors are either 1) knowledgeable in inspection procedures consistent with the State Water Board sponsored program QSD, 2) a Qualified SWPPP Practitioner (QSP) or 3) a designated person on staff trained in the key objectives of the QSD/QSP programs supervises inspection operations. The training is provided either provided internally to staff or staff is required to obtain QSD/QSP certification. Each inspector is knowledgeable of the local BMP technical standards and ESCP requirements.
- Third-Party Plan Reviewers, Permitting Staff, and Inspectors – If outside parties are utilized to conduct inspections and/or review plans, these staff are trained per the requirements listed above. Outside contractors can self-certify, providing they certify they have received all applicable training required in MS4 Permit §VI.D.8 and have documentation to that effect.

Public Agency Activities Program

Each participating city is required to develop and implement a program for public agency facilities and activities that includes the requirements listed in MS4 Permit §VI.D.9 (LB §VII.L). This document provides guidance to assist the Cities in implementing a public agency activities program in compliance with the MS4 Permit.

Objectives *Permit §VI.D.9.a (LA)/§VII.L.1 (LB)*

The objectives of the Public Agency Activities program are to:
- Minimize stormwater pollution impacts from Permittee-owned or operated facilities.
- Minimize stormwater pollution impacts from public agency activities.
- Identify opportunities to reduce stormwater pollution impacts from areas of existing development.

MS4 Permit requirements for Public Agency Facilities and Activities consist of the following components which will be discussed in more detail in the sections below:

- Public Construction Activities Management
- Public Facility Inventory
- Inventory of Existing Development for Retrofitting Opportunities
- Public Facility and Activity Management
- Vehicle and Equipment Wash Areas
- Landscape, Park, and Recreational Facilities Management
- Storm Drain Operation and Maintenance
- Streets, Roads, and Parking Facilities Maintenance
- Emergency Procedures
- Municipal Employee and Contractor Training

1. Public Construction Activities Management *Permit §VI.D.9.b (LA)/§VII.L.2 (LB)*

Each participating city is required to develop and implement a Development Construction Program that meets the requirements the Development Construction Section of this WMP, and Part VI.D.8 of the LA MS4 Permit at municipally owned or operated (i.e., public or Permittee sponsored) construction projects. In addition, each participating city is required to develop and implement a Planning and Land Development Program that meets the requirements in the Planning and Land Development Section of this WMP, and the MS4 Permit at municipally owned or operated (i.e., public or Permittee sponsored) construction projects.

2. Public Facility Inventory *Permit §VI.D.9.c (LA)/§VII.L.3 (LB)*

The Public Agency Activities Program requires the maintenance of an inventory of all Permittee-owned or operated (i.e., public) facilities that are potential sources of stormwater pollution. The incorporation of facility information into a GIS is recommended. Sources that are tracked include but are not limited to the following:

- Animal control facilities
- Chemical storage facilities
- Composting facilities

- Equipment storage and maintenance facilities (including landscape maintenance-related operations)
- Fueling or fuel storage facilities (including municipal airports)
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Materials storage yards
- Pesticide storage facilities
- Fire stations
- Public restrooms
- Public parking lots
- Public golf courses
- Public swimming pools
- Public parks
- Public works yards
- Public marinas
- Recycling facilities
- Solid waste handling and transfer facilities
- Vehicle storage and maintenance yards
- Stormwater management facilities (e.g., detention basins)
- All other Permittee-owned or operated facilities or activities that are determined to contribute a substantial pollutant load to the MS4.

The following minimum fields of information are included in the inventory for each Permittee-owned or operated facility:

- Name of facility
- Name of facility manager and contact information
- Address of facility (physical and mailing)
- A narrative description of activities performed and potential pollution sources.
- Coverage under the Industrial General Permit or other individual or general NPDES permits or any applicable waiver issued by the Regional or State Water Board pertaining to stormwater discharges.

The inventory is updated at least once during the 5-year MS4 Permit term. The update are accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (e.g., property management, land-use approvals, accounting and depreciation ledger account, and similar information).

3. Inventory of Existing Development for Retrofit Opportunities

Permit §VI.D.9.d (LA)/§VII.L.4 (LB)

The Public Agency Activities Program requires the development of an inventory of retrofitting opportunities. Retrofit opportunities are identified within the public right-of-way or in coordination with a TMDL implementation plan(s). The goals of the existing development retrofitting inventory are to address the impacts of existing development through regional or sub-regional retrofit projects that

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reduce the discharges of stormwater pollutants into the MS4 and prevent discharges from the MS4 from causing or contributing to a violation of water quality standards as defined in the MS4 Permit.

Existing areas of development are screened to identify candidate areas for retrofitting using watershed models or other screening level tools. The areas of existing development identified during the screening process are then evaluated and ranked to prioritize retrofitting candidates. Criteria for this evaluation may include, but is not limited to the following:

- Feasibility, including general private and public land availability;
- Cost effectiveness;
- Pollutant removal effectiveness;
- Tributary area potentially treated;
- Maintenance requirements;
- Landowner cooperation;
- Neighborhood acceptance;
- Aesthetic qualities;
- Efficacy at addressing concern; and
- Potential improvements to public health and safety.

The results of this evaluation are considered in the following programs:

- Highly feasible projects expected to benefit water quality are given a high priority to implement source control and treatment control BMPs in the WMP.
- High priority retrofit projects are considered as candidates for off-site mitigation projects per LA MS4 Permit §VI.D.7.c.iii(4)(d) (LB §VII.J.4.iii(4)).
- Where feasible, the existing development retrofit program is coordinated with flood control projects and other infrastructure improvement programs per LA MS4 Permit §VI.D.9.e.ii(2) (LB §VII.L.5.ii(2)).

Site specific retrofit projects are encouraged through cooperation with private landowners. The following practices are considered in cooperating with private landowners to retrofit existing development:

- Demonstration retrofit projects;
- Retrofits on public land and easements that treat runoff from private
- developments;
- Education and outreach;
- Subsidies for retrofit projects;
- Requiring retrofit projects as enforcement, mitigation or ordinance compliance;
- Public and private partnerships;
- Fees for existing discharges to the MS4 and reduction of fees for retrofit implementation.

4. Public Facility and Activity Management

Permit §VI.D.9.e (LA)/§VII.L.5 (LB)

4.1. Industrial General Permitted Facilities

Permit §VI.D.9.e.i & §VI.D.9.e.v (LA)/§VII.L.5.i (LB)

All Permittee owned or operated facilities where industrial activities are conducted that require coverage are required to obtain coverage under the Industrial General Permit by submitting a Notice of Intent (NOI) to the State Water Resources Control Board (State Board) and preparing a Stormwater

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Pollution Prevention Plan (SWPPP). Facilities that may require coverage are listed by category in 40 Code of Federal Regulations (CFR) Section 122.26(b)(14), and include:

- Facilities subject to stormwater effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR Subchapter N)
- Manufacturing facilities
- Mining and oil and gas facilities
- Hazardous waste treatment, storage, or disposal facilities
- Landfills, land application sites, and open dumps that receive industrial waste
- Recycling facilities
- Steam electric generating facilities
- Transportation facilities
- Sewage treatment plants
- Certain facilities if materials are exposed to stormwater

Municipally owned or operated facilities that have obtained coverage under the IGP implement and maintain BMPs consistent with the associated SWPPP, and are therefore not required to implement and maintain the activity specific BMPs as described in the sections below.

4.2. Flood Management Projects *Permit §VI.D.9.e.ii (LA)/§VII.L.5.ii (LB)*

The following measures are implemented for municipally owned or operated flood management projects:

- Procedures are developed to assess the impacts of flood management projects on the water quality of receiving water bodies;
- Existing structural flood control facilities area evaluated to determine if retrofitting the facility to provide additional pollutant removal from stormwater is feasible.

4.3. Contracted Public Agency Activities *Permit §VI.D.9.e.iv (LA)/§VII.L.5.iv (LB)*

Any contractors hired to conduct Public Agency Activities, including, but not limited to the following must be contractually obligated to implement and maintain the activity specific BMPs outlined in the sections below:

- Storm and/or sanitary sewer system inspection and repair,
- Street sweeping,
- Trash pick-up and disposal, and
- Street and right-of-way construction and repair

It is the responsibility of each Permittee to ensure that these BMPs are being properly implemented and maintained through oversight of contracted activities. Example contractor/lessor contract language is provided in attachment PA-A.

4.4. BMPS for Municipal Activities

Permit §VI.D.9.e.iii & Permit §VI.D.9.e.vi (LA)/§VII.L.5.iii & VII.L.5.vi (LB)

Municipal maintenance and field staff are the ones responsible for implementing effective source control BMPs[1], such as those described in Table PA-1 (or an equivalent set of BMPs) when such activities occur at municipally owned or operated facilities and field operations (i.e. project sites). These sites include, but are not limited to the facility types identified in the Public Facility Inventory, and at any area that includes the activities described in Table PA-1, or that have the potential to discharge pollutants in stormwater. The Caltrans Stormwater Quality Handbook Maintenance Staff Guide (Caltrans Handbook)[2] is an additional resource that describes BMPs to prevent the stormwater-related pollutants most likely to come from common maintenance facility operations and field activities. It provides a straightforward working-level approach to implementing BMPs for common maintenance activities by categorizing these activities into Families, and associating each Family with certain types of BMPs in Activity Cut Sheets. The activities described in Sections 5-10 below are representative of typical municipal operations, and correspond to the activities and BMPs listed in Table PA-1. Where appropriate, each section will identify the appropriate Maintenance Activity Family and corresponding Caltrans Activity Cut Sheets from this table for ease of reference.

Although Table PA-1 and the CalTrans Handbook are excellent references for selecting BMPs for some of the most common municipal activities, they may not represent a comprehensive inventory of activities encountered by maintenance staff and field personnel. Likewise, for those BMPs that are not adequately protective of water quality standards, additional site-specific BMPS may be needed. For example, the implementation of additional BMPs is required where stormwater from the storm drain system discharges to a water body subject to a TMDL, a Clean Water Act §303(d) listed water body, or a significant ecological area (SEA). Attachment PA-B contains a map of SEAs in LA County and Attachment K of the LA MS4 Permit contains a matrix of Permittees and TMDLs.

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[1] BMP is defined by the California Stormwater Quality Association as "*any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution*". Source Control BMPs are operational practices that prevent pollution by reducing potential pollutants at the source. They typically do not require maintenance or construction, and may consist of programmatic controls such as street sweeping. Treatment Control BMPs are methods of treatment to remove pollutants from stormwater, and can include constructed treatment devices such as an infiltration basin.

[2] The handbook is available at http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/_pdfs/management_ar_rwp/CTSW-RT-02-057.pdf and may also be found by entering the words "Caltrans Stormwater Quality Handbook Maintenance Staff Guide" in a web search engine.

Table PA-1: General and Activity Specific BMPs and Their Associated Caltrans Handbook Activity Cut Sheet

Maintenance Activity Family	BMP	Caltrans Activity Cut Sheet Number
General BMPs	Scheduling and Planning	B-4
	Spill Prevention and Control	
	Sanitary/Septic Waste Management	
	Material Use	
	Safer Alternative Products	
	Vehicle/Equipment Cleaning, Fueling and Maintenance	
	Illicit Connection Detection, Reporting and Removal	
	Illegal Spill Discharge Control	
	Maintenance Facility Housekeeping Practices	
Flexible Pavement	Asphalt Cement Crack and Joint Grinding/ Sealing	B-9
	Asphalt Paving	B-10
	Structural Pavement Failure (Digouts) Grinding and Paving	B-11
	Emergency Pothole Repairs	B-13
	Sealing Operations	B-14
Rigid Pavement	Portland Cement Crack and Joint Sealing	B-15
	Mudjacking and Drilling	B-16
	Concrete Slab and Spall Repair	B-17
Slope/ Drains/ Vegetation	Shoulder Grading	B-19
	Nonlandscaped Chemical Vegetation Control	B-21
	Nonlandscaped Mechanical Vegetation Control/Mowing	B-23
	Nonlandscaped Tree and Shrub Pruning, Removal	B-24
	Fence Repair	B-25
	Drainage Ditch and Channel Maintenance	B-26
	Drain and Culvert Maintenance	B-28
	Curb and Sidewalk Repair	B-30
Litter/ Debris/ Graffiti	Sweeping Operations	B-32
	Litter and Debris Removal	B-33
	Emergency Response and Cleanup Practices	B-34
	Graffiti Removal	B-36
Landscaping	Chemical Vegetation Control	B-37
	Manual Vegetation Control	B-39
	Landscaped Mechanical Vegetation Control/ Mowing	B-40
	Landscaped Tree and Shrub Pruning, Removal	B-41
	Irrigation Line Repairs	B-42
	Irrigation (Watering), Potable and Nonpotable	B-43
Environmental	Storm Drain Stenciling	B-44
	Roadside Slope Inspection	B-45
	Roadside Stabilization	B-46
	Stormwater Treatment Devices	B-48
	Traction Sand Trap Devices	B-49
Public Facilities	Public Facilities	B-50
Bridges	Welding and Grinding	B-52
	Sandblasting, Wet Blast with Sand Injection, Hydroblasting	B-54
	Painting	B-56
	Bridge Repairs	B-57
Other Structures	Pump Station Cleaning	B-59
	Tube and Tunnel Maintenance and Repair	B-61
	Tow Truck Operations	B-63
	Toll Booth Lane Scrubbing Operations	B-64
Electrical &	Sawcutting for Loop Installation	B-65
Traffic Guidance	Thermoplastic Striping and Marking	B-67
	Paint Striping and Marking	B-68
	Raised/ Recessed Pavement Marker Application/Removal	B-70

	Sign Repair and Maintenance	B-71
	Median Barrier and Guard Rail Repair	B-73
	Emergency Vehicle Energy Attenuation Repair	B-75
Storm Maintenance	Minor Slides and Slipouts Cleanup/ Repair	B-78
Management and Support	Building and Grounds Maintenance	B-80
	Storage of Hazardous Materials (Working Stock)	B-82
	Material Storage Control (Hazardous Waste)	B-84
	Outdoor Storage of Raw Materials	B-85
	Vehicle and Equipment Fueling	B-86
	Vehicle and Equipment Cleaning	B-87
	Vehicle and Equipment Maintenance and Repair	B-88
	Aboveground and Underground Tank Leak and Spill Control	B-90

5. Vehicle and Equipment Wash Areas

Permit §VI.D.9.f (LA)/§VII.L.6 (LB)

This section corresponds to Maintenance Activity Family Management and Support and corresponding Caltrans Activity Cut Sheet B-87.

Vehicle and equipment cleaning at a municipal facility may introduce a number of potential pollutants into the storm drain system. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1 for all fixed vehicle and equipment washing; including fire fighting and emergency response vehicles. In addition, maintenance and field staff are responsible for preventing discharges of wash water from entering the storm drain system. Table PA-2 shows the potential pollutants associated with vehicle and equipment cleaning.

Table PA-2: Potential Pollutants Generated from Cleaning Activities

Activity	**Potential Pollutants**					
Vehicle and Equipment Cleaning	Sediment	Nutrients	Trash	Metals	Oil & Grease	Organics

Discharges of wash waters to the storm drain system are prevented by implementing the following measures at existing facilities with vehicle or equipment wash areas:

- Wash water is self-contained and hauled away for proper disposal offsite.
- Wash areas are equipped with a clarifier, or an alternative pre-treatment device, and water is plumbed to the sanitary sewer in accordance with applicable waste water provider regulations.
- Wastewater from all new vehicle and equipment wash facilities, or redeveloped or replaced existing facilities is prevented from discharging to the MS4 by equipping the facility with a clarifier, or an alternative pre-treatment device, and plumbing water to the sanitary sewer in accordance with applicable waste water provider regulations, or by self-containing all water water/wash water and hauling to a point of legal disposal.

6. Landscape, Park, and Recreational Facilities Management

Permit §VI.D.9.g (LA)/ §VII.L.7 (LB)

This section corresponds to multiple Activity Cut Sheets within the Slope/Drains/Vegetation, Landscape, Environmental, and Management and Support Families.

Maintenance practices at parks and recreational facilities generally include fertilizer and pesticide applications, vegetation maintenance and disposal, irrigation, swimming pool chemical maintenance and draining, and trash and debris management. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1for all public right-of-

ways, flood control facilities and open channels, lakes and reservoirs, and landscape, park, and recreational facilities and activites. Table PA-3 shows the potential pollutants associated with recreational facilities..

Table PA-3: Potential Pollutants Generated from Recreational Facilities

Activity	Potential Pollutants				
Vehicle and Equipment Cleaning	Sediment	Nutrients	Trash	Bacteria	Pesticides

6.1 Model Integrated Pest Management Program

Permit §VI.D.9.g.ii & VI.D.9.g.iii (LA)/§VII.L.7.ii & VII.L.7.iii (LB)

An IPM policy is in place to minimize pesticide and fertilizer use, and encourage the use of IPM techniques for Public Agency facilities and activities. The attached IPM Program template (Attachment PA-C), adapted from the Orange County Drainage Area Management Plan (DAMP) IPM Policy developed by the University of California, Division of Agriculture and Natural Resources, provides an example of an effective IPM program. This IPM Program template is based on regulations, management guidelines, and research-based recommendations established by federal, state and local agencies and universities with particular expertise in pest management.

As part of the IPM policy, a commitment and schedule to reduce the use of pesticides that cause impairment t of surface waters is implemented through the following procedures:

- An inventory of all pesticides used by municipal departments, divisions, and operational units is prepared and updated annually.
- Pesticides used by staff and hired contractors are quantified.
- The use of IPM alternatives is demonstrated, where feasible, to reduce pesticide use.

Municipal maintenance and field staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation, or are under the direct supervision of a pesticide applicator certified in the appropriate category.

7. Storm Drain Operation and Maintenance *Permit §VI.D.9.h (LA)/ §VII.L.8 (LB)*

This section corresponds to the Litter/Debris/Graffiti Family: Litter and Debris Removal Cut Sheet, pg. B-33, and the Environmental Family: Storm Drain Stenciling Cut Sheet, pg. B-44

The storm drain system functions primarily to collect and convey surface runoff to receiving waters during storms in order to prevent flooding. It is a common municipal activity to maintain the storm drain system so that it functions hydraulically as intended during storms. Municipal maintenance and field staff are responsible for implementing and maintaining the activity specific BMPs listed in Table PA-1 for storm drain operation and maintenance, and ensuring that all material removed from the MS4 does not reenter the system by dewatering solid material in a contained area and disposing of liquid material in accordance with any of the following measures:

- Self-containing and hauling off for legal disposal; or
- Applying to the land without runoff; or
- Equipping with a clarifier or alternative pre-treatment device and plumbing to the sanitary sewer in accordance with applicable waste water provider regulations.

Table PA-4 shows potential pollutants generated during storm drain operation and maintenance.

Table PA-4: Potential Pollutants Generated from Storm Drain Operation and Maintenance

Activity	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Inspection and Cleaning of Conveyance Structures	×	×	×		×		×		×
Controlling Illicit Connections and Discharges	×	×	×	×	×	×	×	×	×
Controlling Illegal Dumping	×	×	×	×	×	×	×	×	×
Maintenance of Inlet and Outlet Structures	×		×		×	×			

Potential Pollutants (column group heading)

7.1 Catch Basin Cleaning *Permit §VI.D.9.h.iii (LA)/ §VII.L.8.iii (LB)*

There is no preferred method for cleaning catch basins as long as the method used is successful in removing accumulated sediment and debris. The methods used are determined in the field with the goal of minimizing the amount of escaped material, and preventing this material from entering the storm drain system. A template catch basin cleaning log is provided in Attachment PA-D.

7.1.1 Catch Basins Cleaning in Areas not Subject to a Trash TMDL

In areas that are not subject to a trash TMDL, catch basin inlets are prioritized based on the amount of trash generated, and inspected according to the schedule in Table PA-5.

Table PA-5: Inspection Frequencies for Catch Basin Inlets

Trash Generating Frequency	Priority	Inspection Frequency
Consistently generates the highest volumes of trash and/or debris	A	A minimum of three times during the wet season (October-April) and once during the dry season every year
Consistently generates moderate volumes of trash and/or debris	B	A minimum of once during the wet season and once during the dry season every year
Generates low volumes of trash and/or debris	C	A minimum of once per year

An inventory of catch basins is maintained and updated regularly. This inventory includes the following components:

- GPS coordinates of each catch basin
- Priorities for inspection
- Rationale or data to support catch basin priority designations
- Inspection and cleaning records

Catch basins are cleaned as necessary based on the inspections conducted. At a minimum, catch basins determined to be at least 25% full of trash are cleaned out.

7.1.2 Catch Basin Cleaning in Areas Subject to a Trash TMDL

In areas subject to a Trash TMDL, all applicable provisions of LA MS4 Permit Section VI.E (LB Part Part VIII) in conformance with the appropriate TMDL implementation schedule, are implemented. This includes an effective combination of full capture, partial capture, institutional controls, or minimum frequency of assessment and collection as described in LA MS4 Permit Section VI.E (LB Part Part VIII).

7.2 Catch Basin Labels and Open Channel Signage

Permit §VI.D.9.h.vi (LA)/ §VII.L.8.vi (LB)

All municipally owned storm drain inlets are labeled with a "No Dumping, Drains to Ocean" message, and inspected for legibility prior to the wet season (October-April) every year. Catch basins with illegible labels are recorded and re-stenciled or re-labeled within 180 days of inspection. In addition, signs referencing local code(s) that prohibit littering and illegal dumping are posted at designated public access points to open channels, creeks, urban lakes, and other relevant water bodies.

7.3 Trash Management

Permit §VI.D.9.h.iv-v & Permit §VI.D.9.h.vii (LA)/§VII.L.8.iv-v (LB)

The following Trash Management BMPs described below are employed to mitigate the impacts of anthropogenic trash on receiving waters.

7.3.1 Trash Management at Public Events

The following measures are implemented for any event in the public right of way or wherever it is foreseeable that substantial quantities of trash and litter may be generated, including events located in areas that are subject to a trash TMDL:

- Proper management of trash and litter generated; and
- Arrangement for temporary screens to be placed on catch basins; or
- Provide clean out of catch basins, trash receptacles, and grounds in the event area within one business day subsequent to the event.

7.3.2 Trash Receptacles

Covered trash receptacles are located in areas identified as high trash generation areas and maintained and cleaned out as necessary to prevent trash overflow. Examples of areas that may be considered high trash generating areas include:

- High vehicle or pedestrian traffic areas
- Commercial areas
- Industrial areas
- Construction areas
- High density residential areas
- Areas adjacent to vacant lots

7.3.3 Additional Trash Management Practices

In areas that are not subject to a trash TMDL, additional trash management practices will be employed no later than five years after the effective date of the LA MS4 Permit (4 years after the effective date of the LB MS4 Permit). Trash excluders or equivalent devices must be installed on or in catch basins or outfalls to prevent the discharge of trash to the MS4 or receiving waters, unless the installation of such BMP(s) alone will cause flooding (not due to lack of maintenance). Alternatively, additional trash BMPs

that provide substantially equivalent removal of trash may be implemented. Additional BMPs may include, but are not limited to:

- Increased street sweeping
- Adding trash cans near trash generation sites
- Prompt enforcement of trash accumulation
- Increased trash collection on public property
- Increased litter prevention messages or trash nets within the MS4

The BMPs chosen will provide equivalent trash removal performance as excluders, and will be demonstrated though the annual report. When outfall trash capture is provided, revision of the schedule for inspection and cleanout of catch basins will also be reported in the annual report.

The State Water Resources Control Board (State Water Board) is considering the adoption of amendments to the Water Quality Control Plans for Ocean Waters of California and for the Inland Surface Water, Enclosed Bays, and Estuaries of California for Trash (Trash Amendments) citing a strong need for statewide consistency in trash management. The proposed Trash Amendments will include five elements: (1) Water Quality Objective, (2) Prohibition of Discharge, (3) Implementation, (4) Compliance Schedule, and (5) Monitoring, which will outline NPDES Permittee requirements for trash management. The development of the Trash Amendments will continue to be monitored, and any additional required trash management practices in areas not subject to a trash TMDL will be implemented per the guidance provided by these amendments.

7.4 Storm Drain Maintenance *Permit §VI.D.9.h.viii (LA)/ §VII.L.8.viii (LB)*

The following BMPs constitute the Storm Drain Maintenance Program:

- Municipally-owned open channels and drainage structures are visually inspected for debris at least annually.
- Trash and debris from is removed from open channel storm drains a minimum of once per year, before the storm season.
- The discharge of contaminants is minimized during MS4 maintenance and clean outs;
- Material removed is properly disposed of by containing and hauling away for legal disposal

7.5 Infiltration from Sanitary Sewer to MS4/Preventive Maintenance

Permit §VI.D.9.h.ix (LA)/§VII.L.8.ix (LB)

Thorough, routine, preventive surveys and maintenance of both municipally owned and operated Storm Drain Systems as well as Sanitary Sewer Systems infiltration and seepage of contaminants from the sanitary sewer system into the storm drain system is prevented. Sanitary Sewer System routine preventative maintenance is described in the Sewer System Management Plan (SSMP), which is a component of the Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems.

Where necessary, controls implemented to limit infiltration of seepage from sanitary sewers to the MS4 include:

- Adequate plan checking for construction and new development;
- Incident response training for its municipal employees that identify sanitary sewer spills;
- Code enforcement inspections;
- MS4 maintenance and inspections;
- Interagency coordination with sewer agencies; and

- Proper education of its municipal staff and contractors conducting field operations on the MS4 or its municipal sanitary sewer (if applicable).

7.6 Permittee Owned Treatment Control BMPs *Permit §VI.D.9.h.x (LA)/§VII.L.8.x (LB)*

All municipally owned treatment control BMPs, including post-construction BMPs, are regularly inspected and maintained to ensure their proper operation.
Any residual water generated during BMP maintenance is disposed of using one of the following procedures:

- Hauled away and legally disposed of; or
- Applied to the land without runoff; or
- Discharged to the sanitary sewer system; or
- Treated or filtered to remove bacteria, sediments, nutrients, and meet the limitations set in Table PA-6 below prior to discharge to the storm drain system.

Table PA-6: Discharge Limitations for Dewatering Treatment BMPs

Parameter	Units	Limitation
Total Suspended Solids	Mg/L	100
Turbidity	NTU	50
Oil and Grease	Mg/L	10

8. Streets, Roads, and Parking Facilities Maintenance

Permit §VI.D.9.i(LA)/§VII.L.9 (LB)

This section corresponds to multiple Activity Cut Sheets within the Flexible Pavement, Rigid Pavement, Litter/Debris/Graffiti, Traffic Guidance, and Management and Support Families.

Streets and roads may collect litter and debris from nearby activities, as well as from vehicular traffic. They also require routine maintenance that may generate waste materials. Table PA-7 shows potential pollutants generated from street, road, and parking facilities maintenance.

Table PA-7: Potential Pollutants Generated from Street, Road, and Parking Facility Maintenance

	Potential Pollutants						
Activity	Sediment	Trash	Metals	Bacteria	Oil & Grease	Organics	Oxygen Demanding Substances
Street and Road Maintenance	×	×	×		×	×	
Parking Facility Maintenance	×	×	×	×	×	×	×

8.1 Street Sweeping *Permit §VI.D.9.i.i-ii(LA)/§VII.L.9.i-ii (LB)*

Streets and/or street segments are swept according to the following designations:

- Priority A: Streets and/or street segments that are designated as consistently generating the highest volumes of trash and/or debris should be swept at least two times per month.
- Priority B: Streets and/or street segments that are designated as consistently generating moderate volumes of trash and/or debris should be swept at least once per month.
- Priority C: Streets and/or street segments that are designated as generating low volumes of trash and/or debris shall be swept as necessary but in no case less than once per year.

8.2 Road Reconstruction *Permit §VI.D.9.iii (LA)/§VII.L.9.iii (LB)*

Projects that include roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces implement the following BMPS:

- Restricting paving and repaving activities to exclude periods of rainfall or predicted rainfall unless required by emergency conditions.
- Installing sand bags or gravel bags and filter fabric at all susceptible storm drain inlets and at manholes to prevent spills of paving products and tack coat;
- Preventing the discharge of release agents including soybean oil, other oils, or diesel into the MS4 or receiving waters.
- Preventing non-stormwater runoff from water use for the roller and for evaporative cooling of the asphalt.
- Cleaning equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly.
- Collecting liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled or disposed of properly.
- Collecting solid waste by vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled or disposed of properly.
- Covering the “cold-mix” asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm.
- Covering loads with tarp before haul-off to a storage site, and not overloading trucks.
- Minimizing airborne dust by using water spray during grinding.
- Avoiding the stockpiling of soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near MS4 or receiving waters.
- Protecting stockpiles with a cover or sediment barriers during a rain.

8.3 Parking Facilities Maintenance *Permit §VI.D.9.iv (LA)/ §VII.L.9.iv (LB)*

Municipally owned parking lots that are uncovered and exposed to stormwater are kept clear of debris and excessive oil buildup by inspecting lots at least 2 times per month and cleaning at least once per month.

9. Emergency Procedures *Permit §VI.D.9.j (LA)/ §VII.L.10 (LB)*

Participating Agencies may conduct repairs of essential public service systems and infrastructure in emergency situations with a self-waiver of the provisions of the MS4 Permit as follows:

- Cities will abide by all other regulatory requirements, including notification to other agencies as appropriate.
- Where the self-waiver has been invoked, Cities will submit to the Regional Water Board Executive Officer a statement of the occurrence of the emergency, an explanation of the

circumstances, and the measures that were implemented to reduce the threat to water quality, no later than 30 business days after the situation of emergency has passed.

Minor repairs of essential public service systems and infrastructure in emergency situations (that can be completed in less than one week) are not subject to the notification provisions. Appropriate BMPs to reduce the threat to water quality will be implemented.

10. Municipal Employee and Contractor Training *Permit §VI.D.9.k (LA)/Permit §VII.L.11 (LB)*

An annual training program on the requirements of the overall stormwater management program is implemented for all municipal field staff whose interactions, jobs, and activities affect stormwater quality prior to June 30 every year. The Cities also ensure that contractors performing privatized/contracted municipal services have appropriate training in the stormwater management program. The goals of the annual training are to:

- Promote a clear understanding of the potential for municipal activities to pollute stormwater
- Identify opportunities to require, implement, and maintain appropriate BMPs in their line of work

In addition to the annual stormwater program training, the Cities implement an annual training program to train all of their employees and contractors who use or have the potential to use pesticides or fertilizers (whether or not they normally apply these as part of their work). Training programs address:

- The potential for pesticide-related surface water toxicity
- Proper use, handling, and disposal of pesticides
- Least toxic methods of pest prevention and control, including IPM
- Reduction of pesticide use

Outside contractors can self-certify, providing they certify they have received all applicable training required in the MS4 Permit and have documentation to that effect.

Illicit Connections & Illicit Discharges Elimination Program

Each participating city is required to develop and implement an Illicit Connections & Illicit Discharge Elimination (IC/ID) Program that includes the requirements listed in Permit §VI.D.10.a (LB §VII.M). This document provides guidance to assist the Cities in implementing an IC/ID program in compliance with the Permit.

Introduction *Permit §VI.D.10.a (LA)/§VII.M.1 (LB)*

Illicit connections and illicit discharges (IC/IDs) as defined in Table ICID-1 are potential significant sources of pollutants into and from the MS4. The Illicit Connection and Illicit Discharge (IC/ID) Program provides a comprehensive process for detecting, investigating and eliminating IC/IDs in an efficient and timely manner. The program consists of the following components:

- Procedures for conducting source investigations for IC/IDs
- Procedures for eliminating the source of IC/IDs
- Procedures for public reporting of illicit discharges
- Spill response plan and
- IC/ID education and training for City staff.

The purpose of this program is to effectively prohibit illicit discharges into the MS4.

Table ICID-1: IC/IDs Defined

Prohibition	Definition	Examples
Illicit Connections	Any man-made conveyance that is connected to the MS4 without a permit, excluding roof drains and other similar type connections.	Unpermitted channels, pipelines, conduits, inlets or outlets that are connected directly to the MS4.
Illicit Discharges	Any discharge into the MS4 or from the MS4 into a receiving water that is prohibited under local, state, or federal statutes, ordinances, codes or regulations. This includes any non-stormwater discharge, except those authorized in MS4 Permit §III.A.10.2.	Sanitary wastewater, Vehicle wash water, wash-down from grease traps, motor oil, antifreeze and fuel spills into or from the MS4.

Legal Authority

Adequate Legal Authority is required to prohibit IC/IDs to the MS4 and enable enforcement capabilities to eliminate the sources of IC/IDs.

Illicit Discharge Source Investigation and Elimination *Permit §VI.D.10.b (LA)/ §VII.M.2 (LB)*

The purpose of the IC/ID Program is accomplished in part by developing clear, step-by-step written procedures for conducting investigations of illicit discharges.

Investigation

Standardized procedures for conducting investigations to identify the source of all suspected illicit discharges are included in as an attachment (Illicit Discharge Investigation and Elimination Guidance). Procedures include the following:

- **Initiation** – Investigate the source of all observed discharges. After becoming aware of an illicit discharge, conduct an investigation to identify and locate the source within 72 hours.
- **Prioritization** – Investigate illicit discharges suspected of being sanitary sewage and/or significantly contaminated first.
- **Tracking** – Track all investigations and document the information listed in Table ICID-2.

Table ICID-2: Recorded Information for Illicit Discharge Investigations

Item	Information
1	Date(s) the illicit discharge was observed
2	Results of the investigation
3	Follow-up of the investigation
4	Date the investigation was closed

Elimination

Standardized procedures to eliminate illicit discharges once the sources are located are included as an attachment. Procedures include the following:

- **Notification** – Immediately notify the responsible party (RP)/parties of the problem and require the responsible party to initiate all necessary corrective actions to eliminate the illicit discharge.
    - If it is determined that an illicit discharge originates within an upstream jurisdiction, notify the upstream jurisdiction and the Regional Board. The Notification is conducted within 30 days of determination and information is collected regarding combined efforts to identify the source.
- **Spill response** – The Spill Response Plan is implemented when the source for illicit discharges cannot be traced to a suspected RP. Permanent solutions to such discharges are described in the following section (Flow Diversion).
- **Follow-up** – Conduct and document follow-up investigations upon notification that an illicit discharge has been eliminated to verify that it has been satisfactorily eliminated and cleaned-up.
- **Enforcement** – Enforcement procedures are included in the Progressive Enforcement Policy. The Progressive Enforcement Policy includes a list of enforcement actions.

Progressive Enforcement Policy

The Progressive Enforcement Policy is implemented to ensure that illicit discharges/ illicit connections are eliminated within a reasonable time period. The procedures are followed when the source of the nature of the discharges is known. Procedures typically include:

- Written warnings for minor violations
- Formal notice of violation with specific actions and time frames for compliance
- Compensation from the RP for any costs related to remediation, inspection, investigation, clean-up and oversight activities
- Cease and desist orders

- Civil penalties (infractions), or referral for criminal penalties or further legal action.

Flow Diversion

In the event that an ongoing illicit discharge cannot be eliminated (following the full execution of legal authority and in accordance with the Progressive Enforcement Policy) or the RPs cannot be identified, the discharge is either treated or diverted to the sanitary sewer. In either instance, the Regional Board is notified within 30 days of such determination. Notification includes the following information:

- Written plan that describes the efforts that have been undertaken to eliminate the discharge.
- Description of actions to be undertaken.
- Anticipated cost and
- Schedule for completion.

Identification and Response to Illicit Connections *Permit §VI.D.10.c (LA)/§VII.M.3 (LB)*

Illicit connections can be concentrated sources of pollutants either through direct discharge or infiltration of sewage or other prohibited discharges into the MS4. To reduce this source of pollutants, the following program is implemented for the identification of illicit connections. Key components of this program include investigating and responding in order to actively prevent and eliminate illicit connections.

Investigation

Standardized procedures for identifying illicit connections are included as an attachment (Illicit Connection Investigation Guidance). Procedures include the following:

- **Initiation** – Investigate within 21 days from the discovery or upon receiving a report of a suspected illicit connection. The elements of the investigation are listed in Table ICID-3.
- **Tracking** – Track all investigations and document the information listed in Table ICID-3.

Response

If the source investigation concludes that a connection to the MS4 is both 1) permitted or documented and 2) discharging only stormwater or nonstormwater allowed under WMP NSWD SECTION or other individual or general NPDES Permits/WDRs, then the investigation is closed and no further action is taken. Upon confirmation of a connection to the MS4 is illicit, one of two options is taken:

1. **Permit or document the connection.** The permitted or documented connection may only discharge stormwater and nonstormwater allowed under WMP NSWD SECTION or other individual or general NPDES Permits/WDRs. Retaining a record of the connection and its investigation qualifies as documentation.
2. **Eliminate the connection.** The connection is eliminated within 180 days of completion of the investigation, using formal enforcement authority if necessary.

Table ICID-3: Recorded Information for Illicit Connection Investigations

Item	Information
1	Any relevant illicit discharge information from Table ICID-2
2	Source of the connection
3	Nature and volume of the discharge through the connection
4	RP for the connection (if identified)
5	Response including any formal enforcement taken

Public Reporting of Non-Stormwater Discharges and Spills *Permit §VI.D.10.d (LA)/§VII.M.4 (LB)*

Central Point of Contact

Public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s through a central contact point are promoted, publicized, and facilitated. This includes phone numbers and an internet site for complaints and spill reporting. The reporting hotline is provided to staff to leverage the field staff that has direct contact with the MS4 in detecting and eliminating illicit discharges.

The LACFCD, in collaboration with the County, provides the central point of contact and through the 888-CLEAN-LA reporting hotline and internet site.

Open Channels

Signage is posted adjacent to open channels (see MS4 Permit IV.D.9.h.vi.(4)). The signage includes information regarding dumping prohibitions and public reporting of illicit discharges.

Complaints

Written procedures are maintained that document how complaint calls are received, and tracked to ensure that all complaints are adequately addressed in the attached form (Record Keeping & Documentation). Following the adaptive management process outlined in the MS4 Permit, the procedures are periodically evaluated to determine whether changes or updates are needed to ensure that the procedures accurately document the employed methods. After the evaluation, any identified changes will be made to the procedures.

Documentation is maintained for all complaint calls. This includes recording the location of the reported spill or IC/ ID and the actions undertaken in response the complaint, including referrals to other agencies.

Spill Response Plan *Permit §VI.D.10.e (LA)/§VII.M.5 (LB)*

A spill response plan (Attachment ICID-E) is implemented for all sewage and other spills that may discharge into its MS4. The spill response plan identifies agencies responsible for spill response and cleanup, telephone numbers and e-mail address for contacts, and contains the following:

- **Agency Coordination** – Coordinate with spill response teams throughout all appropriate departments, programs and agencies so that maximum water quality protection is provided.
- **Spill Response** – Respond to spills for containment within 4 hours of becoming aware of the

spill, except where such spills occur on private property, in which case respond within 2 hours of gaining legal access to the property. Initiate investigation of all public and employee spill complaints within one business day of receiving the complaint to assess validity.

- **Reporting** – Spills that may endanger health or the environment are reported to appropriate public health agencies and the California Emergency Management Agency (Cal EMA).

Illicit Connection and Illicit Discharge Education and Training *Permit §VI.D.10.f (LA)/§VII.M.6 (LB)*

A training program regarding the identification of IC/IDs is implemented for all municipal field staff, who, as part of their normal job responsibilities (e.g., street sweeping, storm drain maintenance, collection system maintenance, road maintenance), may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4. Contact information, including the procedure for reporting an illicit discharge, is readily available to field staff.

Applicable Staff

Table ICID-4 is a list of field programs where program staff may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4. Appropriate field staff, supervising staff and contractors involved in these programs require training in IC/ID identification and reporting following the schedule provided in Table ICID-5.

<u>Contracted Staff</u>
Contractors that provide these municipal services may attend city training or certify to the participating city and retain documentation that staff has received applicable training. Otherwise this provision is accomplished through a contractual requirement for contracted staff to receive the training.

Table ICID-4: Municipal Field Programs

Main Field Program Types	Sub-Category Types/Activities
Lake Management	Fertilizer & Pesticide Management
	Mowing, Trimming/Weeding, Planting
	Managing Landscape Waste
	Controlling Litter
	Erosion Control
	Controlling Illegal Dumping
	Bacteria Control
	Monitoring
Landscape Maintenance	Mowing, Trimming/Weeding, Planting
	Irrigation
	Fertilizer & Pesticide
	Managing Landscape Waste
	Erosion Control
Roads, Streets, and Highways Operations and Maintenance	Sweeping & Cleaning
	Street Repair & Maintenance
	Bridge & Structure Maintenance
Fountains, Plazas, and Sidewalk Maintenance and Cleaning	Surface Cleaning
	Graffiti Cleaning
	Sidewalk Repair
	Controlling Litter
	Fountain Maintenance
Solid Waste Handling	Solid Waste Collection
	Waste Reduction & Recycling
	Hazardous Waste Collection
	Litter Control
Water and Sewer Utility O&M	Water Line Maintenance
	Sanitary Sewer Maintenance
	Spill/Leak/Overflow Control
Fire Department Activities	Emergency/Post-Emergency Fire Fighting Activities
	Fire Fighting Training
	Fire Station Activities

Training Schedule

The training schedule for all applicable staff is listed in Table ICID-5.

Table ICID-5: IC/ID Program Training Schedule

Category	Schedule
Current Staff	Twice during the term of the MS4 Permit
New Staff	Within 180 days of starting employment

Training Elements

The IC/ID elements addressed by the training program are listed in Table ICID-6.

Table ICID-6: Minimum IC/ID Training Program Elements

Item	Information
1	IC/ID identification, including definitions and examples
2	Investigation
3	Elimination
4	Clean-up
5	Reporting
6	Documentation

Documentation

Documentation of training program activities and training modules are retained and made available for review by the Regional Board.

PROGRESSIVE ENFORCEMENT POLICY

2014 Stormwater Enforcement Guide

Insert City Seal

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PROGRESSIVE ENFORCEMENT POLICY

STORMWATER ENFORCEMENT GUIDE

INTRODUCTION

This Stormwater Progressive Enforcement Policy (PEP) provides procedures to enforce provisions of the Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4 Order No. R4-2012-0175. Pursuant to Section VI.D.2.a of the Order, Permittees are required to develop and implement a PEP to ensure that (1) regulated Industrial/ Commercial facilities, (2) construction sites, (3) development and redevelopment sites with post-construction controls, and (4) illicit discharges are each brought into compliance with all storm water and non-storm water requirements. The PEP provides the City with a guidance for enforcing the MS4 Permit Provisions and identifies enforcement procedures designed to encourage a timely response.

PROGRESSIVE ENFORCEMENT

Progressive enforcement is an escalating series of actions that allows for the efficient and effective use of enforcement. In some situations, an informal response (written warning/inspection report) is sufficient to inform the responsible party that there is a deficiency and to require the responsible party to return to compliance. If violations continue, the enforcement response should be quickly escalated to increasingly more formal and serious actions until compliance is achieved. Progressive enforcement is not appropriate in all circumstances. For example, where there is a situation needing immediate response, immediate issuance of a cleanup and abatement order may be appropriate.

COMPLIANCE CRITERIA

The City conducts on-site compliance inspections and conducts investigations, in response to complaints, under their authority provided in their municipal code and ordinances to verify compliance. Typical noncompliance issues related to stormwater may include:

- Prohibited discharges to the storm drain system.
- Site's existing condition is likely to result in exposure of pollutants to stormwater contact and possible pollutant discharge to the storm drain system such as:
    - Poor housekeeping activities that results in pollutant exposure.
    - Unattended spills and leaks.
    - Uncovered or improperly stored wastes, materials, or other items of concern.
    - Open waste receptacles such as tallow bins, compactors, and trash bins.
    - Leaky or contaminated equipment stored or used outdoors.
    - Track-out of dirt and sediment or other materials to street or outdoor areas.
- Illicit connections to the storm drain system.
- Best Management Practices (BMPs) are not in place to address pollutant generating activities, which may include erosion and sediment controls and post construction controls.

Complaint Response

The City may receive complaints regarding stormwater ordinance from their staff members, public, local agencies, or the Regional Water Board. The City initiates, within one business day,[1] investigation of complaints from facilities within its jurisdiction. The initial investigation includes, at minimum, a limited inspection of the facility to confirm validity of the complaint and to determine if the facility is in compliance with municipal storm water ordinance and, if necessary, to oversee corrective action. Emergency complaints are investigated immediately.

PROGRESSIVE ENFORCEMENT GUIDELINES

Informal Enforcement

The City implements professional judgment regarding the circumstances surrounding an enforcement action and chooses to resolve routine noncompliance quickly and efficiently through informal means that are not accompanied by sanctions (*e.g.*, civil charges or penalties). When deemed appropriate, the City employs the procedures described below to correct noncompliance informally.

Written Warning/ Inspection Report

Under circumstances where an inspection reveals routine noncompliance that can be corrected within a reasonably short time, staff may choose to issue a written warning/inspection report that describes the minor deficiencies/violations and includes a schedule for correcting the noncompliance[2]. The purpose of the written warning is to give the responsible party an opportunity to comply voluntarily and thus avoid sanctions that might be imposed by an escalated enforcement response.

For residential zones, the City employs an informal enforcement process and escalates to formal enforcement actions for those residents that do not comply with stormwater regulations.

Formal Enforcement / Administrative Enforcement

In the event that the City determines, based on an inspection or illicit discharge investigation conducted, that a responsible party has failed to adequately comply with the informal enforcement process within the required timeframe, the City may initiate administrative enforcement actions or will implement enforcement actions as established through authority in its municipal code. The City's goal is to achieve compliance through an extensive inspection program, educational outreach efforts and, if necessary, the initiation of appropriate enforcement action(s). The goal of any enforcement action is to: (1) return the facility to compliance in a timely manner; (2) eliminate economic benefit realized by the noncompliant facility; and (3) punish violators and prevent future noncompliance.

Notice of Violations

Under circumstances where the responsible party has failed to comply with the informal enforcement process or where the violations are significant, the City may choose to issue a Notice of Violation (NOV). The purpose of an NOV is to inform the responsible party of the observed violations, the applicable stormwater municipal codes that the responsible party has failed to comply with and the

[1] The City may comply with the Permit by taking initial steps (such as logging, prioritizing, and tasking) to "initiate" the ingestigation within that one business day. However, the Regional Water Board would expect that the initial investigation, including a site visit, to occur within four business days (per MS4 Order No.R4-2012-0175 Section VI.D.2.b)

[2] The City may choose to issue/write inspection report on site or provide to the responsible party at a later time.

potential consequences of failing to correct the violations. The NOV also gives the responsible party an opportunity to correct the violations described in the NOV within a specified time. Under circumstances where the responsible party fails to adequately respond to the NOV by failing to address or correct the violations noted in the NOV, the severity of the enforcement response will continue to escalate as described below.

Failure to Return to Compliance/ Second Notice of Violation

The City's municipal code stormwater ordinance authorizes assessment of administrative penalties which can be carried out by issuing a Failure to Return to Compliance Notice or second NOV . The second NOV is a stronger enforcement option which may be used in circumstances where the responsible party has failed to comply with the requirements as indicated on the first NOV.

Cease and Desist Order

In the event the City's municipal code stormwater ordinance authorizes a Cease and Desist Order (CDO), the City may issue a CDO, as an alternative to the second NOV, when immediate action by the responsible party is necessary to eliminate a continuing or threatened serious violation of the stormwater ordinance.

Misdemeanors

The City's may escalate enforcement when evidence of noncompliance indicates that the violator of the stormwater ordinance has acted intentionally with intent to cause, allow to continue or conceal a discharge in violation of the ordinance.

Issuance of Citation/Infractions

At the discretion of the City's, and as established through authority in its municipal code, the City may issue citations and/or infractions.

Cost Recovery

In the event that a complaint response or violation requires clean-up and or extensive investigation, the City has the authority, as established in the municipal code, to require the responsible party to reimburse the city or County for all costs incurred by the related violation. Cost recovery fees that may be collected include, but are not limited to, investigation, enforcement, compliance assistance, damage, control, and clean-up.

Abatement

When a responsible party fails to cease or control a nuisance condition that results in or is likely to result in further or continuing violations, the City's may request abatement of conditions on private property if necessary, or in the event of imminent danger to public safely or the environment, the City itself may abate the nuisance condition.

Permit Revocation

Sites violating the stormwater permit may be subject to permit revocation procedures as authorized in the City's municipal code.

City's/District Attorney

Severe or continuing violations should be referred to the City's or District Attorney for consideration of criminal charges.

TIMEFRAMES FOR CORRECTING DEFICIENCIES/VIOLATIONS

Depending upon the nature of the deficiencies/violations observed, City's may specify compliance deadlines for the responsible party in the inspection report or NOV.

- Prohibited discharges: discharges are to be stopped immediately and up to two weeks. The City may require the responsible party to provide a written description of correction, long-term compliance plan.
- Illicit connection: discharge via the illicit connection are to be stopped immediately and up to two weeks. The City may require the responsible party to provide proof that connection was permanently terminated. Re-inspection typically is required.
- Pollutant exposure/prohibited conditions violations: Up to two weeks to correct violations. The City may require the responsible party to provide proof of compliance for the observed violations.

EXTENSIONS OF COMPLIANCE DEADLINES

There are instances when a responsible party is not able to comply with requirements within the time frame specified. The City may grant a reasonable extension to the responsible party if the City determines that an extension is warranted, as follows:

- A request for extension must be received in writing (mail, e-mail, fax, hand delivered, etc.) by the City no later than the last day of the initial specified compliance deadline date.
- The extension request must explain why the extension is needed and warranted, as well as include a summary of actions taken to date by the responsible party to comply with requirements of the NOV.
- No more time is provided than should reasonably be needed for the responsible party to competently correct the noted deficiencies/violations. The City grants shorter extensions during the wet season.

Appropriate reasons to grant an extension may include, but are not limited to:

- Confirmed delays due to contractor or other service provider outside of responsible party's control.
- Extensive corrections involving work that would conceivably take longer than the time frame provided.
- In general, extensions should not be granted to allow the continuation of unauthorized non-storwater discharges.

The City may require an action plan or statement to be submitted by the responsible party within the initial compliance time frame, as a condition of granting an extension. The action plan or statement should specify the corrections that are to be made and specify an anticipated time frame for completion. The action plan or statement should be signed and dated by the responsible party.

REFERRALS TO THE REGIONAL BOARD

The City may refer violations of its municipal storm water ordinance and/or California Water Code section 13260 by industrial and commercial facilities and construction site operators to the Regional Water Board provided that the City has made a good faith effort of applying enforcement procedures to achieve compliance with its own ordinance. At a minimum, the City's good faith effort must be documented with:

- Two follow-up inspections, and
- Two warning letters or notices of violation.

Referral of Violations of the General Industrial/Construction Permits

For those facilities or site operators in violation of municipal stormwater ordinances and subject to the Industrial and/or Construction General Permits (IGP/CGP), the City may escalate referral of such violations to the Regional Water Board (promptly via telephone or electronically) after one inspection and one written notice of violation (copied to the Regional Water Board) to the facility or site operator regarding the violation. In making such referrals, the City shall include, at a minimum, the following documentation:[3]

- Name of the facility or site,
- Operator of the facility or site,
- Owner of the facility or site,
- WDID Number (if applicable),
- Records of communication with the facility/site operator regarding the violation, which shall include at least one inspection report,
- The written notice of violation (copied to the Regional Water Board),
- For industrial sites, the industrial activity being conducted at the facility that is subject to the Industrial General Permit, and
- For construction sites, site acreage and Risk Factor rating.

RECORDS RETENTION

City shall maintain records, per their existing record retention policies, and make them available on request to the Regional Water Board, including inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating a good faith effort to bring facilities into compliance.[4]

[3] Pursuant to Order No. R4-2012-0175 Section VI.D.2.a.v
[4] Pursuant to Order No. R4-2012-0175 Section VI.D.2.a.iii

Sources

Los Angeles County Stormwater Quality Management Program (2001)

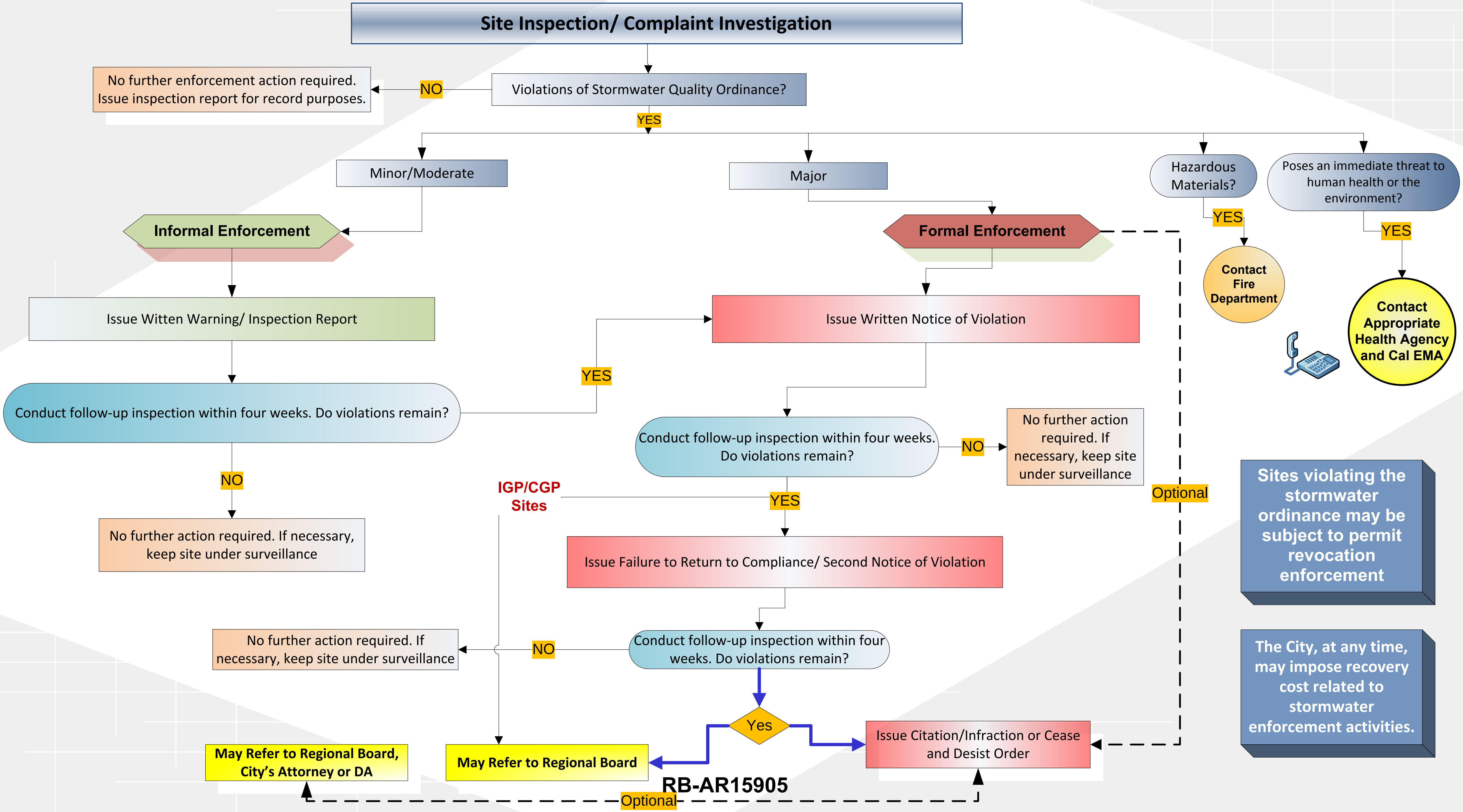
Orange County Municipal Storm Water Drainage Area Management Plan (2003)

Sacramento County Environmental Management Department. Inspection & Enforcement Policy - Commercial/Industrial Stormwater Compliance Program (2012).

Deficiencies/ Violation Degrees

Minor	Moderate	Major
Typically involves conditions that threaten to result in pollutant discharge to the storm system and/or waterways, if not corrected. The immediate threat to human health or the environment is low. **Examples:** **1.** Unattended automotive fluid drips and spills likely to result in moderate discharges to the storm drain system. **2.** Discharge of a moderate amount of car body wet sanding effluent from a single vehicle to outdoor pavement that has not yet impacted the storm drain system. **3.** Unattended spilled restaurant grease on outdoor pavement. Spill appears to be recent, is less than a quart, has not yet impacted the storm drain system and poor housekeeping do not appear to be habitual. **4.** Oily, uncovered engines, or other oily, possibly leaky items stored outside. **5.** Open and missing dumpster and tallow bin lids.	Typically involves less significant pollutant discharges to the storm system and/or receiving waters or conditions that threaten to result in minor to moderate pollutant discharges to the storm system and/or receiving waters. May include small or incidental discharges of hazardous or toxic substances. The violation does not present a major threat to human health and safety, but is likely to result in degradation of receiving water quality. **Examples:** **1.** Discharge of moderate amounts of automotive fluids to storm drain system results from neglected spills and poor housekeeping. **2.** Discharge of moderate amount (less than 20 gallons of diluted effluent) of auto body wet sanding effluent to storm drain system. **3.** More than a quart of spilled restaurant grease on outdoor pavement is neglected, possibly getting tracked out of trash enclosure. Neglect appears to be habitual but so far, impact to storm drain is moderate. **4.** Moderate amount of Oil/fluids leaking from improperly stored engines and parts discharge to storm drain system. **5.** Repeat minor violations may be considered moderate.	Includes significant pollutant discharges to the storm system and/or receiving waters as well as creation of conditions that threaten imminent discharge of significant pollutants to the storm system and/or receiving waters. This also includes, but is not limited to, significant discharges of hazardous or toxic substances. Major violations have the potential to present a major threat to human health or safety and/or the environment. The intent of the violator should be considered: Patterns of willful disregard for safety and the environment, recalcitrance, and repeat violations should contribute to designation of a violation as major, but are not necessary. **Examples:** **1.** Intentional discharge of waste oil to the storm drain. **2.** Discharge of significant volumes of auto body wet sanding effluent to storm drain from work on multiple vehicles, as practice. Especially where repeat violations or evidence of habitual discharge is evident. **3.** Significant amount of spilled restaurant grease is intentionally washed into storm drain, especially if hazardous degreasing agent is used. **4.** Significant amount of Oil/fluids leaking from improperly stored engines and parts discharge to storm drain system, especially if repeat violation. **5.** Repeat moderate violations may be considered major.

PROGRESSIVE ENFORCEMENT FLOW CHART



RB-AR15905

Watershed Management Program Appendix 3

Attachments to MCM Guidance

Insert City Seal

CITY STORMWATER PROGRAM INDUSTRIAL/COMMERCIAL FACILITY INSPECTION REPORT

Facility:	Address:
Contact:	Title:
Email:	Phone:
Inspector:	Date:
Inspection Type: ☐ Routine ☐ Follow-up ☐ Response to Complaint	BMP materials provided and explained: ☐ Yes ☐ No
SIC/NAICS code and/or business type:	

Industrial Facilities Only		
(1) Covered under IGP (WDID is current) or other NPDES Permit: ☐ Yes ☐ No	(2) NEC filed: ☐ Yes ☐ No	SWPPP on-site: ☐ Yes ☐ No
If (1) and (2) above are "No", notified contact of need for IGP coverage and will refer facility to Regional Board: ☐ Yes ☐ No		

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

	BMP	Yes	No	N/A		BMP	Yes	No	N/A
Vehicle & Equipment Maintenance	**Fueling** - Effective fueling source control devices & practices	☐	☐	☐	Facility Maintenance	**Building & grounds maintenance** – Effective maintenance practices	☐	☐	☐
	Cleaning – Effective cleaning practices & wash water management practices	☐	☐	☐		**Parking & storage area maintenance** – Effective designs & housekeeping/maintenance practices	☐	☐	☐
	Repair – Effective repair practices & source control devices	☐	☐	☐		**Stormwater conveyance system maintenance** – Proper operation & maintenance protocols	☐	☐	☐
Equipment Operations	**Outdoor equipment operations** – Effective source control devices & practices	☐	☐	☐		**Sidewalk washing** – Remove debris & free standing oil/grease. Use high pressure/low volume spray washing with potable water, no cleaning agents & average rate of 0.006 gal/ft^2.	☐	☐	☐
Storage & Handling	**Outdoor liquids** – Effective source controls & practices	☐	☐	☐	Spills, Leaks & Discharges	**Accidental spills/leaks** – Effective spill/leak prevention & response procedures	☐	☐	☐
	Outdoor raw materials – Effective source control practices & structural devices	☐	☐	☐		**Unauthorized nonstormwater discharges** – Effective elimination	☐	☐	☐
	Solid waste – Effective storage & handling practices & appropriate control measures	☐	☐	☐					

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED)

Include description of activities performed and/or principal products produced

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this ordinance if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

____________________	____________________	____________________
Site Representative Signature	Printed Name	Date

RB-AR15907

Recording requested by and mail to:

Insert City Seal

Name: City of [Insert City]
Department of Public Works
ATTN: Director of Public Works

Address: [Insert City Address Line1]
[Insert City Address Line2]

********************************** Space Above This Line For Recorder's Use ***********************************

MASTER COVENANT AND AGREEMENT

REGARDING ON-SITE BMP MAINTENANCE

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City of [Insert City], County of Los Angeles, State of California (please give legal description: assessor's ID, tract no., lot no., etc.):

____

Site Address ____

Owner(s) do hereby covenant and agree to and with the City of [Insert City]to maintain all on-site structural Best Management Practices (BMPs) in accordance with the Site Map and the Operations & Maintenance (O&M) Plan set forth in Attachment 1 hereto and incorporated herein by this reference. The specific structural BMPs are listed as follows:

____

____

Owner(s) shall maintain the listed drainage devices above on the property indicated and as shown on plans permitted by the City of [Insert City]in a good and functional condition to safeguard the property owners and adjoining properties from damage and pollution.

Owner(s) hereby consent to inspection of the Property by an inspector authorized by the City Manager, or his or her designee, for the purpose for verifying compliance with the provisions of this Agreement.

Owner(s) shall provide printed educational materials with any sale of the property which provide information on what stormwater management facilities are present, the type(s) and location(s) of maintenance signs that are required, and how the necessary maintenance can be performed.

Owner(s) shall provide actual notice of this Agreement and its terms to any respective successor(s) in interest to the Property prior to transfer of said interest to such successor(s) in interest. This covenant and agreement shall run with the land and shall be binding upon any future owners, encumbrances, their successors, heirs or assigns and shall continue in effect until the City of [Insert City] approves its termination.

(Print Name of Property Owner)	(Print Name of Property Owner)
(Signature of Property Owner)	(Signature of Property Owner)

Dated this ___________ day of ___________ 20 ______.

************************************ Space Below This Line For Notary's Use ************************************

ALL PURPOSE ACKNOWLEDGEMENT

State of ________________________________ }
}
County of ________________________________ }

On ________________________ before me, _______________________________________ personally appeared
(Insert Name of Notary Public and Title)
____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf on which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature __________________________ (Seal)

RB-AR15908

Recording requested by and mail to:

Name: City of [Insert City]
Public Works Department
ATTN: Director of Public Works

Address: [Insert City Address Line1]
[Insert City Address Line2]

Insert City Seal

************************************ Space Above This Line For Recorder's Use ************************************

MASTER TERMINATION OF COVENANT AND AGREEMENT

REGARDING ON-SITE BMP MAINTENANCE

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City of [Insert City], County of Los Angeles, State of California (please give legal description: assessor's ID, tract no, lot not, etc.):

____

Site Address ____

We do hereby, with approval of the City of [Insert City], Engineering Division, terminate the covenant and agreement entered into with the City of [Insert City]as recorded on the ___________ day of __________________________20_______, as Document No.

____

____

This covenant and agreement is terminated for the reason that:

____

____

____________________________	____________________________
(Print Name of Property Owner)	(Print Name of Property Owner)
____________________________	____________________________
(Signature of Property Owner)	(Signature of Property Owner)

Dated this __________ day of __________ 20 _____.

Termination approved by: __________________________________ Date: ___________________________
(Authorized City Representative)

************************************* Space Below This Line For Notary's Use *************************************

ALL PURPOSE ACKNOWLEDGEMENT

State of _______________________________ }
}
County of _______________________________ }

On ________________________ before me, _______________________________________ personally appeared
(Insert Name of Notary Public and Title)
____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf on which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature __________________________ (Seal)

Insert City Seal

City of [Insert City]NPDES Program

POST-CONSTRUCTION BMP VERIFICATION & INSPECTION FORM

PROJECT INFORMATION	
Facility/Project Name:	Inspection Date:
Address:	Inspector:
Contact Name:	Contact Phone:

Project Category

☐ Priority Project ☐ Small Site LID Project ☐ Single Family Residence ☐ Green Street
☐ Public Project ☐ Private Project

Project Type:

☐ Commercial ☐ Industrial ☐ Residential ☐ Multi-Use
☐ Road/Street ☐ Parking Lot ☐ Automotive repair ☐ Restaurant ☐ Other:

Operation/Maintenance:

☐ Reviewed ☐ Not Reviewed ☐ Not Available
Preparer's Name: Preparer's Title:
Address: City: Zip: Phone:

Inspection Type

☐ Prior to Certificate of Occupancy ☐ Special Investigation ☐ Response to Complaint
☐ Routine Inspection (Annual) ☐ Follow-up Inspection

CHECKLIST FOR ROUTINE SOURCE CONTROL BMPs

Requirement	No. of BMPs (if Applicable)	BMP in place per approved LID Plan/SUSMP?	Corrective Action Required
Storm Drain System Stenciling/Signage		☐ Yes ☐ No	☐ Yes ☐ No
Outdoor Material Storage Areas		☐ Yes ☐ No	☐ Yes ☐ No
Trash Storage Areas		☐ Yes ☐ No	☐ Yes ☐ No
Efficient Irrigation Systems & Landscape Design		☐ Yes ☐ No	☐ Yes ☐ No
Protect Slopes & Channels		☐ Yes ☐ No	☐ Yes ☐ No
Loading Dock Areas		☐ Yes ☐ No	☐ Yes ☐ No
Maintenance Bays		☐ Yes ☐ No	☐ Yes ☐ No
Vehicle Wash Areas		☐ Yes ☐ No	☐ Yes ☐ No
Outdoor Process Areas		☐ Yes ☐ No	☐ Yes ☐ No
Equipment Wash Areas		☐ Yes ☐ No	☐ Yes ☐ No
Fueling Areas		☐ Yes ☐ No	☐ Yes ☐ No
Hillside Landscaping		☐ Yes ☐ No	☐ Yes ☐ No
Wash-water Controls for Food Prep Areas		☐ Yes ☐ No	☐ Yes ☐ No
Community Car Wash Racks		☐ Yes ☐ No	☐ Yes ☐ No

CHECKLIST FOR STRUCTURAL BMPs

Requirement	No. of BMPs (if Applicable)	BMP in place per approved LID Plan/SUSMP?	Corrective Action Required
Infiltration Trench/Basin		☐ Yes ☐ No	☐ Yes ☐ No
Infiltration Well/Dry Well		☐ Yes ☐ No	☐ Yes ☐ No
Detention Basin		☐ Yes ☐ No	☐ Yes ☐ No
Porous Pavement		☐ Yes ☐ No	☐ Yes ☐ No
Bio-infiltration		☐ Yes ☐ No	☐ Yes ☐ No
Vegetated Swale		☐ Yes ☐ No	☐ Yes ☐ No
Bio-filtration		☐ Yes ☐ No	☐ Yes ☐ No
Proprietary Control Measure (describe):		☐ Yes ☐ No	☐ Yes ☐ No
Media Filtration		☐ Yes ☐ No	☐ Yes ☐ No
Filter Insert		☐ Yes ☐ No	☐ Yes ☐ No
Regional or Watershed BMPs		☐ Yes ☐ No	☐ Yes ☐ No
Other (describe):		☐ Yes ☐ No	☐ Yes ☐ No

INSPECTION RESULTS:

- ☐ Visible / No Apparent Problems
- ☐ BMP Failure
- ☐ Significant Engineering / Design Flaws
- ☐ Unauthorized Modifications
- ☐ BMP Missing / Removed / Not Located
- ☐ Trash / Debris Exceeding Cap. (bypass)
- ☐ Evidence of Pollution / Dumping
- ☐ Vector Control Issues (Mosquitoes)
- ☐ Inadequate Maintenance

DESCRIPTION OF CORRECTIVE ACTION(S) REQUIRED:

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If any corrective actions have been noted above, then based on this verification inspection, you are in noncompliance with Municipal Code Chapter [-]. You must implement the required corrective action(s) by:

____
Corrective Action Due Date

After this date, your facility will be re-inspected to verify that all necessary corrective measures have been taken. FAILURE TO IMPLEMENT THE CORRECTIVE ACTION(S) WILL SUBJECT YOU TO ELEVATED ENCORCEMENT, WHICH CAN INCLUDE INFRACTION OR MISDEMEANOR PENALTIES.

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

____________________	____________________	____________
Contact Signature	Printed Name	Date

Insert City Seal

STORMWATER PLANNING PROGRAM PRIORITY PROJECT CHECKLIST

FORM PC

Project Name	Owner Name	Developer Name
Project Address	Owner Address	Developer Address
Plan Check #	Owner Phone	Developer Phone

Type of Project

Does the proposed project fall into one of the following categories? Please check Yes/No	YES	NO
PRIORITY PROJECTS		
1. A new project equal to 1 acre or greater of disturbed area and adding more than 10,000 square feet of impervious* surface area		
2. A new industrial park with 10,000 square feet or more of surface area		
3. A new commercial mall with 10,000 square feet or more surface area		
4. A new retail gasoline outlet with 5,000 square feet or more of surface area		
5. A new restaurant (SIC 5812) with 5,000 square feet or more of surface area		
6. A new parking lot with either 5,000 ft^2 or more of impervious* surface or with 25 or more parking spaces		
7. A new automotive service facility (SIC 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) with 5,000 square feet or more of surface area		
8. Projects located in or directly adjacent to, or discharging directly to a Significant Ecological Area (SEA)*, where the development will: a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and b. Create 2,500 square feet or more of impervious surface area		
9. Redevelopment*		
SPECIAL PROVISION PROJECTS		
10. Green street* project		
11. Single family hillside* home		

If checked YES, numerical criteria will apply to items 1,2,6-9 and items 3-5 (for project areas of 5,000 ft^2 or more of surface area.) If any of the boxes are checked YES, this project will require the preparation of a Low Impact Development (LID) Plan and a Maintenance Agreement Transfer*

* Defined on back.

Applicant Name

Applicant Signature

Applicant Title

Date

DEFINITIONS:

Impervious are those surfaces that do not allow stormwater runoff to percolate into the ground. Typical impervious surfaces include: concrete, asphalt, roofing materials, etc. However, some specially designed concrete/asphalt do allow water to percolate (pervious).

Hillside means property where the slope is 25% or greater and where grading contemplates cut or fill slopes. Single family hillside homes will require a less extensive plan. During the construction of a single-family hillside home, the following measures are implemented:

a. Conserve natural areas

b. Protect slopes and channels

c. Provide storm drain system stenciling and signage

d. Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability

e. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

Green Streets means any street and road construction of 10,000 square feet or more of impervious surface area

a. These projects will follow an approved green streets manual to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects. Stormwater mitigation measures must be in compliance with the approved green streets manual requirements.

Redevelopment means land-disturbing activities that result in the creation, addition, or replacement of 5,000 ft^2 or more of impervious surface area on an already developed site.

Redevelopment does not include routine maintenance activities that are conducted to maintain the original line and grade, hydraulic capacity, or original purpose of facility, nor does it include modifications to existing single family structures, or emergency construction activities required to immediately protect public health and safety.

Significant Ecological Area means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and would be disturbed or degraded by human activities and developments. Also, an area designated by the City as approved by the Regional Water Quality Control Board.

Maintenance Agreement and Transfer: All developments subject to LID and site specific plan requirements provide verification of maintenance provisions for Structural and Treatment Control BMPs, including but not limited to legal agreements, covenants, CEQA mitigation requirements, and/or conditional use permits. Verification at a minimum shall include:

- The developer's and/or owner's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and
- A signed statement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance and conduct a maintenance inspection at least once a year; or
- Written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or
- Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the Structural and Treatment Control BMPs; or
- Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction Structural or Treatment Control BMPs.

Insert City Seal

STORMWATER PLANNING PROGRAM

PRIORITY DEVELOPMENT & REDEVELOPMENT PROJECTS

PLAN CHECK # ______________________

FORM P1

Project Name	______________________________
Project Location	______________________________
Company Name	______________________________
Address	______________________________
Contact Name / Title	______________________________
Phone / FAX / Email	______________________________

GENERAL PROJECT CERTIFICATION

A completed original of this form must accompany all LID Plan submittals.

Best Management Practices (BMPs) have been incorporated into the design/maintenance/construction of this project to accomplish the following:

1. Minimize impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100), CWC § 13369, CWA § 319, CWA § 402(p), CWA § 404, CZARA § 6217(g), ESA § 7, and local government ordinances.
2. Maximize the percentage of pervious surfaces to allow more percolation of stormwater into the ground.
3. Minimize the amount of stormwater directed to impermeable surfaces and to the MS4.
4. Minimize pollution emanating from parking lots through the use of appropriate Treatment Control BMPs and good housekeeping practices.
5. Minimize breeding of Vectors
6. Reduce pollutant loads in stormwater from the development site.

I certify that this Low Impact Development Plan and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered/evaluated the information submitted.

Post Construction / Maintenance Certification

As the responsible party, I certify that the proposed BMPs will be implemented, monitored and maintained to ensure their continued effectiveness. In the event of a property transfer, the new owner/lessee will be notified of the BMPs in use at this site and I will include written conditions in the sales or lease agreement, which requires the new owner (or lessee) to assume responsibility for maintenance and conduct a maintenance inspection at least once a year. The information contained herein is, to the best of my knowledge and belief, true, accurate, and complete.

In consideration of the execution of City of [Insert City] approval of the proposed Low Impact Development (LID) Plan including any proposed treatment system, the applicant hereby agrees to indemnify, save and keep the City of [Insert City], its officers, agents and employees free and harmless from and against any and all claims for injury, damage, loss, liability, cost and expense of any nature whatsoever, which the City of [Insert City], its officers, agents, or employees may suffer, sustain, incur, pay out as a result of any and all actions, suits, proceedings, claims and demands which may be brought, made, or filed against the City of [Insert City], its officers, agents or employees by reason of or arising out of, or in any manner connected with any and all operations permitted by this approval. This indemnification extends to further agree that the City of [Insert City]is not responsible for any additional requirements or restrictions due to changes in regulations, policies or enforcement practices of the California Regional Water Quality Control Board, or any other applicable regulatory agencies.

______________________	______________________
Property Owner Name	Property Owner Signature
______________________	______________________
Applicant Title	Date

PLANNING BEST MANAGEMENT PRACTICES

BMP Name	BMP Identification Number and Name	✓ if to be used
Car Wash Facility	SC-21: Vehicle and Equipment Cleaning	
Constructed Wetlands	MP-20: Wetlands	
Control of Impervious Runoff	-N/A-	
Efficient Irrigation	-N/A-	
Energy Dissipaters	EC-10: Velocity Dissipation Devices	
Extended Detention Basins	TC-22: Extended Detention Basin	
Infiltration Basins	TC-11: Infiltration Basins	
Infiltration Trenches	TC-10: Infiltration Trenches	
Inlet Trash Racks	-N/A-	
Landscape Design	EC-2: Preservation of Existing Vegetation EC-4: Hydro seeding EC-6 & EC-8: Straw & Wood Mulching	
Linings for Urban Runoff Conveyance Channels	-N/A-	
Materials Management	SC-30: Outdoor Loading/Unloading	
Media Filtration	TC-40: Media Filter	
Motor Fuel Concrete Dispensing Areas	SC-20: Vehicle and Equipment Fueling	
Motor Fuel Dispensing Area Canopy	SC-20: Vehicle and Equipment Fueling	
Water Quality Inlets	TC-50: Water Quality Inlet	
Outdoor Storage	SC-31: Outdoor Liquid Container Storage SC-33: Outdoor Storage of Raw Materials	
Porous Pavement and/or Alternative Surfaces	-N/A-	
Protect Slopes and Channels	EC-11: Slope Drains EC-12: Streambank Stabilization	
Self-Contained Areas for Vehicle or Equipment Washing, Steam Cleaning, Maintenance, Repair, or Material Processing	SC-21: Vehicle and Equipment Cleaning SC-22: Vehicle and Equipment Repair SC-32: Outdoor Equipment Operations	
Storm Drain System Stenciling and Signage	SC-34: Waste Handling and Disposal (Signage Section)	
Trash Container Areas	SC-34: Waste Handling and Disposal	
Vegetated Swales and Strips	TC-32: Bioretention	
Wet Ponds	TC-20: Wet Ponds	
Other:	• • • • •	

Please refer to the California Storm Water Best Management Practice Handbooks for more information.

Insert City Seal

STORMWATER TREATMENT CERTIFICATION

FORM P2

SITE NAME and ADDRESS

____
____
____
____
____

Plan Check #______________________

Planning #______________________

APPROXIMATE PROJECT CHARACTERISTICS

Roofed Area	________	ft^2
Roadway/Parking Area (exposed)	________	ft^2
Landscaped/Vegetation	________	ft^2
Other Ground Level Impervious Areas (Ex: Outdoor work or storage areas)	________	ft^2
Other: ________________	________	ft^2
TOTAL	________	ft^2

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary) or see back

Area Designation (must correspond with plans)	**Tributary Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rate or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include size, make, and model, if any)	**BMP Location** (briefly describe)	**Design Treatment Flow Rate or Volume Capacity**

By stamping this form, I acknowledge that each treatment BMP is provided with adequate bypass or overflow so as not to contribute to localized flooding or soil instability.

*Flow rates and volumes based on the 0.75 inch, 24-hour rain event or the 85th percentile, 24-hour rain event, whichever is greater.

I certify that I am a Professional Civil Engineer registered in the State of California, and that the treatment methods and capacities herein comply with the requirements established by the California Regional Water Quality Control Board, Los Angeles Region, and the State Water Resources Control Board for Low Impact Development (LID) Plans.

Affix Registered Engineer Wet Ink Stamp Here:

Print Name **Signature** **Date**

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary)

Area Designation (must correspond with plans)	**Tributary Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rate or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include size, make, and model, if any)	**BMP Location** (briefly describe)	**Design Treatment Flow Rate or Volume Capacity**

Insert City Seal

OWNER'S CERTIFICATION
MINIMUM BMPS FOR ALL CONSTRUCTION SITES

FORM **OC1**

PLAN CHECK #______________________

Project Name ______________________ Project Location ______________________	BUILDING/GRADING PERMIT NUMBER
Owner Name ______________________ Address ______________________ Phone ______________________ FAX/Email ______________________	Contractor Name ______________________ Address ______________________ Phone ______________________ FAX/Email ______________________

The National Pollutant Discharge Elimination System (NPDES) is the portion of the Clean Water Act that applies to the protection of receiving waters. Under permits from the Los Angeles Regional Water Quality Control Board (RWQCB), certain activities are subject to RWQCB enforcement. To meet the requirements of the Los Angeles County Municipal Stormwater Permit (CAS004001), minimum requirements for sediment control, erosion control and construction activities must be implemented on each project site. Minimum requirements include:

- **EROSION CONTROL:** Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs, such as the limiting of grading activities during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.
- **SEDIMENT CONTROL:** Eroded sediments from areas disturbed by construction and from stockpiles of soil shall be retained on site to minimize sediment transport from the site to streets, drainage facilities and/or adjacent properties via runoff, vehicle tracking or wind.
- **NON-STORMWATER MANAGEMENT:** Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site.
- **WASTE MANAGEMENT:** Construction related materials, wastes, spills or residues shall be retained on site to minimize transport from the site to streets, drainage facilities or adjoining properties by wind or runoff. Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to remove sediment and pollutants.

Examples of Minimum BMPs include: (1) Soil piles must be covered with tarps or plastic, (2) leaking equipment must be repaired immediately, (3) refueling must be conducted away from catch basins, (4) catch basins must be protected when working nearby, (5) vacuum all concrete saw cutting, (6) never wash concrete waste into the street, (7) keep the site clean, sweep the gutters at the end of each working day and keep a trash receptacle on site.

As the architect/engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project's construction activities on stormwater quality. The project owner and contractor are aware that the selected BMPs shall be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity.

______________________ Architect/Engineer of Record Name	______________________ Architect/Engineer of Record Signature
______________________ Title	______________________ Date

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law.

______________________ Landowner or Landowner's Agent Name	______________________ Landowner or Landowner's Agent Signature
______________________ Title	______________________ Date

Insert City Seal

EROSION AND SEDIMENT CONTROL PLAN (ESCP) REVIEW CHECKLIST

These requirements apply to all activities involving soil disturbance with the exception of agricultural activities. Applicable activities include but are not limited to grading, vegetation clearing, soil compaction, paving, re-paving and linear underground/overhead projects (LUPs).

Prior to issuing a grading or building permit, each operator of a construction activity within its jurisdiction must prepare and submit an ESCP prior to the disturbance of land.

Contact Name:	Tracking #:
Contact Title:	Site Name:
Company Name:	Site Address:
Mailing Address:	Type of Facility:
City, State, Zip:	Submittal Date:
Phone Number:	Plan Return Date:
Fax Number:	Disturbed Area:

<u>First Review</u>
ESCP Received on:

Review Completed on:

<u>Second Review</u>
ESCP Received on:

Review Completed on:

<u>Third Review</u>
ESCP Received on:

Review Completed on:

<u>Fourth Review</u>
ESCP Received on:

Review Completed on:

<u>Fifth Review</u>
ESCP Received on:

Review Completed on:

<u>Sixth Review</u>
ESCP Received on:

Review Completed on:

RB-AR15919

ESCP REQUIREMENT	SATISFACTION			COMMENTS
	YES	NO	N/A	
General Information				
Contact information (e.g., name, address, phone, email, etc.) provided for the owner and contractor.	☐	☐	☐	
Basic site information including location, status, size of the project and area of disturbance is provided.	☐	☐	☐	
Proof of existing coverage under applicable permits, including, but not limited to the State Water Board's Construction General Permit, and State Water Board 401 Water Quality Certification.	☐	☐	☐	
Meets the minimum requirements of the jurisdictional erosion and sediment control ordinance.	☐	☐	☐	
Includes the elements of a Storm Water Pollution Prevention Plan (SWPPP) prepared in accordance with the requirements of the Construction General Permit.	☐	☐	☐	
Developed and certified by a Qualified SWPPP Developer (QSD).	☐	☐	☐	
Identifies the proximity all water bodies, water bodies listed as impaired by sediment-related pollutants, and water bodies for which a sediment-related TMDL has been adopted and approved by the USEPA.	☐	☐	☐	
Identifies any significant threat to water quality status, based on consideration of factors listed in Appendix 1 to the Construction General Permit.	☐	☐	☐	
The project start date and anticipated completion date is provided.	☐	☐	☐	
Includes Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.	☐	☐	☐	
Contains a language signed by the landowner or the landowner's agent stating as follows: *"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/ or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/ or adequately implement the ESCP may result in revocation of grading and/ or other permits or other sanctions provided by law."*	☐	☐	☐	

ESCP REQUIREMENT	SATISFACTION			COMMENTS
	YES	NO	N/A	
Best Management Practices				
All structural BMPs are designed by a licensed California Engineer.	☐	☐	☐	
Includes Sediment/Erosion Control.	☐	☐	☐	
Includes controls to prevent tracking on and off the site.	☐	☐	☐	
Includes non-stormwater controls (e.g., vehicle washing, dewatering, etc.).	☐	☐	☐	
Includes Materials Management (delivery and storage).	☐	☐	☐	
Includes Spill Prevention and Control.	☐	☐	☐	
Includes Waste Management (e.g., concrete washout/waste management; sanitary waste management).	☐	☐	☐	
Includes methods to minimize the footprint of the disturbed area and to prevent soil compaction outside of the disturbed area.	☐	☐	☐	
Includes methods used to protect native vegetation and trees.	☐	☐	☐	
Includes the rationale for the selection and design of the proposed BMPs, including quantifying the expected soil loss from different BMPs.	☐	☐	☐	
Post-Construction Structural BMPs subject to Operation and Maintenance Requirements are identified.	☐	☐	☐	
Site Plan				
Full sized plans showing the site with all proposed BMPs and water quality notes have been signed and stamped with wet ink application by the appropriate individual.	☐	☐	☐	
Plan includes a title block containing at least the project name, address, and owner.	☐	☐	☐	
All figures, maps, plot plans, etc. have a legend, including a North arrow and scale.	☐	☐	☐	
All facilities are labeled for the intended function.	☐	☐	☐	
All areas of outdoor activity are labeled.	☐	☐	☐	
All structural BMPs are indicated.	☐	☐	☐	
Drainage flow information depicted.	☐	☐	☐	
Project location shown.	☐	☐	☐	
Site boundary indicated.	☐	☐	☐	

Agency Standard Operating Procedures

Each agency will use the suggested language below to develop, implement, and revise as necessary agency-specific Standard Operating Procedures (SOPs) that identify the procedures each agency will follow.

CGP Coverage Verification

- Verification of active coverage under the Construction General Permit for sites disturbing 1 acre or more, or that are part of a planned development that will disturb 1 acre or more and a process for referring non-filers to the Regional Water Board.

Prior to releasing any permits relating to and/or allowing for construction activities on a site resulting in one (1) acre or more of soil disturbance, a Notice of Intent (NOI), a Storm Water Pollution Prevention Plan (SWPPP), and all other Permit Registration Documents (PRDs) must be filed with the Regional Water Resources Control Board (Regional Board) through the State Water Board’s Storm water Multi-Application and Report Tracking System (SMARTS) website and a Waste Discharge ID (WDID) number must be obtained from the Regional Board. This requirement will be included as a condition of approval. In cases where construction activities have commenced on a qualifying site and the project has not yet filed all PRDs (along with an explanation for filing late) with the Regional Board, a Notice of Violation (NOV) will be sent to the responsible person. Any work orders released will be stopped and fines may be enforced. The Regional Board will be notified of the discharger’s non-compliance. Work will not be allowed to commence until the NOI has been accepted by the Regional Board and WDID number issued.

ESCP Review

- Review of the applicable ESCP and inspection of the construction site to determine whether all BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions.

Prior to issuing a grading or building permit, each operator of a construction activity within its jurisdiction must prepare and submit an Erosion and Sediment Control Plan (ESCP) prior to the disturbance of land. The ESCP Requirement Checklist will be used to ensure required information is submitted by the responsible person. These requirements apply to all activities involving soil disturbance with the exception of agricultural activities. Applicable activities include but are not limited to grading, vegetation clearing, soil compaction, paving, re-paving and linear underground/overhead projects (LUPs).

BMP Assessment

- Assessment of the appropriateness of the planned and installed BMPs and their effectiveness.

Prior to releasing any permits relating to and/or allowing for construction activities on a site resulting in one (1) acre or more of soil disturbance a Qualified SWPPP Practitioner (QSP) must be identified by the developer. Prior to beginning any construction activities, the QSP must review the ESCP and determine if the following requirements are being met:

1. Erosion and sediment controls are incorporated to provide effective reduction or elimination of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges from the site.

2. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.
3. Non-stormwater control BMPs are selected to control sediment on the construction site.
4. Materials and waste management pollution control BMPs are incorporated to minimize stormwater contact with construction materials, wastes and service areas; and to prevent materials and wastes from being discharged off-site.

If the QSP identifies potential problematic areas of the ESCP, a revision to the ESCP must be submitted for review and approval.

Once the BMPs are installed, inspections must be conducted at the frequency identified in the Watershed Management Program (WMP). All BMPs not functioning as intended must be repaired, replaced, or changed to a more effective BMP. Inspection and maintenance procedures must be in accordance with the CASQA handbook.

Discharge Reporting

- Visual observation and record keeping of non-stormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff.

Any non-stormwater discharges, potential illicit discharges and connections, and potential discharge of pollutants in stormwater runoff will be tracked and kept on record.

Public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s within this jurisdiction will be conducted. Multiple modes of communication are in place to allow for complaints and spill reporting. When a complaint is received it will be documented and tracked to ensure that all complaints are adequately addressed.

A Spill Response Plan will be implemented for all sewage and other spills that may discharge into the MS4 within this jurisdiction. Coordination with spill response teams will be observed throughout all appropriate departments, programs, and agencies so that maximum water quality protection is provided. All spill complaints will be investigated within one business day of receiving the complaint and a response to spills for containment will be conducted within 4 hours of becoming aware of the spill, except where such spills occur on private property, in which case the response should be within 2 hours of gaining legal access to the property. Spills that may endanger health or the environment will be reported to appropriate public health agencies and the Office of Emergency Services (OES).

A training program regarding the identification of illicit connections/illicit discharges (IC/IDs) for all municipal field staff, who, as part of their normal job responsibilities (e.g., street sweeping, storm drain maintenance, collection system maintenance, road maintenance), may come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4 will be provided.

Construction Inspection Reporting and Tracking

- Development of a written or electronic inspection report generated from an inspection checklist used in the field.
- Tracking of the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required.

Inspections will be conducted at a frequency listed in the Watershed Management Program (WMP). Inspection checklists and/or reports will be utilized to determine and keep record of whether or not all

BMPs have been selected, installed, implemented, and maintained according to the approved plan and subsequent approved revisions. These checklists/reports will be retained for at least three (3) years following NOT approval.

Insert City Seal

(CITY NAME) STORMWATER INSPECTION REPORT FOR CONSTRUCTION SITES

SITES ONE ACRE OR GREATER

Project Name:	Address:
Area disturbed:	WDID: / SWPPP on-site: ☐ Yes ☐ No
Risk level: ☐ Low (Risk 1) ☐ Medium (Risk 2) ☐ High (Risk 3)	Erosion & Sediment Control Plan (ESCP) on-site: ☐ Yes ☐ No
Phase: ☐ Prior to Land Disturbance ☐ Active construction ☐ Site stabilization	
Developer/Contractor:	Phone number:
Contact:	Title:
Inspector:	Date:
Inspection: ☐ Routine (monthly and for each phase of construction) ☐ Follow-up ☐ Response to complaint	*For sites discharging to a waterbody impaired for sediment/turbidity*[i] ☐ *Routine biweekly* ☐ *Predicted rainfall* ☐ *Recent rainfall*

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

PHASE 1 AND 2: PRIOR TO LAND DISTURBANCE AND DURING ACTIVE CONSTRUCTION

	Comment	Yes	No	N/A		Comment	Yes	No	N/A
Erosion Control	1. Erosion controls are implemented in accordance with the ESCP	☐	☐	☐	Waste Management	9. Effective material delivery and storage practices are implemented	☐	☐	☐
	2. Erosion observed	☐	☐	☐		10. Spill prevention and control practices are implemented	☐	☐	☐
Sediment Control	3. Sediment controls are implemented in accordance with the ESCP	☐	☐	☐		11. Stockpile controls are implemented in accordance with the ESCP	☐	☐	☐
	4. Sediment discharge observed	☐	☐	☐		12. Solid waste controls are implemented in accordance with the ESCP	☐	☐	☐
Additional Controls	5. Tracking controls (tire washout, stabilized entrances, exits and roadways) are implemented in accordance with the ESCP	☐	☐	☐	Nonstormwater Management	13. Vehicle and equipment washing, fueling and maintenance controls are implemented in accordance with the ESCP	☐	☐	☐
	6. Sediment in roads observed	☐	☐	☐		14. Nonstormwater discharges observed	☐	☐	☐
	7. Wind erosion controls are implemented in accordance with the ESCP	☐	☐	☐		15. Dewatering operations covered under NPDES Permit CAG994004	☐	☐	☐
	8. Wind erosion observed	☐	☐	☐		16. Water conservation practices are implemented	☐	☐	☐

PHASE 3: FINAL LANDSCAPING/SITE STABILIZATION

Comment	Yes	No	N/A	Comment	Yes	No	N/A
1. Graded areas have reached final stabilization	☐	☐	☐	3. Temporary erosion and sediment BMPs are removed	☐	☐	☐
2. Trash, debris and construction materials are removed	☐	☐	☐	4. Post-construction BMPs are installed	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED):

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

If corrective actions have been noted above, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this program if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

________________	________________	__________
Site Representative Signature	Printed Name	Date

[i] For sites discharging to a tributary listed by the state as an impaired waterbody for sediment or turbidity under CWA § 303(d), or determined to be a threat to water quality, inspections must be conducted (1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA and (2) within 48 hours of a ½-inch rain event and (3) at least once every two weeks.

Insert City Seal

CITY STORMWATER QUALITY PROGRAM
CONSTRUCTION SITE INSPECTION REPORT

FOR SITES LESS THAN ONE ACRE

Project:	Address:
Contact:	Title:
Contractor:	Phone:
Inspector:	Date:

CHECKLIST FOR STORMWATER BMP (BEST MANAGEMENT PRACTICE) COMPLIANCE

	Question	Yes	No	N/A		Question	Yes	No	N/A
Erosion Control	1. Effective erosion controls implemented.	☐	☐	☐	Non-Stormwater Management	5. Water conservation practices are implemented.	☐	☐	☐
	2. Erosion observed.	☐	☐	☐		6. Dewatering operations covered under NPDES Permit CAG994004	☐	☐	☐
Sediment Control	3. Effective sediment controls implemented.	☐	☐	☐	Waste Management	7. Effective material delivery/storage practices and spill prevention/control practices are implemented.	☐	☐	☐
	4. Sediment discharge observed.	☐	☐	☐		8. Effective waste management controls are implemented.	☐	☐	☐

COMMENTS AND CORRECTIVE ACTIONS (IF REQUIRED):

ENFORCEMENT: ☐ **None required** ☐ **Corrective Action Notice (complete section below)** ☐ **Other (see comments)**

CORRECTIVE ACTION NOTICE (IF REQUIRED)

<u>If corrective actions have been noted above</u>, then the responsible party (facility owner, occupant or person responsible) is in noncompliance with the City's Stormwater Quality Ordinance. The responsible party may be subject to enforcement actions under this program if the corrective actions are not implemented by:

____
Corrective Action Due Date

ACKNOWLEDGEMENT OF RECEIPT OF CORRECTIVE ACTION NOTICE

____________________	____________________	______________
Site Representative Signature	Printed Name	Date

Example Lease Language for Fixed Facilities

The following is example language that can be inserted into municipal leases:

The Los Angeles Regional Water Quality Control Board (RWQCB) has issued permits which govern stormwater and non-stormwater discharges resulting from municipal activities performed by or for the Coastal Watersheds of Los Angeles County, including the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County with the exception of Long Beach (collectively referred to as Permittees). The RWQCB Permit is a National Pollutant Discharge Elimination System (NPDES) Permit No. R4-2023-0175. A Copy of the RWQCB Permit is available for review.

In order to comply with the Permit requirements, the Permittees have developed a Watershed Management Program (WMP) which contains Public Agency Facilities and Activities Maintenance Procedures (Maintenance Procedures) with Best Management Practices (BMPs) adopted from the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (Caltrans Handbook) that parties leasing municipally owned properties must adhere to. These Maintenance Procedures contain pollution prevention and source control techniques to minimize the impact of those activities upon dry-weather urban runoff, stormwater runoff, and receiving water quality.

Activities performed at the facility leased under this agreement shall conform to the RWQCB NPDES Permit, the WMP, and the CalTrans Handbook, and must be performed as described within all applicable Maintenance Procedures. The holder of this agreement shall fully understand the Maintenance Procedures applicable to activities conducted at the facility leased under this agreement prior to conducting them and maintain copies of the Maintenance Procedures at the leased facility throughout the agreement duration. The applicable Maintenance Procedures are included as Exhibit ___ of this agreement.

Evaluation of activities subject to WMP requirements performed at the facility leased under this agreement will be conducted by the city to verify compliance with Maintenance Procedures, and may be required through lessor self-evaluation as determined by the city.

Example Contract Language for Field Programs

The following is example language that can be inserted into municipal field program contracts:

The Los Angeles Regional Water Quality Control Board (RWQCB) has issued permits which govern stormwater and non-stormwater discharges resulting from municipal activities performed by or for the Coastal Watersheds of Los Angeles County, including the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County with the exception of Long Beach (collectively referred to as Permittees). The RWQCB Permit is a National Pollutant Discharge Elimination System (NPDES) Permit No. R4-2023-0175. A Copy of the RWQCB Permit is available for review.

In order to comply with the Permit requirements, the Permittees have developed a Watershed Management Program (WMP) which contains Public Agency Facilities and Activities Maintenance Procedures (Maintenance Procedures) with Best Management Practices (BMPs) adopted from the Caltrans Storm Water Quality Handbook Maintenance Staff Guide (Caltrans Handbook) that parties leasing municipally owned properties must adhere to. These Maintenance Procedures contain pollution prevention and source control techniques to minimize the impact of those activities upon dry-weather urban runoff, stormwater runoff, and receiving water quality.

Work performed under this CONTRACT shall conform to the RWQCB NPDES Permit, the WMP, and the CalTrans Handbook, and must be performed as described within all applicable Maintenance Procedures. The CONTRACTOR shall fully understand the Maintenance Procedures applicable to activities that are being conducted under this CONTRACT prior to conducting them and maintain copies of the Maintenance Procedures throughout the CONTRACT duration. The applicable Model Maintenance Procedures are included as Exhibit ___ of this CONTRACT.

Evaluation of activities subject to WMP requirements performed under this CONTRACT will be conducted to verify compliance with the Maintenance Procedures, and may be required through CONTRACTOR self-evaluation as determined by the city.

RB-AR15930

COUNTY OF LOS ANGELES

Significant Ecological Areas

December 2009

LEGEND:

- *Freeway*
- *Significant Ecological Area (SEA)*
- *National Forest Boundary*
- *Unincorporated Area*
- *Incorporated City*

Significant Ecological Areas

NOTE:

2014

Integrated Pest Management Program

Developed for the City of

____

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INTEGRATED PEST MANAGEMENT (IPM) PROGRAM IMPLEMENTATION GUIDELINES[1] FOR THE CITY OF ______________

General IPM Policy

For the past few decades, the trend in pest management has been to increasingly rely on synthetic chemical pesticides. This management strategy results in the increased use of dangerous chemicals, an increase in the number of pests that can become resistant to the pesticides, as well as lead to new organisms becoming pests. Additionally, some pesticides used for terrestrial pest management have been found in waterways causing problems in the aquatic environment.

Pest control managers are now moving away from their reliance on pesticides and toward an integrated approach that combines limited pesticide use with more environmentally friendly pest control techniques. This system is known as integrated pest management (IPM), a strategy that focuses on the long-term prevention of pests through a combination of techniques, including preventative, cultural, mechanical, environmental, biological, and chemical control tactics (**Figure 1**). Multiple IPM techniques can be utilized simultaneously to control pest populations in the most effective manner possible.

A comprehensive IPM Program and Approach allows for primary focus on pollution prevention by monitoring and preventing pests as well as minimizing heavy pest infestations, which reduces the need for chemicals and/or multiple applications. The goal of the IPM Program is not to eliminate all pests, but to keep their populations at tolerable levels. In an IPM program, pesticides should be applied only when it is determined that pests are approaching damaging levels. Because this requires early detection of the pests, IPM programs utilize monitoring techniques and economic thresholds to determine when to implement control strategies. If possible, a person should be trained and assigned to scout the sites on a regular basis. Pesticides may be part of an IPM program, but they should preferably be used only after pests exceed established thresholds and applied only to the affected area (in the case of disease prevention, some modifications may be allowed). In general, all pest control strategies should be those that are least disruptive to biological control organisms (natural enemies), least hazardous to humans and the environment (including non-target organisms), and have the best likelihood of long-term effectiveness.

[1]Adapted from the Orange County Drainage Area Management Plan Integrated Pest Management Policy Developed by the University of California, Division of Agriculture and Natural Resources

IPM practices are encouraged over the sole use of pesticides as the primary means of pest management (**Table 1**). As a part of their Municipal Activities Program, public agencies and their contractors evaluate the ability to use non-chemical IPM techniques before intensive use of pesticides. This IPM Program template outlines baseline IPM procedures that are required by the Los Angeles County Municipal Separate Storm System Permit (MS4 Permit)[2] along with additional optional IPM techniques that can be employed to implement an effective IPM program.

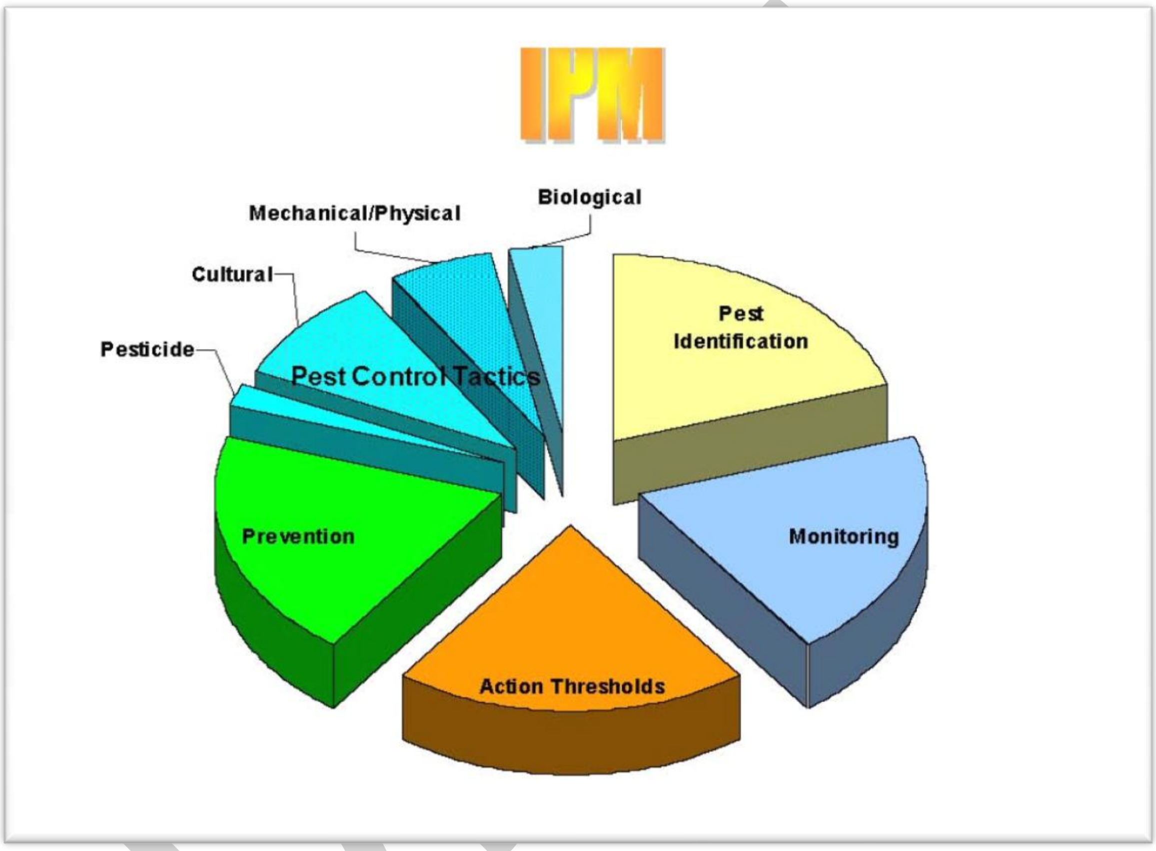

Figure 1 Components of an Integrated Pest Management Program

[2]California Regional Water Quality Control Board Los Angeles Region. 2012. Order No. R4-2012-0175 NPDES Permit No. CAS004001 Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4.

Table 1 Advantages and Disadvantages of a Pesticide-Based Program Versus An IPM-Based Pest Control Program

Pesticide Based Pest Control		IPM Based Pest Control	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
Quick suppression of pests	Not long-term	Long-term control	It may take longer to see results
	Pest control is reactive	Can be proactive in pest control actions.	Must establish thresholds
	Loss of natural controls. Often get outbreaks of other pests	Reduces disruption of natural enemies	
		Pesticides can be used (only used as a last resort)	Must have knowledge of pesticides and their effects on other organisms.
Labor is only for spraying	Extra work in cleanup	Staff becomes more knowledgeable of pests and injury symptoms	Labor is required for monitoring and regular scouting Training is required to identify pests and natural enemies
Not much preparation or follow-up needed	Need a PCA recommendation	Pest management is more organized	Must maintain a record-keeping system.
	Pesticide safety issues for applicators, public, animals More pesticides in environment Contamination of water bodies from runoff	Less exposure to pesticides Safer to the environment Reduces contamination from runoff	

Implementation Guidelines

Enter Designated IPM Coordinator or IPM Contact Information in Box Below:

IPM Coordinator: Contact Info:

Personnel responsible for the care and maintenance of facilities under the City of ______ agree to implement a suite of basic integrated pest management procedures to meet MS4 Permit requirements[3]. The fundamental basis for the IPM program must include the following as outlined in Permit Part VI.D.9.g:

1. **Pesticides are to be used if monitoring indicates they are needed, and pesticides are applied according to applicable permits and established guidelines.**
2. **Treatments are made with the goal of removing only the target organism.**
3. **Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial non-target organisms, and the environment.**
4. **The use of pesticides, including Organophosphates and Pyrethroids, does not threaten water quality.**
5. **Partnerships with other agencies and organizations are established to encourage the use of IPM.**
6. **A standardized protocol is to be used for the routine and non-routine application of pesticides (including pre-emergents), and fertilizers.**
7. **There is to be no application of pesticides or fertilizers (1) when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA34, (2) within 48 hours of a ½-inch rain event, or (3) when water is flowing off the area where the application is to occur. This requirement does not apply to the application of aquatic pesticides or pesticides which require water for activation.**
8. **No banned or unregistered pesticides are stored or applied.**
9. **All staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation, or are under the direct supervision of a pesticide applicator certified in the appropriate category.**
10. **Procedures to encourage the retention and planting of native vegetation to**

[3] In addition to MS4 Permit compliance, there are extensive federal and state laws and regulations that all public agencies must be in compliance with at all times, including the California Food and Agricultural Code (FAC) and the California Code of Regulations, Title 3 (3CCR).

reduce water, pesticide and fertilizer needs are implemented; and

11. Pesticides and fertilizers are stored indoors or under cover on paved surfaces, or use secondary containment.
    a. The use, storage, and handling of hazardous materials are reduced to decrease the potential for spills.
    b. Storage areas are regularly inspected.

In order to implement the above required minimum practices, the following section describes components of an effective IPM Program that can be employed:

- Pest and Symptom Identification
- Prevention
- Monitoring
- Injury Levels and Action Thresholds
- Pest Control Tactics

A number of useful IPM techniques are outlined under each component and further described in Appendix A. These techniques are known to be effective and methods can be selected from each component as necessary to achieve the IPM goals and meet MS4 Permit requirements.

Additional information on the latest IPM techniques including management of new pests in the landscape can be obtained from local UC Cooperative Extension Advisors, UC IPM Regional Advisor, or the Statewide UC IPM Web Site at www.ipm.ucdavis.edu.

Components of an Effective IPM Program

An IPM program is a long-term, multi-faceted system to manage pests (**Figure 1**). Use of pesticides is a short-term solution to pest problems, and should be used only when the other components fail to maintain the pests or their damage below an acceptable level. Successful IPM practitioners are knowledgeable about the biology of the plants and pests, and successful IPM programs primarily use combinations of cultural practices as well as a combination of physical, mechanical and biological controls.

Pest Identification

It is important to learn to identify all stages of common pests at each site. For example, if you can identify weed seedlings, you can control them before they become larger and more difficult to control and before they flower, disseminating seeds throughout the site. It is also important to be sure that a pest is actually causing the problem. Often damage such as wilting is attributed to root disease but may actually be caused by under watering or wind damage. Appendix A lists specific techniques that can be employed to identify pests.

Prevention

Good pest prevention practices are critical to any IPM program, and can be very effective in reducing pest incidence. Numerous practices can be used to prevent pest incidence and reduce pest population buildup such as the use of resistant varieties, good sanitary practices and proper plant culture. Examples of prevention include choosing an appropriate location for planting, making sure the root system is able to grow adequately and selecting plants that are compatible with the site's environment. Appendix A lists specific techniques that can be employed to achieve pest prevention.

Monitoring

The basis of an effective IPM Program is the development and use of a regular monitoring or scouting program. Monitoring involves examining plants and surrounding areas for pests, examining tools such as sticky traps for insect pests and quantitatively or qualitatively measuring the pest population size or injury. This information can be used to determine if pest populations are increasing, decreasing, or staying the same and to determine when to use a control tactic. Weather and other environmental conditions may also play a factor in whether a pest outbreak may occur so it is important to monitor temperature and soil moisture as well.

It is important to use a systematic approach when monitoring, for example you should examine leaves of a similar age each time you check for pests, rather than looking at the older leaves on some plants and younger ones on others. Randomly looking at a plant and its leaves does not allow you to track changes in pest population or damage over time.

It is important to establish and maintain a record-keeping system to evaluate and improve your IPM program. Records should include information such as date of examination, pests found, size and extent of the infestation, location of the infestation, control options utilized, effectiveness of the control options, labor and material costs. Appendix A lists specific techniques that can be employed to in the monitoring of pests.

Injury Levels and Action Thresholds

In order to have a way to determine when a control measure should be taken, injury levels and action thresholds must be set for each pest. An injury level is the level of unacceptable damage. For example, the injury level for a leaf-feeding beetle may be set at 30% of the leaves being damaged. Action thresholds are the set of conditions required to trigger a control action. An example of this would be finding an average of 5 or more beetles on 10 shrubs in a location. Action thresholds are set from previous experience or published recommendations and based on expected injury levels. Injury levels are often set by the public's comments. Appendix A lists specific techniques that can be employed to determine injury levels and action thresholds.

Pest Control Tactics

Integrated pest management programs use a variety of pest control tactics in a compatible manner that minimizes adverse effects to the environment. A combination of several control tactics is usually more effective in minimizing pest damage than any single control method. The type of control that an agency selects will likely vary on a case-by-case basis due to the varying site conditions.

The primary pest control tactics to choose from include:

- Cultural
- Mechanical/Physical
- Biological
- Pesticide

Appendix A lists specific pest control techniques that can be employed.

Cultural Controls

Cultural controls are modifications of normal plant care activities that reduce or prevent pests. In addition to those methods used in the pest preventions, other cultural control methods include adjusting the frequency and amount of irrigation, fertilization, and mowing height. For example, spider mite infestations are worse on water-stressed plants, over-fertilization may cause succulent growth which then encourages aphids, too low of a mowing height may thin turf and allow weeds to become established.

Mechanical/Physical Controls

Mechanical control tactics involve the use of manual labor and machinery to reduce or

eliminate pest problems using methods such as handpicking, physical barriers, or machinery to reduce pest abundance indirectly. Examples include hand-pulling or hoeing and applying mulch to control weeds, using trap boards for snails and slugs, and use of traps for gophers.

The use of physical manipulations that indirectly control or prevent pests by altering temperature, light, and humidity can be effective in controlling pests. Although in outdoor situations these tactics are difficult to use for most pests, they can be effective in controlling birds and mammals if their habitat can be modified such that they do not choose to live or roost in the area. Examples include removing garbage in a timely manner and using netting or wire to prevent bird from roosting.

Biological Controls

Biological control practices use living organisms to reduce pest populations. These organisms are often also referred to as beneficials, natural enemies or biocontrols. They act to keep pest populations low enough to prevent significant economic damage. Biocontrols include pathogens, parasites, predators, competitive species, and antagonistic organisms. Beneficial organisms can occur naturally or can be purchased and released.

The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.

- Predators are organisms that eat their prey (e.g. Ladybugs).
- Parasites spend part or all of their life cycle associated with their host. Common parasites lay their eggs in or on their host and then the eggs hatch, the larvae feed on the host, killing it (e.g. Tiny stingless wasps for aphids and whiteflies).
- Pathogens are microscopic organisms, such as bacteria, viruses, and fungi that cause diseases in pest insects, mites, nematodes, or weeds (e.g. Bacillus thuringiensis or BT).
- Herbivores are insects or animals that feed on plants. These are effective for weed control. Biocontrols for weeds eat seeds, leaves, or tunnel into plant stems (e.g. goats and some seed and stem borers).

In order to conserve naturally occurring beneficials, broad-spectrum pesticides should be avoided since the use of these types of pesticides may result in secondary pest outbreak due to the mortality of natural enemies that may be keeping other pests under control (Figure 2).

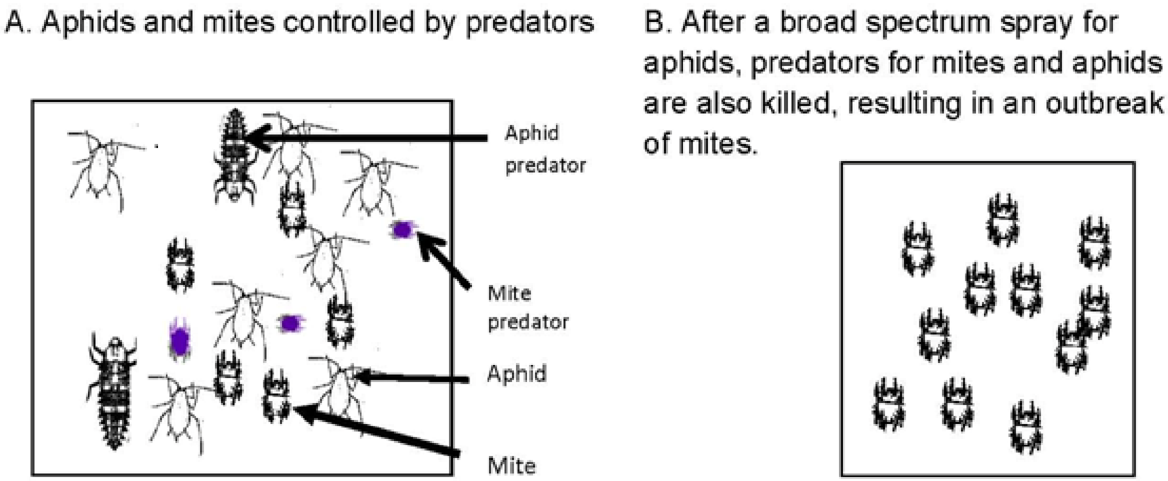

Figure 2 Example of Secondary Pest Outbreak Caused By Use of a Broad Spectrum Insecticide

Pesticide Controls

Any substance used for defoliating plants, regulating plant growth or preventing, destroying, repelling or mitigating any pest, is a pesticide. Insecticides, miticides, herbicides, fungicides, rodenticides and molluscides are all pesticides. Anything with an EPA or DPR registration number on the label is a non-exempt pesticide.

Pesticides should only be used when other methods fail to provide adequate control of pests and just before pest populations cause unacceptable damage. The overuse of pesticides can cause beneficial organisms to be killed and pest resistance to develop. When pesticides must be used, considerations should be made for how to use them most successfully. Avoid pesticides that are broad-spectrum and relatively persistent since these are the ones that can cause the most environmental damage and increase the likelihood of pesticide resistance. Always choose the most specific but least toxic to non-target organisms method.

In addition, considerations should be given to the proximity to water bodies, irrigation schedules, weather (rain or wind), etc. that are secondary factors that may result in the pesticide being moved off-site into the environment. Consideration should be made of the temporary loss of use of an area (application in a park may result in the area being sectioned off).

Appendix A: Optional IPM Techniques to Integrate into IPM Program

The following practices are generally accepted to be effective IPM techniques. These procedures increase the long-term prevention and suppression of pest problems (insects, weeds, diseases, and vertebrates) with the minimum impact on human health, the environment, and non-target organisms. Emphasis is placed on improving cultural practices to prevent problems and utilize alternative control measures instead of broad spectrum pesticides. The following IPM techniques are divided into the following categories:

- General Pesticide Management Practices
- Pest and Symptom Identification
- Prevention
- Monitoring
- Injury Levels and Action Thresholds
- Pest Control Tactics

GENERAL PESTICIDE MANAGEMENT PRACTICES

- Maintain a complete inventory of all pesticides used and the use sites. This inventory should be updated annually.
- If pesticides are necessary, CAUTION-labeled pesticides should be considered before more toxic alternatives.
- Ensure that no banned or unregulated pesticides are stored or applied.
- Restricted use pesticides should only be used when no other alternatives are practical.
- Only small quantities of pesticides should be purchased eliminating the need for stockpiling.
- MSDSs should be regularly updated to reflect new pesticides or label changes to pesticides in storage.
- Pesticides should be used only according to label instructions.
- Weather conditions that could affect application should be considered. For example, wind conditions affect spray drift; rain may wash pesticide off of leaves.
- Pesticides should not be applied where there is a high chance of movement into water bodies; for example, they should not be applied near wetlands, streams, lakes, ponds or storm drains unless it is for an approved maintenance activity.
- In most cases, empty pesticide containers should be triple-rinsed before disposal. Particular information on the proper disposal of the pesticide and its container can be found on the label.

- Pesticide equipment and containers should not be cleaned or rinsed in the vicinity of storm drains or other open water areas.
- Pesticides should be stored in covered areas with cement floors and in areas insulated from temperature extremes.
- Chemicals and equipment should be secured during transportation to prevent tipping or excess jarring.
- Pesticides should be transported completely isolated from people, food and clothing, for example, in the bed of the truck rather than in the passenger compartment.
- Pesticide equipment, storage containers and transportation vehicles should be inspected frequently.
- A plan for dealing with pesticide spills and accidents should be developed.
- Unless their safety is compromised, workers should immediately clean up any chemical spills according to label instructions and notify the appropriate supervisors and agencies.
- Pesticide applications on public property, which take place on school grounds, parks, or other public rights-of-way where public exposure is possible, should be posted with warning signs. The specific criteria for the signage can be found in FAC, section 12978. Pesticide applications by the Department of Transportation on public highway rights-of-way are exempt.

PEST AND SYMPTOM IDENTIFICATION

Insects, Mites, and Snails and Slugs

- Field personnel should be trained to recognize basic pests found in the landscape in the following groups: insects, mites, and mollusks.
- A licensed Pest Control Adviser can be on staff or hired to properly identify a pest and the symptoms caused by the pest.
- Field personnel can be trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.
- Field personnel can be trained to distinguish between beneficial insects and actual pests found in the landscape (e.g. parasitizing wasps).
- Unknown samples can be submitted to the Orange County Agricultural Commissioner for identification by the county entomologist or plant pathologist.
- Abiotic or nonliving factors (wind, sunburn, air pollution, etc…) should be considered as possible causes of observed symptoms as well as biotic (living) factors.

Weeds

- Field personnel can be trained to identify common weeds in the landscape.
- Field personnel can be trained to utilize weed life cycles to properly control

weeds such as controlling crabgrass utilizing a pre-emergent herbicide applied in mid-January.

- A licensed Pest Control Adviser can be on staff or contracted to properly identify the pest.

Diseases

- Field personnel can be trained to recognize common diseases or their signs/symptoms in the landscape.
- Field personnel can be trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.
- Field personnel can be trained to recognize the difference between biotic and abiotic problems.
- Field personnel can be trained to understand how common diseases are spread throughout the landscape.
- Disease signs and symptoms can be sampled and submitted to the Orange County Agricultural Commissioner for identification by the county plant pathologist.
- A licensed Pest Control Adviser can be on staff or contracted to properly identify the pest.
- Photographs of disease signs and symptoms can be taken and compared to reference guides such as UC IPM's *Pests of Landscape Trees and Shrubs*.

Vertebrates

- Field personnel can be trained to recognize vertebrate pests and the damage they cause in the landscape.
- Field personnel can be trained to utilize vertebrate behavior to properly control the pest most effectively.
- Field personnel can be trained in vertebrate baiting and trapping.
- A licensed Pest Control Adviser can be on staff or contracted to properly identify vertebrate pest.

PREVENTION

Landscape Design Procedures

- Drainage, soil characteristics, water quality and availability should be considered during plant selection.
- Sun exposure, heat, and high temperature conditions should be considered during plant selection.
- Plant material should be selected based on adaptability to local climate conditions, such as those conditions common to a Mediterranean climate.
- Adequate space should be allowed for root growth, especially trees.

- Nursery stock should be inspected and rejected if not healthy (injuries, diseased, circling roots/potbound, poor staking and/or pruning).
- Pest resistant species and cultivars should be selected.
- Plants with similar growth characteristics and irrigation requirements should be grouped together.
- Landscape design should match available irrigation technology to avoid excess water use and to minimize surface runoff.

Site Preparation and Planting Procedures

- Soil drainage properties can be assessed and compacted soils improved prior to planting.
- A soil analysis can be conducted to determine the chemical and physical properties of the existing soil and then appropriate amendments such as organic matter can be added.
- Irrigation should be installed as designed in order to avoid poor uniformity once plants are in place.
- Proper planting procedures should be followed for particular plant species to avoid planting too deeply or too shallow.
- Nursery tree stakes can be removed at planting and replaced with staking that allows trunk to flex; removing these stakes after 1 to 1.5 years.
- A soil probe or other soil moisture measurement device can be utilized to monitor soil moisture levels in existing root ball and surrounding soil during establishment period.

Water Management

- Plants should be examined weekly for symptoms of water stress and to assist in determining irrigation scheduling.
- Soil moisture can be monitored with a soil probe or soil moisture sensors to assist in scheduling irrigation.
- Evapotranspiration (ET) data or 'smart' clock technology can be utilized to schedule irrigation.
- Cyclic irrigation (short-multiple run times) can be employed to minimize surface runoff.
- Low precipitation sprinklers or low-volume systems can be utilized to reduce surface runoff.
- Systems should be inspected monthly to check for leaks, broken pipes, and clogged or broken sprinkler heads.
- Adjust sprinklers to avoid application of water directly to the trunk of trees (can promote disease) or on to concrete surfaces where it can enter storm drains.
- A hotline, email, or other dedicated method can be established for citizens to

report leaks and broken sprinkler heads

Fertilizing Procedures

- To avoid nutrient losses below the root zone, fertilize only when plants are actively growing.
- Fertilizer should not be applied within 48 hours of a rain event to avoid losses below the root zone and in surface runoff.
- Soil analyses can be conducted in order to determine existing nutrient levels in the soil prior to fertilizing.
- Turf grass fertilizer maintenance schedules can be based on UC recommendations found online at UC Guide for Healthy Lawns: http://www.ipm.ucdavis.edu/TOOLS/TURF/MAINTAIN/fertilize.html
- Sports turf grass fertilizer maintenance guidelines can be based on UC recommendations found in *Establishing and Maintaining the Natural Turf Athletic Field (UCR ANR Publication Number: 21617)*.
- Overfertilization, especially of trees and shrubs, should be avoided to ensure plant growth is not excessively succulent making it more susceptible to pest infestations.
- Off-target fertilizer applications or spills should be cleaned up immediately by sweeping up and applying to landscape or turf or replacing in spreader or bag to ensure material does not enter storm drains.

Pruning Procedures

- Damaged or diseased wood should be regularly pruned from landscape plants.
- Trees should be pruned according to standards set forth by a professional tree care organization such as the International Society of Arboriculture.
- Plants too large for a space should be replaced instead of pruning them severely.
- Unnecessary pruning should be avoided as wounds are entry sites for decay and disease organisms.
- The age and species of the plant should be taken into account when determining the time of year to prune. For example, eucalyptus should be pruned in December and January when long-horned beetles are not active.
- Tree height reduction should be discouraged. When deemed necessary by a licensed arborist, the crown reduction method approved by a professional tree care organization should be utilized. Topping should not be done to reduce tree size.

MONITORING FOR PESTS AND PROBLEMS

Insect/Mollusk Monitoring Procedures

- Monthly visual inspections of plants for insects, mites, snail and slug damage,

and recording results is an effective method for tracking changes and easy recall of data.

- Yellow sticky traps can be utilized to assess populations of insects.
- Insects can be dislodged from plants by shaking over a collection surface usually consisting of a clipboard with a white sheet of paper.
- If available for a particular insect, pheromone-baited traps can be utilized.
- Soil-dwelling turf insects can be brought to the surface for monitoring by flushing a specific area of soil (i.e. 2′ x 2′ grid) with plain water or a soapy water mixture.
- The amount of honeydew (aphids) and frass (caterpillars) present can be utilized as an indicator of population levels.

Weed Monitoring Procedures

- Landscapes can be inspected at least 4 times a year (early winter, early spring, summer and early fall) for weeds in order to determine if and when a weed problem exists.
- Site surveys can be utilized to record the location, date, and severity of weed problem for an effective method of tracking changes and easy recall of data.
    - The number of weeds encountered at periodic intervals (e.g. every 1 to 2 feet) can be counted and recorded along a straight line transecting a landscaped, area or within a selected area, for example 4 sq. ft. samples done in random places in a bed or turf area.

Disease Monitoring Procedures

- Landscapes should be regularly checked for conditions, such as overwatering and injuries, which promote disease.
- Landscapes should checked monthly for disease symptoms and signs. Disease prone plants should be checked more frequently.
- Landscape inspections should note date when disease signs and symptoms were first noticed and the current environmental conditions and soil moisture levels as an effective method of tracking changes and easy recall of data.

Vertebrate Monitoring Procedures

- Landscapes can be regularly inspected for vertebrate presence either by damage caused by animal, actual animal sightings, and/or droppings.
- Records can be kept of the absence or presence of actual vertebrates, the damage caused, and/or the presence or absence of droppings.
- Maps can be created and updated at least twice a year, recording areas of high vertebrate damage or signs (such as gopher mounds).

INJURY LEVELS AND ACTION THRESHOLDS

Insect/Mollusk Thresholds and Guidelines

- Insect tolerance levels can be established based on the public's acceptance of damage to the landscape or a certain level of nuisance pests (i.e. ants), the actual plant species in the landscape, and long-term monitoring and knowledge of pests causing the damage.
- Thresholds can be based on levels where reasonable control of the pest can be achieved with minimum impact on the environment.
- Insect monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of aphids on a rose garden at City Hall is low, while in a native shrub border it might be considerably higher.

Weed Thresholds and Guidelines

- Weed tolerance levels can be established based on public safety or the public's acceptance and the resources available to manage the landscape at that level.
- Weed monitoring records can be utilized to rank the percentage of the landscape area infested (none, light, moderate, heavy, or very heavy) with weeds.
- Public areas can be ranked according to high, medium, or low level of weed control and management conducted according to levels set for each rank (see Appendix B)

Disease Thresholds and Guidelines

- Disease tolerance levels can be established based on the public's acceptance and the resources available to manage the landscape at the level required.
- Disease monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of powdery mildew on roses at City Hall is much lower than the threshold for its presence on Euonymus in a parking lot at a city sports park.

Vertebrate Thresholds and Guidelines

- Vertebrate tolerance levels can be established based on public safety, the public's acceptance and the resources available to manage the landscape at the level required.
- Vertebrate monitoring records can be utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of gopher mounds in a sport field is zero, while in a native shrub border it might be two before a trapping strategy is implemented.

PEST CONTROL TACTICS

Insect/Mollusk Management Methods

Cultural/Mechanical/Physical Control Methods

- Sticky barriers can be applied to trunks of trees and large shrubs to prevent ants and other wingless invertebrates from plant canopies.
- Small insect infestations can be removed by pruning infested plant parts.
- Copper bands can be installed around base of trees or planting areas where snail and slug infestations are prevalent.
- Plant canopies can be thinned to increase light penetration to expose certain soft-bodied insects (soft-scale) as well as snails and slugs to heat.
- Strong streams of water can be used to dislodge insects such as aphids and whiteflies, from leaves.
- The use of plants that snails and slugs use for shelter should be avoided.
- Avoid irrigating between 5pm and 5am when moisture remains on plant material for several hours.

Biological Control Methods

- Persistent broad-spectrum pesticides should be avoided, especially if biological control of an insect has been established by UC researchers. Examples include parasitoid wasps controlling Eugenia Psyllids, Giant Whitefly, and Ash Whitefly.
- Natural predators (beneficial insects) can be augmented with purchases of additional predators from commercially available resources.

Pesticide Control Methods

- The most selective, rather than broad-spectrum, pesticide should be used.
- If available for controlling a particular insect, biological and botanical pesticides should be selected.
- Insecticidal soaps can be utilized to control infestations of soft-bodied insects such as aphids, thrips, and immature scales.
- Horticultural oils (neem oil and narrow-range refined oils) can be utilized to control infestations of soft-bodied immature and adult insects such as aphids, scales, and whiteflies.
- Pesticides should only utilized when the potential for impacts to the environment, especially water quality, are minimized.
- Equipment should be calibrated prior to the application of the insecticide to avoid excess material being applied to the landscape environment.
- Applicators should be trained to not apply pesticides to hard surfaces and to not allow any pesticide to enter the storm drain system.
- Spot treatments should be utilized rather than broadcast methods.
- Insecticide/fertilizer combinations should only used if it is appropriate timing for BOTH the insecticide application and the fertilizer application.

Weed Management Methods

Cultural, Mechanical, and Physical Control Methods

- Timers can be set to avoid overwatering as weeds establish in areas where soil moisture is excessive.
- Drainage can be managed to avoid wet areas.
- Weeds can be removed from a site prior to planting.
- Mower height can be adjusted to turf species and time of year.
- Mower should be washed after mowing a weedy site.
- Hand-pulling, mowing, trimmers/brushcutters, flaming, hoeing, and rototilling around landscape plants should be the main methods utilized to control annual weeds and young perennial weeds.
- Soil solarization can be utilized to control some annual and perennial weed species.
- Bare soil areas can be covered with a thick layer of mulch to suppress weeds and conserve soil moisture.
- Soil, mulch, and plant material should be weed-free before it is introduced into the landscape.

Pesticide Control Methods

- Spot treatments can be utilized rather than broadcast methods.
- Herbicide/fertilizer combinations should only used if it is appropriate timing for BOTH the herbicide application and the fertilizer application.
- Herbicides should be utilized according to established thresholds (see Appendix B).
- Organically acceptable herbicides (shown to be effective through science-based research) should be used where appropriate.
- Herbicides can be applied to the stage of weed growth most susceptible to the chemical.
- Equipment should be calibrated prior to the application of the herbicide to avoid excess material being applied to the landscape environment.

Disease Management Methods

Cultural, Mechanical, and Physical Control Methods

- Localized areas of diseased plants should be pruned out and disposed of.
- Pathogen-infested plant parts can be removed from the soil surface area to reduce certain pathogens (e.g. Camellia Petal Blight).
- Pruning tools can be sterilized (e.g. a diluted bleach solution) between plants to prevent the spread of pathogen to other plants.
- Proper irrigation and fertilization can be maintained to prevent plant stress, waterlogging, and subsequent susceptibility to disease.
- Soil solarization can be utilized to control soil pathogens in annual beds where it

is most effective.
- Mulch can be kept at least 6” from base of plants to avoid excessive moisture around crown possibly resulting in crown rots and is no deeper than 4”
- Disease-prone plants can be replaced with non-susceptible species.

Pesticide Control Methods

- Preventative fungicides and bactericides should only used where diseases can be predicted from environmental conditions and applied prior to infection or the appearance of symptoms.
- Synthetic fungicides should be used sparingly in the landscape and only in high visibility areas in order to minimize development of resistance.
- Organic fungicides and bactericides should be utilized in combination with cultural, mechanical, and physical control methods in order to improve their effectiveness.
- Copper-based fungicides should only be utilized in situations where its entry into surface runoff and storm drains is virtually impossible and after consultation with PCA and IPM coordinator.
- Mycopesticides, commercially available beneficial microorganisms, should be used where appropriate.
- Fungicides classes can be rotated to avoid resistance.

Vertebrate Management Methods

Cultural and Physical Control Methods

- Groundcovers can be maintained such that they do not harbor rats.
  - Shrubs pruned at least 1 foot from the ground (rats).
  - Sources of drinking water removed (leaky faucets, puddles).
  - Trash cans have lids and are emptied daily (rats).
  - Screens or other barriers installed under structures that have a space between soil and floor (rabbits).
- Habitat modification, based on pest biology can be used to reduce shelter. Trapping can be used for gophers when safe and practical.
- Kill traps used for ground squirrels and rabbits, should be checked daily, and put in places not accessible by children or non-target animals.
- Gas cartridges can be used for ground squirrels according to UC recommendations.

Pesticide Control Methods

- Anti-coagulant baits can be used and applied according to label and UC recommendations.
- Bait should be applied in a manner that non-target animals do not have access to

it.

- Restricted use pesticides should only be applied by or under the direct supervision of an individual with a qualified applicators certificate (QAC). To receive a QAC, a person must take a test administered by Department of Pesticide Regulation (DPR). To obtain test materials, test schedules, and an application, see http://www.cdpr.ca.gov/docs/license/liccert.htm.

Appendix B

Ranking public areas for weeds (or other pest) management:

Areas ranked as **HIGH** may include areas that the public sees and expects to be well-maintained. Examples are entrances to public buildings such as city hall and libraries.

These areas are allowed to use pesticides based on established thresholds.

Areas ranked as **MEDIUM** may include areas the public sees but does not expect a high level of maintenance. Examples are landscaped areas away from the entrance, recreational and picnic areas. These areas can tolerate a higher lever of weeds.

These areas are allowed to use pesticides but the threshold is much higher and pesticides are used infrequently and only after consultation with IPM coordinator.

Areas ranked as **LOW** may include areas the public rarely sees or does not expect a high level of maintenance. Examples are medians, landscaped areas in parking lots, wildlands. These areas can tolerate a higher lever of weeds.

These areas are not allowed to use pesticides except in extreme cases and only after consultation with IPM coordinator.

Insert City Seal

Example Catch Basin Cleaning Log

Catch Basin Cleaning Log			
Date	Location	Number of Catch Basins Cleaned	Total Amount Removed
Notes:			

Example of Completed Catch Basin Cleaning Log

Catch Basin Cleaning Log			
Date	Location	Number of Catch Basins Cleaned	Total Amount Removed
7/1/13	Street #1	20	55 cu. ft.
	Intersection #1	10	
	Street #2	5	
Notes:			

Drainage Inlet/Catch Basin Information		
Location		
Street:	Cross Street:	Side (N,S,E,W)
Distance:	Direction (N,S,E,W):	Inlet #:
Map #:	Grid:	
Condition		
Length of Opening:	Height of Opening:	Stencil Legible (Y/N):
Bicycle Bars (Y/N):	Grate Size:	Inlet Protection Bar (Y/N):
Treatment Control BMP (Y/N):	Type of BMP:	
Repairs Required:		

Illicit Connection Investigations Guidance

Field Screening Techniques

If evidence of an illicit discharge is detected, as described in Section 2, and the source does not appear to be evident or above ground, investigations will be conducted to determine if the discharge is being conveyed through an illicit connection. A good source of information includes *Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems* (EPA/600/R-92/238.1993, Pitt et al). General guidance follows below. These techniques can also be used if a Permittee elects to survey sections of their system for illicit connections.

Document Research

Maps of drainage facilities can be reviewed to locate upstream connections and drainage basins as an initial step to locate potential illicit connections. Other records, such as connection permits and discharge permits, can also be reviewed to determine if legal connections may be the source.

Physical Inspections

Catch basins, manholes and other facilities that can be safely investigated from the surface should be physically checked for evidence of connections. This may be a hard pipe connection, or could be a hose or other conveyance that directs a discharge into the storm drain facility. Identification of connections that exhibit evidence of suspected illicit discharges during routine site inspection (e.g., industrial, commercial or construction). Investigation is conducted to determine if the discharge is being conveyed through an illicit connection when evidence of illicit discharge is detected, and the source does not appear to be evident or above ground.

Facilities that are large enough for personnel to enter can also be physically inspected, however, entry into facilities requires strict adherence to health and safety procedures, including confined space entry procedures. In general, a space is “confined” if it is not intended for human occupancy, has limited openings for entry or exit, and has insufficient natural or mechanical ventilation. Information on safety procedures can be found in many documents, including the *Occupational Safety and Health Guidance Manual*, National Institute for Occupational Safety and Health; *OSHA Safety and Health Standards 29 CFR 1910 (General Industry)*, US Department of Labor, and *Title 8 of the California Code of Regulations, General Industry Safety Order*.

Dye Tests

Dye tests can reveal illicit connections in areas where storm drain flows are unexplained and the Permittee has access to suspect facilities. Typical dye tests consist of the addition of fluorescent dye to a floor drain or waste line from a domestic, commercial or industrial process, followed by monitoring for the dye in downstream storm drains. Permittees should conduct dye testing facility by facility (in each area where unexplained flow exists) until all facilities in the area are tested.

Smoke Tests

Smoke tests can reveal if illicit connections exist, and can reveal their source. Storm drains are sealed via sandbags or other sealing devices (plugs, etc.) and smoking incendiary devices are ignited upstream of the seal. Simultaneous inspections inside area facilities should reveal illicit connections even in the

absence of flow. As illicit discharges are intermittent, smoke tests offer real advantages over other types of illicit discharge source identification methods. However, as many legitimate connections to a storm drain may exist (roof drains, street drains, etc.) smoke may be observed extensively. This may cause some illicit connections to be missed, and create a problem with area businesses and residents as excessive smoke begins to enter private property.

T.V. Inspections

T.V. inspections can reveal if illicit connections exist, but cannot be used to view up the connection to determine the source. Robotized or otherwise mobile television cameras allow visual inspection of storm drains (pipes) too small or dangerous for personnel to enter. Although an excellent method of identifying and documenting illicit connections, T.V. inspections have high costs unless the equipment is already owned or can be borrowed from neighboring agencies.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Illicit Discharge Investigation and Elimination Guidance

Introduction

Once illicit discharges/disposal are detected and identified, they must be eliminated. Sometimes the source of the spill or discharge/disposal is apparent. The incident can be removed through voluntary cleanup/termination or enforcement procedures, and steps can be taken to prevent its recurrence. These prevention methods can include education and outreach materials for residents and businesses, preventive maintenance practices for infrastructure, vehicles and equipment or additional enforcement.

When the source of the discharge is not apparent, further investigation will be necessary to eliminate it and prevent it from recurring. The following discusses methods that can be used to document the incident, determine the nature of the material, and investigate the source.

Advance Planning

An effective investigation program requires good advance planning. Sufficient staff should be trained to conduct investigations so that qualified staff are available whenever investigations are necessary. Staff should become familiar with illicit discharge investigation and sampling procedures. General guidance follows below to assist with overall planning, but should not be considered complete for proper sampling quality assurance purposes.

Equipment

Appropriate equipment for field investigations may include:

Table 1: Typical Equipment for Investigations

Equipment Type	Equipment
General	Inspection checklist
	Field data log book
	Camera
	Tape measure
	Storm drain system map
	Flashlight
Flow measurement	Ping pong ball or other light floatable
	Stopwatch
Laboratory	Graduated container
	Temperature/pH/conductivity (EC) probe
	Field test kits (e.g., Lamotte test kit)
	12 1-liter amber glass sample bottles
	12 1-liter HDPE sample bottles
	Cooler with ice for sample preservation
	Gloves
	Splash goggles/safety glasses
	Deionized water in wash bottle
First Aid	First aid kit

Data Collection

Before entering the field, the inspection crew should locate information such as the following on a storm drain/street map for areas that will be investigated:

- All known or suspected pollutant generating activities
- Locations of NPDES dischargers
- All locations where storm drains enter open channels
- Catch basins and storm drain manholes

Visual Observation

Visual observation of the storm drain system and/or of activities on the surface can provide information on the source of illicit discharges. It is the simplest method to begin with and the least costly. Evidence of illicit discharges may only consist of visual observations because most illicit discharges are intermittent and will probably not be flowing when inspected. A field inspection crew should investigate the surface drainage system in the vicinity of suspected illicit discharges. This may include accessible areas in the public right-of-way adjacent to residences and businesses, catch basins, open channels near known points of discharge, and upstream manholes.

Photos of visual observations should be taken to aid subsequent data analysis and follow up planning. The following types of visual observations should be recorded on an investigation checklist, such as the one attached:

- Location
- General site description
- Amount, appearance of discharge/disposal
- Stains
- Structural cracking and corrosion
- Vegetative growth
- Nearby facilities with poor outside housekeeping practices
- Pipes/hoses connected to/directed toward drainage system

If the source of the discharge is determined, appropriate methods should be used to eliminate it through voluntary cleanup/termination or enforcement procedures, and steps should be taken to prevent its recurrence.

Sampling and Testing

If flow is observed, and the source of the discharge is not apparent, the crew should collect a sample and measure flow. Several tests should be conducted to determine the nature of the material. This can be compared to records of local facilities and possible pollutant generating activities as an aid in determining the possible sources of the flow.

The sample should be measured for pH, temperature and conductivity (EC). If any of these parameters are abnormal, or strong odors or flow discoloration are detected, the sample should be analyzed. This can be done with a field test kit, which will detect the presence of copper, phenols, detergents, and chlorine. Findings should be recorded on the inspection checklist.

If visual observations are abnormal and/or the field tests detect high concentrations of any constituent, the crew should consider collecting samples for laboratory analysis. The laboratory can usually supply properly cleaned sample bottles and specify either amber glass or plastic (HDPE) bottles depending on the analyses required. If there is enough flow, the field crew should fill several of each type of bottle to obtain enough sample volume for a range of analyses. If there is a limited quantity or sampling is difficult, the field crew should collect as much sample as possible so that the laboratory can run a limited set of analyses. The samples should be placed in a cooler filled with ice and transported to the lab(s) on the same day. Arrangements should be made prior to the field inspection with an analytical laboratory capable of performing the required analyses.

The laboratory analyses run on each sample should be carefully considered. Given the potential high cost for laboratory work, it is prudent to limit the number of analytical parameters (or analytes) tested for each sample. Tests may be selected based on the findings of indicator analyses, visual observations, field tests, and information collected about the types of materials processed, stored and/or spilled within each drainage area.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Insert City Seal

ILLICIT CONNECTION/ ILLICIT DISCHARGE INVESTIGATION REPORT

Response Time:
☐ 1-6 hrs. ☐ 13 hrs. ☐ 24 hrs. ☐ 48 hrs.

RESPONSE

Date:	Time:	Inspector:

INVESTIGATION

Location/ Address:

Reason for Investigation: ☐ Complaint ☐ Discharge/Spill Response ☐ Visual Monitoring
☐ Other: ___________________________________

Type of Material: ☐ Hazardous ☐ Wastewater ☐ Oil/Grease ☐ Soil/ Sediment ☐ Trash ☐ Sewage
☐ Fuel (Gas/Diesel) ☐ Chemicals ☐ Other _________________________

Estimated Quantity: ☐ Gallons ☐ Lbs.

Entered Storm Drain System: ☐ Yes ☐ No
Storm Drain Location: ________________________

Entered Receiving Waters: ☐ Yes ☐ No
Name of Receiving Water: ___________________________

Observations

Field Testing: ☐ Yes ☐ No
Details:

Sample Collected: ☐ Yes ☐ No
Details:

Direct/ Constructed Connections Found: ☐ Yes ☐ No
Details:

RESPONSIBLE PARTY

Name:

Address:

Phone/ email:

Repeat Violation? ☐ Yes ☐ No

OUTREACH MATERIAL

Outreach Material Distributed: ☐ None ☐ General Information ☐ BMP Brochure ☐ Other ________________

ENFORCEMENT

Enforcement: ☐ None ☐ Written Warning ☐ Notice of Violation ☐ Citation/Infraction ☐ Cease and Desist Order

Other Actions

FOLLOW-UP VISIT

Date:	Time:	Inspector:

Discharge Stopped? ☐ Yes ☐ No

Proper Clean-Up Action Taken: ☐ Yes ☐ No

Further Action Required: ☐ Yes ☐ No
Details:

RB-AR15960

Insert City Seal

ILLICIT CONNECTION/ ILLICIT DISCHARGE REPORTING & RESPONSE

Received by:	
Date:	Time Received:

REPORTING PARTY

Name:	Anonymous: ☐ Yes ☐ No
Address:	Phone/email:

INCIDENT

Date:	Time:
Location/ Address:	
Land Use: ☐ Residential ☐ Commercial ☐ Industrial ☐ Public	
Type of Material: ☐ Hazardous ☐ Wastewater ☐ Oil/Grease ☐ Sediment ☐ Trash ☐ Other ______________ ☐ Unknown	
Estimated Quantity: ☐ Gallons ☐ Lbs.	
Entered Storm Drain System/ Receiving Waters? ☐ Yes ☐ No	
Description / Details	
Agencies Contacted: ☐ Office of Emergency Services ☐ HazMat Team ☐ LA County ☐ Regional Board ☐ Other	
Source Investigation Conducted? ☐ Yes ☐ No	Source Identified? ☐ Yes ☐ No
Direct/ Constructed Connections Found? ☐ Yes ☐ No	

ALLEGED RESPONSIBLE PARTY

Name:	
Address:	Phone/ email:
Vehicle License No:	

ACTION & CLOSURE

Referred to:	Date:
Department:	Phone/ email:
Actions Taken/ Details	

Date Closed:

RB-AR15961

Spill Prevention Coordination

Procedures

This attachment discusses spill prevention coordination procedures that identify:

- Divisions or sections responsible for responding to reports of spills
- General and specific spill response procedures including responsible division or section
- Spill response training activities
- Activities conducted to improve spill response procedures and equipment

Divisions or Sections Responsible for Responding to Reports of Spills

Identify the divisions or sections responsible for responding to reports of spills and note divisions or sections that respond to specific types of spills such as hazardous materials spills or sewage spills. Also indicate the specific field staff who respond to spills and the level of support they provide to lead emergency response agencies and source of spill investigations.

General and Specific Spill Response Procedures

Describe or reference general spill response procedures involved in responding to complaints and identifying spills through inspections. Include the spill response process from the spill identification stage through clean up and report preparation. Copies of the forms and reports prepared to document spills should also be included. Specific procedures for hazardous materials spills, floods, and sewage spills should be referenced. Contractor support for spill events, if applicable, should also be noted.

Spill Response Training Activities

Provide an overview of all spill response training that is conducted within the various divisions and sections of the agencies.

Activities to Improve Spill Response Procedures and Equipment

List all activities conducted within the implementing agency to improve spill response procedures and update equipment. Explain how improvements are identified, prioritized, and implemented. Include a schedule of how often spill response procedures and equipment are evaluate.

Spill Investigation, Containment and Cleanup

Investigation

Depending on the location of the spill and the type of material, the appropriate department/ agency should be notified. This may include:

- Storm drain maintenance, if the spill reaches the storm drain system
- Street and road maintenance, if the spill is in the public right-of-ways
- Sewer system maintenance, if the material is from the sewage system
- Industrial waste inspection, if the material is from industrial facilities
- Fire Departments/”first responders,” if the material may be hazardous
- Contractors for hazardous materials, if the material is hazardous

RB-AR15962

These departments/agencies should determine the nature of the material and the extent of the spill. If any agency determines there is a chance that the spill involves hazardous materials, then the local Administering Agency will be notified. An example of spill investigation procedures is depicted in Figure D-1. Reporting procedures for hazardous substances are discussed further in Section 5 of this Illicit Connection/Illicit Discharge Elimination model program.

Containment and Cleanup

Once the nature and extent of the spill is determined, the appropriate departments and field superintendents will be notified to contain and clean up the spill. The three types of cleanup scenarios are (1) hazardous, (2) wastewater, and (3) other non-hazardous materials.

Hazardous

Handling procedures regarding releases of hazardous or potentially hazardous substances into the environment are covered in a number of federal and state regulations, including: Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); Superfund Amendments and Reauthorization Act (SARA); Resource Conservation and Recovery Act (RCRA); and multiple bills codified under Division 20 of the California Health and Safety Code. These procedures are well established and are practiced by local hazardous materials response teams - generally a local Fire Department.

Material determined to be hazardous will be contained by the appropriate hazardous material response team. The team will contact an approved contractor for cleanup. Details are contained in the local *Emergency Response Procedures* manual.

Wastewater

Field crews responding to a sewage spill or overflow should contain the spill to prevent entry of the sewage into the storm drain system or natural watercourse. This will involve a coordinated effort between the sewer, street, and storm drain maintenance crews.

To the maximum extent possible, sewage should be prevented from entering the storm drain system by covering or blocking storm drain inlets and catch basins or by containing or diverting the overflow away from open channels and other storm drain fixtures (using sandbags, inflatable dams, etc.).

In the event that raw sewage enters a storm drain catch basin, where possible the sewage should be vacuumed or pumped out of the catch basin. If a sewage overflow enters a storm drain channel, where possible the downstream channel area should be blocked, flushed with potable water and the captured water pumped to a nearby sewer manhole. Any time a sewage spill enters the storm drain system and has the potential to reach coastal waterways, the local agency and L.A. County Dept. of Health Services, Bureau of Environmental Protection must be notified (323) 881-4147.

Once the spill is contained, it should be removed and the area disinfected. Every effort should be made to ensure that the disinfectant is not discharged to the storm drain system, using methods such as those described above.

Other Non-hazardous Materials

Non-hazardous materials should generally be removed by appropriate crews with knowledge of or jurisdiction over the location of the spill, as indicated in Section D.1. Because the situations and materials will vary widely, procedures will vary as well.

All materials should be prevented from entering waterways to the maximum extent possible. Many materials in sufficient quantities can deplete the oxygen level in receiving waters, or smother benthic communities. Typical examples of these materials include landscape waste, milk, flour, and many other organic liquids and solids or fine powders. These materials should generally be removed by first collecting and/or sweeping up all solids and disposing them in a landfill or other approved location. Liquids should be diverted to an area away from waterways where they may be removed with a vacuum truck or can soak into the ground.

Guidance Source

Los Angeles County Model Stormwater Quality Management Program, 2003.

Watershed Management Program Appendix 3

A-3-2 Example Vacant Lot Ordinance

For the TSS Reduction Strategy

EXAMPLE VACANT LOT ORDINANCE

For the TSS Reduction Strategy (City of Whittier Municipal Code § 8.08.026)

8.08.026 VACANT LOTS

For the purpose of this section, a vacant lot shall mean any property which is either undeveloped or has an existing on-site building/structure that is either abandoned, vacant and/or is un-leased by the property owner for more than thirty days.

All vacant lots within the city (except those that do not immediately front onto a public street, are less than five feet wide in width or depth, are identified on the city's zoning map as "open space," are used as designated habitat conservation or for active agricultural production) shall be maintained in accordance with the following provisions of this section within thirty days of becoming vacant:

A. Unimproved Vacant Lot Types. Lots that are unimproved due to never having been developed or having become vacant subsequent to the removal of any pre-existing buildings, structures or impervious surfaces shall be subject to the approval of a vacant lot landscape and irrigation plan by the director of parks, recreation and community services and shall be improved and maintained at all times in accordance with the following provisions:

   1. Lots That Are Less Than One-Half Acre. For unimproved vacant lots that are less than one-half acre in size (21,780 square feet), the entire lot shall be improved and maintained in the following manner:

      a) The property owner shall landscape the entire lot using drought tolerate or xeriscape material that requires little to no water after the first three years of growth. Durable, high quality, synthetic turf may also be used as an alternative. The landscape material selected shall be reviewed and approved to the satisfaction of the director of parks, recreation and community services prior to installation, per Section 13.42.120 of the Whittier Municipal Code. The ground cover shall be maintained in good condition at all times.

      b) The lot shall be improved with an operable automatic irrigation system for the ground cover which shall be installed and maintained in good condition by the property owner at all times.

      c) The lot shall be maintained free of litter, weeds, graffiti, debris, including the stockpiling of any material, at all times. Any on-site litter, weeds, debris or stockpiling of material shall be immediately removed by the property owner, upon discovery. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals or take other steps to reasonably ensure that no litter, weeds, graffiti, debris or material stockpiling collects or is maintained on the lot.

d) Any dead or dying vegetation as well as any broken, malfunctioning or non-functioning irrigation components on the lot shall be replaced by the property owner within seventy-two hours of their discovery or notification. The property owner shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that there is no dead or dying vegetation nor any broken, malfunctioning or non-functioning irrigation components on the lot.

e) At the discretion of the director of parks, recreation and community services the standards contained in Section 8.08.026(A)(2) (Lots that are one-half acre or greater) may be applied to vacant lots that are one-half acre or less if deemed appropriate to mitigate any one or more of the following circumstances:

   i. To adequately secure the property from illegal dumping or other such illicit activities.
   ii. Because of public safety concerns or hazards associated with the property.
   iii. A declared state or regional drought.

2. Lots That Are One-Half Acre or Greater. For unimproved vacant lots that are one-half acre (21,780 square feet) or greater in size, the entire lot shall be improved and maintained in the following manner:

   a) The property owner shall provide a minimum five-foot wide landscape planter adjacent to all public rights-of-way (except those property lines located immediately adjacent to an alley) that abut their vacant lot.

   b) All landscape planters shall be improved with an operable automatic irrigation system. The landscape material selected shall consist of drought tolerate or xeriscape material that requires little to no water after the first three years of growth. Durable, high quality, synthetic turf may also be used as an alternative. The landscape material selected shall be reviewed and approved to the satisfaction of the director of parks, recreation and community services prior to installation, per Section 13.42.120 of the Whittier Municipal Code. The ground cover shall be maintained in good condition at all times.

   c) All on-site landscaping and irrigation shall be maintained in good condition at all times by the property owner of the lot. Any dead or dying landscaping shall be replaced by the property owner within seventy-two hours of their discovery or notification, including any broken, malfunctioning or non-functioning irrigation components. The property owner shall be responsible for inspecting the property at reasonable intervals or take other steps to reasonably ensure that all of the landscaping and irrigation on the lot is maintained in good condition and there are no broken, malfunctioning or non-functioning irrigation components on the lot.

   d) A six-foot high, view obscuring, decorative perimeter barrier shall be erected around the entire vacant lot, with a minimum five-foot wide perimeter

landscape planter in front of the fencing. In circumstances where the director of parks, recreation and community services finds that a higher perimeter barrier is warranted for adequate security of the site and/or because of unusual topographical circumstances associated with the vacant lot, the perimeter barrier may be constructed up to a maximum of eight feet high. All perimeter barriers shall include a gravel pathway leading to a security gate to provide accessibility to the interior of the lot for the police department or other emergency personnel. A key or security code for the gate shall be provided to the Whittier Police Department by the property owner upon installation and shall be kept up-to-date at all times.

e) All decorative, view obscuring, perimeter barriers shall consist of either painted wood, redwood, woodcrete, green vinyl chain-link fencing with a green windscreen securely attached (along the interior of the fence), or any other durable, aesthetically attractive, material deemed acceptable to the director of parks, recreation and community services. On corner or reversed corner lots, all fencing shall comply with Section 18.64.050 for visual safety.

f) All perimeter barriers shall be maintained in good condition at all times by the property owner. Any on-site graffiti shall be removed by the property owner within seventy-two hours of its discovery or notification. The property owner shall be responsible for inspecting the property at reasonable intervals.

B. Improved Vacant Lots. Vacant lots improved with existing on-site buildings or structures that are vacant, abandoned, or un-leased for thirty days or more (as determined by the director of parks) shall be maintained by the property owner as follows:

1. All existing on-site landscaping and irrigation shall be maintained in good condition at all times and in accordance with the provisions contained in Chapters 8.08, 8.22 and8.24 of this code, including any conditions of approval applied to the site as part of the approved vacant lot landscape and irrigation plan under Section 8.08.026(C).
2. Any dead or dying vegetation as well as any broken, malfunctioning or non-functioning irrigation components for the lot shall be replaced by the property owner within seventy-two hours of their discovery or notification. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that there is no dead or dying vegetation nor any broken, malfunctioning or non-functioning irrigation components on the lot.
3. The lot shall be maintained free of litter, weeds, and debris, including the stockpiling of any material, at all times. Any on-site litter, debris or stockpiling of material shall be immediately removed by the property owner, upon discovery or notification. The property owner or their designated representative shall be responsible for inspecting the property at reasonable intervals, or take other steps to reasonably ensure that no litter, weeds, graffiti, debris or material stockpiling collects or is maintained on the lot.

4. All on-site structures shall be maintained in good condition at all times. Damage to any on-site buildings or structures shall be abated within ten days by the property owner upon discovery. An alternative abatement period shall be required, if deemed necessary by the building official, to protect the public health, safety and welfare.
5. The lot shall be adequately secured at all times to prevent illegal dumping, criminal activity, vandalism, graffiti, on-site loitering by the homeless and any/all other attractive nuisances to the satisfaction of the director of parks, recreation and community services and the chief of police.

C. Vacant Lot Landscape and Irrigation Plan. Prior to the issuance of a demolition permit on any lot in which the construction of a new building, structure, parking lot, or impervious surface will not commence within thirty days after demolition, the property owner shall submit a vacant lot landscape and irrigation plan for review and approval of the director of parks, recreation and community services (with the appropriate plan check fees). The director of parks, recreation and community services may impose any reasonable conditions of approval on the vacant lot landscape and irrigation plan to ensure that the lot will be adequately maintained during the time that it is vacant. Upon approval of the plan, the landscape and irrigation improvements to the lot, as specified in the plan, shall be completed to the satisfaction of the director of parks, recreation and community services within thirty days after demolition. A reasonable extension of time may be granted by the director of parks, recreation and community services in those situations when the director, in his or her sole discretion, determines that a good faith effort is being made by the property owner to comply with the provisions of this section.

1. Appeal of Decision.
    a) The decision of the director of parks, recreation and community services to approve, conditionally approve or deny any vacant lot landscape and irrigation plan may be appealed in writing to the city manager within fifteen calendar days. The decision of the city manager shall be final, unless appealed in writing to the city council within fifteen calendar days of the city manager's decision. All decisions of the city council shall be final.
    b) At the sole discretion of the city council, the provisions contained within this ordinance may be made modified, as deemed appropriate, if a finding is made that the legal property owner has demonstrated an extreme financial hardship such as, but not limited to, the filing of bankruptcy, property tax default, their exists over six months of outstanding arrears to the monthly mortgage payment on the property, or any other extreme/unique hardship the city council believes is contrary to the purpose and intent of this ordinance.

D. View Obscuring Barriers and Fencing on Vacant Lots. There shall be no on-site fencing or view obscuring perimeter barriers that screen any vacant lot in any manner that obstructs vehicular and/or pedestrian visibility of the public right-of-way, or interferes with the public's use of the public right-of-way, as determined by the director of public works. The directors of public works and parks, recreation and community services shall approve the location and design of all vacant lot fencing and perimeter barriers prior to the construction of any such fencing or barriers on a vacant lot.

E. The director of parks, recreation and community services shall implement all applicable sections of Chapter 13.42 (Water Conservation in Landscaping), regardless of the size of the vacant lot, to ensure that the approved vacant lot landscape and irrigation plan conserves water to greatest extent possible, while preserving the health of the landscaping approved on the vacant lot.
F. Where a recorded easement on vacant lot exists, the director of parks, recreation and community services may require and/or permit the property owner to use an appropriate ground cover over the easement (i.e., gravel, turf block, paving or some other acceptable material) that would enable a vehicle to drive over the easement. Any impervious surface approved over an easement shall be subject to the prior written approval of the easement holder.
G. Implementation. All vacant lots, regardless of how they became vacant, that are existing at the time of the adoption of the ordinance shall be brought into immediate compliance with all applicable provisions of this section, unless currently landscaped and irrigated under a previously approved vacant lot and landscape and irrigation plan approved by the director of community development or director of parks, recreation and community services prior to the adoption of this current ordinance. A reasonable extension of time may be granted by the director of parks, recreation and community services in those situations when the director, at his or her sole discretion, determines that a good faith effort is being made by the property owner to comply with this section.
H. Noncompliance Declared Nuisance. Failure to comply with any of the applicable requirements in this section shall constitute a public nuisance, as designated in Section 8.08.030, and the city attorney or the district attorney may commence an action or proceeding for civil abatement, removal and enjoinment thereof, in the manner proscribed by law; and shall take other steps and apply to such courts as may have jurisdiction to grant such relief as well as abate or remove the nuisance, including abatement in accordance with the provisions of this chapter.

(Ord. 2906 § 1, 2008)

(Ord. No. 2928, § 1, 6-23-09; Ord. No. 2958, § 3, 10-12-10)

Watershed Management Program Appendix 3

A-3-3 Example Street Sweeping Municipal Code

For the TSS Reduction Strategy

EXAMPLE MUNICIPAL CODE LANGUAGE FOR PRIVATE PARKING LOT SWEEPING

For the TSS Reduction Program (City of Signal Hill Municipal Code § 12.16.060)

12.16.060 ILLICIT DISCHARGES

A. Except as otherwise permitted herein, all non-storm water discharges to the municipal storm drain system are prohibited.

B. No person shall cause, facilitate or permit any illicit discharge to the municipal storm drain system.

C. No person shall cause, facilitate or permit a discharge into an MS4 that causes or contributes to an exceedence of any water quality standard.

D. No person shall cause, facilitate or permit any discharge into an MS4 that causes or threatens to cause a condition of pollution, contamination, or nuisance (as defined in California Water Code § 13050).

E. No person shall cause, facilitate or permit any discharge into an MS4 containing pollutants which have not been reduced to the Maximum Extent Practicable.

⋮

Q. All owners and operators of industrial and/or commercial motor vehicle parking lots containing more than twenty-five parking spaces shall conduct regular sweeping and other similar measures to minimize the discharge of pollutants and other debris in the municipal storm drain system.

⋮

V. Any person who violates the terms of this section shall immediately commence all appropriate response action to investigate, assess, remove and/or remediate any pollutants discharged as a result of such violation, and shall reimburse the City or other appropriate governmental agency, for all costs incurred in investigating, assessing, monitoring and/or removing, cleaning up, treating or remediating any pollutants resulting from such violation, including all reasonable attorneys' fees and environmental and related consulting fees incurred in connection therewith.

⋮

(Ord. 2013-11-1462 § 1; Ord. 2003-02-1316 § 1; Ord. 2002-07-1304 § 2; Ord. 96-12-1215 § 1)

Watershed Management Program Appendix 4

A-4-1 Reasonable Assurance Analysis

Reasonable Assurance Analysis for Lower Los Angeles River, Los Cerritos Creek, and Lower San Gabriel River

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

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January 15, 2015

RB-AR15974

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1. Introduction

The Municipal Separate Storm Sewer System Permit (Permits) for Los Angeles County[1] and the City of Long Beach[2] includes optional provisions for a Watershed Management Program (WMP) that allows permittees the flexibility to customize their stormwater programs to achieve compliance with applicable receiving water limitations (RWLs) and water quality based effluent limitations (WQBELs) through implementation of control measures. A key element of each WMP is the Reasonable Assurance Analysis (RAA), which is used to demonstrate "that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term" (NPDES Permit Order No. R4-2012-0175, Section C.5.b.iv.[5], page 64; NPDES Permit Order No. R4-2014-0024, Section C.5.h.vii.[2]). This report presents the Reasonable Assurance Analysis (RAA) for the Lower Los Angeles River (LLAR), Los Cerritos Channel (LCC), and Lower San Gabriel River (LSGR) WMPs.

While the Permits prescribe the RAA as a quantitative demonstration that control measures (best management practices [BMPs]) will be effective, the RAA also promotes a modeling process to identify and prioritize potential control measures to be implemented by the WMP. In other words, the RAA not only demonstrates the cumulative effectiveness of BMPs to be implemented, it also supports their *selection*. Furthermore, the RAA incorporates the applicable compliance dates and milestones for attainment of the WQBELs and RWLs, and therefore supports BMP scheduling.

On March 25, 2014, the Los Angeles Regional Water Quality Control Board (Regional Board) issued "RAA Guidelines" (LARWQCB 2014) to provide information and guidance to assist permittees in development of the RAA. The approach herein is consistent with the RAA Guidelines.

This report is organized in nine sections, as follows:

- Section 1: Introduction
- Section 2: Applicable Interim and Final Requirements
- Section 3: Modeling System to be used for the RAA
- Section 4: Current/Baseline Pollutant Loading
- Section 5: Estimated Required Pollutant Reductions
- Section 6: Determination of BMP Capacity for RAA
- Section 7: Cumulative Volume Reduction Goals to Achieve Required Reductions
- Section 8: Pollutant Reduction Plan
- Section 9: References

[1] National Pollutant Discharge Elimination System Permit Order No. R4-2012-0175

[2] National Pollutant Discharge Elimination System Permit Order No. R4-2014-0024

2. Applicable Interim and Final Requirements

The WMPs for LLAR, LCC, and LSGR follow the process in the Permits and identify the Water Quality Priorities (WQ Priorities) including the highest (Category 1) Water Quality Priorities which are subject to Total Maximum Daily Loads (TMDLs) and WQBELs. Practically all of these TMDLs include associated compliance schedules that are considered in this RAA. The TMDL and WMP milestones/compliance dates establish the pace at which BMPs must be implemented. Traditionally, the approach of TMDL implementation plans has been focused on *final* TMDL compliance, whereas the Permit compliance paths offered to WMPs increase emphasis on *milestones*. In line with the RAA Guidelines, for all final TMDL and TMDL/WMP milestones that occur in the next two Permit cycles, the combination of BMPs expected to result in attainment of the corresponding Permit limits are identified.

The TMDL milestones for the LLAR, LCC, and LSGR WMP areas are shown in Table 2-2 through Table 2-4. The Permits require each WMP to provide reasonable assurance for the TMDL milestones that occur in the current Permit term. If applicable TMDLs do not prescribe a milestone in the current Permits, a milestone must be established. The array of TMDLs creates a potentially complicated sequence based on multiple pollutants, and thus this RAA includes a limiting pollutant analysis. As described in Section 5, the identified limiting pollutant for wet weather is zinc for LLAR, LCC, and LSGR. As such, the wet weather milestones for the Los Angeles River, Los Cerritos Channel, and San Gabriel River Metals TMDLs establish the pace of stormwater BMP implementation. The wet weather milestones established for the current Permits include the following:

- **Lower Los Angeles River:** Achieve 31% of the required reduction by September 30, 2017. This milestone was created for the WMP, as the metals TMDL includes a 25% milestone in 2012 (prior to the current Permit term) and a 50% milestone in 2024 (beyond the current Permit term). Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.
- **Los Cerritos Channel:** Achieve 10% of the required reduction[3] by September 30, 2017. This milestone is directly from the metals TMDL. Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.
- **Lower San Gabriel River:** Achieve 10% of the required reduction by September 30, 2017. This milestone is directly from the metals TMDL. Achievement of this milestone for zinc provides reasonable assurance of achieving a similar or greater reduction for other WQ Priorities.

The pollutant reduction plan to achieve these milestones is described in Section 8, along with the plan to achieve the milestones for the next Permit term (achieve 35% of the required reduction in LCC and LSGR and achieve 50% of the required reduction in LLAR). A summary of the milestones within the current and next Permit terms and final milestone based on final TMDLs are summarized in Table 2-1. The required reductions that form the basis of the milestones are calculated in Section 5.

[3] The interim milestones are expressed in terms of the *required* reduction not total reduction (e.g., if the required reduction to attain final limits is 50%, then the 10% milestone equates to a 5% reduction). These reductions are calculated in Section 5.

Table 2-1. Summary of schedule for interim and final milestones

WMP Area	Milestone 1 (2017)	Milestone 2 (interim date of applicable metals TMDL)	Milestone 3 (final date of applicable metals TMDL)
LLAR	31%	50%	100%
LCC	10%	35%	100%
LSGR	10%	35%	100%

Table 2-2. Schedule of TMDL milestones for the Lower LA River

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term) [1]									
				2012	**2013**	**2014**	**2015**	**2016**	2020	2024	2028	2032	2037
LAR Nutrients	Ammonia-N, Nitrate-N, Nitrite-N, Nitrate-N+Nitrite-N	Meet WQBELs	All	Pre 2012									
				Final									
LAR Trash	Trash	% Reduction	All	9/30	9/30	9/30	9/30	9/30					
				70%	80%	**90%**	**96.70%**	**100%**					
LAR Metals	Copper, Lead	% of MS4 area Meets WQBELs	Dry	1/11					1/11	1/11			
				50%					75%	100%			
	Copper, Lead, Zinc, Cadmium	% of MS4 area Meets WQBELs	Wet	1/11						1/11	1/11		
				25%						50%	100%		
LA River Bacteria	*E. coli*	Meet WQBELs	Wet and Dry[2]										3/23
													Final
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28								3/23	
				Interim								Final	
Long Beach City Beaches and LAR Estuary Bacteria	Total Coliform, Fecal Coliform, Enterococcus	Meet WLAs	All	USEPA TMDLs, which do not contain interim milestones or implementation schedule. The Permits allow MS4 Permittees to propose a schedule in a WMP.									

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

[2] The schedule for attaining the dry weather Bacteria TMDL is not shown in Table 3-2, which is stepwise by reach/segment and depends on whether a Load Reduction Strategy is developed for implementation.

Table 2-3. Schedule of TMDL milestones for Los Cerritos Channel WMP

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term)[1]									
				2012	**2013**	**2014**	**2015**	**2016**	2017	2020	2023	2026	2032
Los Cerritos Channel Metals	Copper	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Dry						9/30	9/30			
									30%	70%	100%		
	Copper, Lead, Zinc	% Load Reduction <u>or</u> % of MS4 area Meets WQBELs	Wet						9/30	9/30			
									10%	35%	70%	100%	
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28									3/23
				Interim									Final

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

Table 2-4. Schedule of TMDL milestones for the Lower San Gabriel River WMP

TMDL	Constituents	Compliance Goal	Weather Condition	Compliance Dates and Compliance Milestone (Bolded numbers indicated milestone deadlines within the current Permit term)[1]									
				2012	**2013**	**2014**	**2015**	**2016**	2017	2020	2023	2026	2032
San Gabriel River Metals	Copper, Selenium	% Load Reduction or % of MS4 area Meets WQBELs	Dry						9/30	9/30			
									30%	70%	100%		
	Copper, Lead, Zinc	% Load Reduction or % of MS4 area Meets WQBELs	Wet						9/30	9/30			
									10%	35%	70%	100%	
Dominguez Channel and LA/LB Harbors Toxics	Sediment: DDTs, PCBs, Copper, Lead, Zinc, PAHs	Meet WQBELs	All	12/28									3/23
				Interim									Final

[1] The Permit term is assumed to be five years from the Los Angeles County Permit effective date or December 27, 2017.

3. Modeling System used for the RAA

The Watershed Management Modeling System (WMMS) was used to develop this RAA. WMMS is specified in the Permits as a potential tool to conduct the RAA. The Los Angeles County Flood Control District (LACFCD), through a joint effort with U.S. Environmental Protection Agency (USEPA), developed WMMS specifically to support informed decisions associated with managing stormwater. The ultimate goal of WMMS is to identify cost-effective water quality improvement projects through an integrated, watershed-based approach. The WMMS encompasses Los Angeles County's coastal watersheds of approximately 3,100 square miles, representing 2,566 subwatersheds (Figure 3-1). As described in the following subsections, WMMS is a modeling system that incorporates three tools: (1) the watershed model for prediction of long-term hydrology and pollutant loading, (2) a BMP model, and (3) a BMP optimization tool to support regional, cost-effective planning efforts. A version of WMMS is available for public download from LACFCD.

The version of WMMS to be used for the RAA in the LLAR, LLC, and LSGR WMPs is customized from the public download version, including the following modification/enhancements:

- Updates to meteorological records to represent the last 10 years (per the RAA Guidelines) and to allow for simulation of the design storm;
- Calibration adjustments to incorporate the most recent 10 years of water quality data collected at the nearby mass emission station;
- Application of a second-tier of BMP optimization using System for Urban Stormwater Treatment and Analysis INtegration (SUSTAIN), which replaces the Nonlinearity-Interval Mapping Scheme (NIMS) component of WMMS.
- Optimization of BMP effectiveness for removal of bacteria pollutants (rather than metals only); and
- Updates to Geographic Information System (GIS) layers, as available.

The subwatersheds in the LLAR, LLC, and LSGR WMP areas that are represented by WMMS are shown in Figure 3-2 through Figure 3-4, which include modifications to confine to jurisdictional boundaries included in these WMP areas. Also shown are the "RAA assessment points", which are used to calculate required load reductions (described in Section 5).

3.1. Watershed Model - LSPC

The watershed model included within WMMS is the Loading Simulation Program C++ (LSPC) (Shen et al. 2004; Tetra Tech and USEPA 2002; USEPA 2003). LSPC is a watershed modeling system for simulating watershed hydrology, erosion, and water quality processes, as well as in-stream transport processes. LSPC also integrates a geographic information system (GIS), comprehensive data storage and management capabilities, and a data analysis/post-processing system into a convenient PC-based Windows environment. The algorithms of LSPC are identical to a subset of those in the Hydrologic Simulation Program–FORTRAN (HSPF) model with selected additions, such as algorithms to dynamically address land use change over time. Another advantage of LSPC is that there is no inherent limit to the size and resolution of the model than can be developed, making it an attractive option for modeling the Los Angeles region watersheds. USEPA's Office of Research and Development (Athens, Georgia) first made LSPC available as a component of USEPA's National TMDL Toolbox (http://www.epa.gov/athens/wwqtsc/index.html). LSPC has been further enhanced with expanded capabilities since its original public release.

The WMMS development effort culminated in a comprehensive watershed model of the Los Angeles County Flood Control District that includes the unique hydrology and hydraulics of the system and characterization of water quality loading, fate, and transport for all the key TMDL constituents (LACDPW 2010a, 2010b). Since the original development of the WMMS LSPC model, Los Angeles County personnel have independently updated the model with meteorological data through April 2012.

To support the objectives of the WMPs, jurisdictional boundaries were also intersected with the WMMS LSPC model subwatersheds resulting in a finer resolution spatial unit for modeling. Model land use was then resampled using this subwatershed-jurisdiction intersect, properly distributing land use categories at the jurisdictional level for attributing sources, while maintaining hydrologic connectivity within the watershed model. This refinement introduced a new layer of resolution, facilitating the rollup of modeled results by jurisdiction to better support source attribution and implementation responsibilities among the participating entities.

Figure 3-1. WMMS model domain and represented land uses and slopes by subwatershed

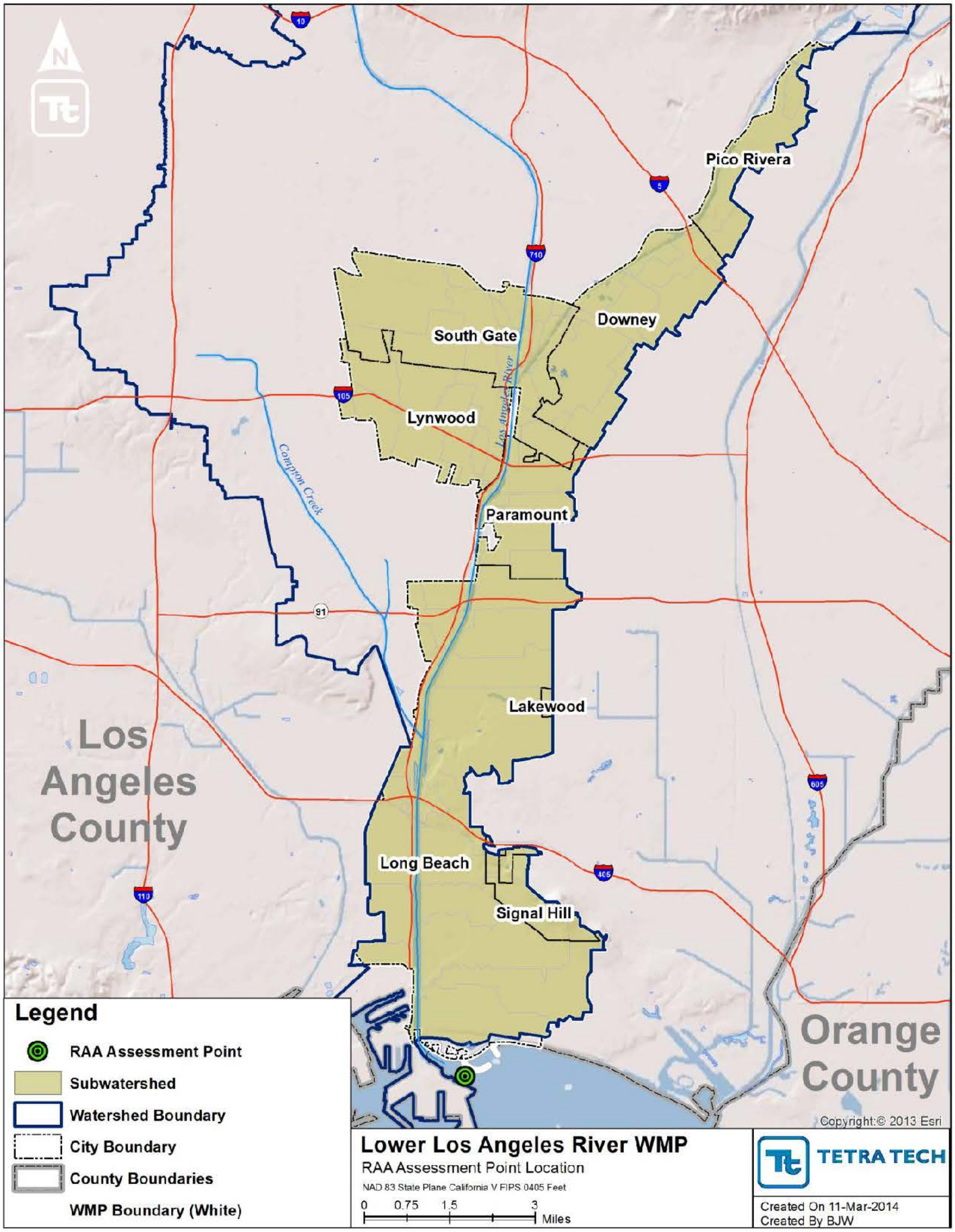

Figure 3-2. Lower LA River WMP Area subwatersheds represented by WMMS

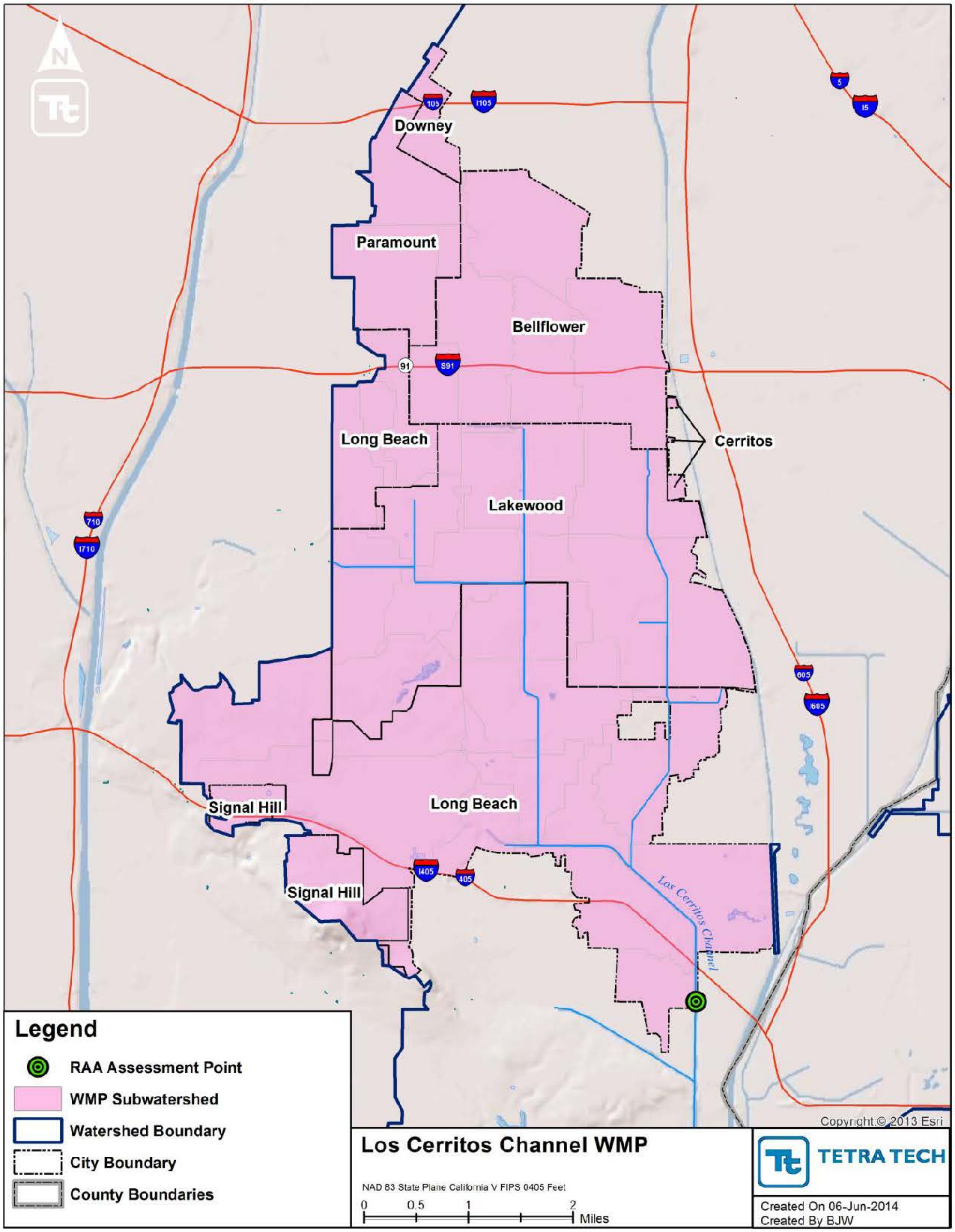

Figure 3-3. Los Cerritos WMP Area subwatersheds represented by WMMS

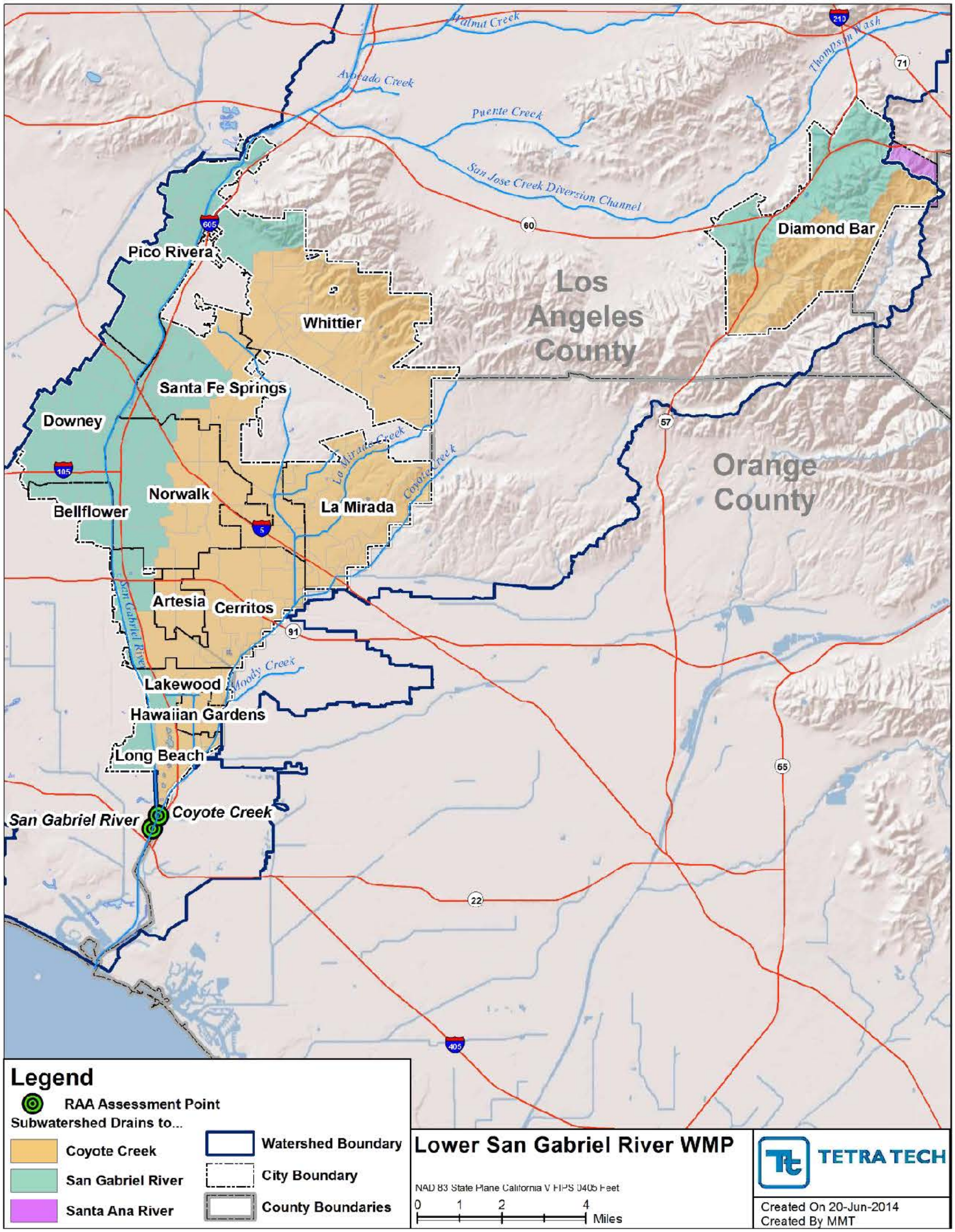

Figure 3-4. Lower San Gabriel River WMP Area subwatersheds represented by WMMS

3.2. Small-Scale BMP Model – SUSTAIN

The System for Urban Stormwater Treatment and Analysis INtegration (SUSTAIN) was developed by USEPA to support practitioners in developing cost-effective management plans for municipal storm water programs and evaluating and selecting BMPs to achieve water resource goals (USEPA, 2009). It was specifically developed as a decision-support system for selection and placement of BMPs at strategic locations in urban watersheds. It includes a process-based continuous simulation BMP module for representing flow and pollutant transport routing through various types of structural BMPs. Users are given the option to select from various algorithms for certain processes (e.g., flow routing, infiltration, etc.) depending on available data, consistency with coupled modeling assumptions, and the level of detail required. Figure 2-3 shows images from the SUSTAIN model user interface and documentation depicting some of the available BMP simulation options in a watershed context.

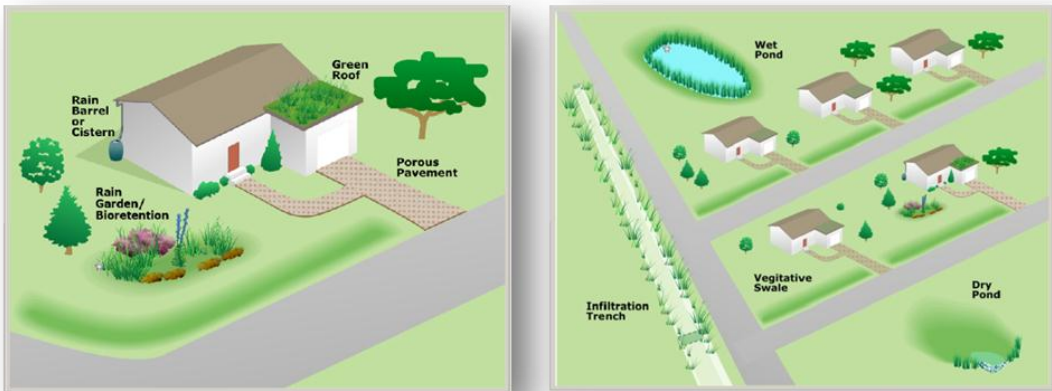

Figure 2-3. SUSTAIN model interface illustrating some available BMPs in watershed settings

SUSTAIN extends the capabilities and functionality of traditionally available models by providing integrated analysis of water quantity, quality, and *cost factors*. The SUSTAIN model in WMMS includes a cost database comprised of typical BMP component cost data from a number of published sources including BMPs constructed and maintained in Los Angeles County. SUSTAIN considers certain BMP properties as “decision variables,” meaning that they are permitted to change within a given range during model simulation to support BMP selection and placement optimization. As BMP size changes, so do cost and performance. SUSTAIN runs iteratively to generate a cost-effectiveness curve comprised of optimized BMP combinations within the modeled study area (e.g., the model evaluates the optimal width and depth of certain BMPs to determine the most cost-effective configurations for planning purposes).

3.3. Large-Scale BMP Optimization Tool – NIMS/SUSTAIN

WMMS was specifically designed to dynamically evaluate effectiveness of BMPs implemented in subwatersheds for meeting downstream RWLs while maximizing cost-benefit. WMMS employs optimization based on an algorithm names Nonlinearity-Interval Mapping Scheme (NIMS) to navigate through the many potential scenarios of BMP strategies and identify the strategies that are the most cost effective (Zou et al. 2010). Given the relatively small spatial scale of the WMP area, NIMS was not applied for this study. Instead, a two-tiered approach was applied using the NSGA-II solution technique available in SUSTAIN. For Tier 1, treatment capacities were optimized for each contributing segment, which resulted in unique cost-effectiveness curves for each segment based on available opportunities therein. For Tier 2, the search space was composed of Tier 1 solutions, thereby streamlining the search process. The resulting Tier 2 curve represents the optimal large scale solution because it is comprised of optimized Tier 1 solutions. This approach is especially useful for prioritizing areas for management for scheduling implementation milestones as described in Section 8.

4. Current/Baseline Pollutant Loading

The LSPC model within WMMS was reconfigured and recalibrated specifically for the WMP areas to provide an estimate of current/existing pollutant loads from jurisdictions within the WMPs. Reconfiguration of model subwatersheds was performed to provide specific accounting of loadings from individual jurisdictions. Calibrations were performed to meet specifications of the RAA Guidelines (LARWQCB 2014).

4.1. Model Calibration to Existing Conditions

The LSPC watershed model was originally calibrated for hydrology using a regional approach relying on USGS observed daily streamflow datasets through Water Year (WY) 2006 (LACDPW 2010a). Water Quality was then calibrated using small-scale, land use level water quality monitoring data to develop representative event mean concentrations by land use (LACDPW 2010b). Model performance was also validated at the mass emissions monitoring stations in the context of a county-wide modeling effort. The calibration period for the original WMMS LSPC model began in 1996 and ended in 2006. For the RAA, an analysis was performed to evaluate performance of the LSPC model as it relates to the LLAR, LCC, and LSGR watersheds to understand and benchmark its applicability for use as a baseline condition. The evaluation of monitoring data was extended beyond the original WMMS-LSPC calibration to include the period from 10/1/2001 through 9/30/2011 incorporating both the average year (WY 2008) and 90th percentile (WY 2003) year.

Data available for the LACDPW water quality and hydrologic monitoring stations, S10 and F319 were used to reexamine simulated water quality and hydrology conditions in LA River. The two stations are co-located just south of the West Wardlow Road overpass and drain approximately 800 square miles, or nearly the entire LA River watershed. The monitoring stations were selected for comparison due to their location near the outlet of the LA River watershed, which encompasses the aggregate contributions of all upstream pollutant sources. The selected flow gage, F319, was also used to calibrate the WMMS LSPC model and, therefore, links the current and previous efforts. Water quality and hydrologic records for WYs 2003–2011 were compared to the simulated watershed model output to determine the necessary model parameter adjustments to establish an up-to-date model calibration. The locations of these two gages are presented in Figure 4-1. Statistical summaries and flow regime analysis of the water quality monitoring datasets from the Los Angeles River mass emission station S10 are presented in Attachment E.

Watershed model simulation of existing water quality conditions for the LCC watershed were evaluated for WYs 2003–2011 using data collected at the City of Long Beach Stearns Street monitoring location, just north of interstate 405. The water quality monitoring location is positioned at the WMP hydrologic outlet and captures the cumulative watershed loading effects impacting water quality conditions in this 27 square mile portion of the LCC watershed. No flow monitoring data are available in the watershed, thus simulated flow conditions could not be evaluated against observed data for LCC. The location of the water quality monitoring is presented in Figure 4-1 below and statistical summaries of the monitoring dataset are presented in Attachment E.

For the LSGR, hydrology was re-assessed at two monitoring locations using available data from WYs 2001-2011 The two monitoring locations selected include USGS 11087020 San Gabriel River at Whittier Narrows Dam CA and the LACDPW streamflow gage F354 located along Coyote Creek south of Spring Street (coincident with mass emission station S13). The USGS gage was selected for continuity with the development and calibration of the original WMMS LSPC modeling system. The primary monitoring location selected to calibrate water quality for LSGR was the LA County mass emission station S14. The San Gabriel River Monitoring Station is located below San Gabriel River Parkway in Pico Rivera. At this location the upstream tributary area is 450 square miles (LACDPW 2013). A second mass emission station, the Coyote Creek Monitoring Station (S13) located below Spring Street in the lower San Gabriel River watershed was also used to validate the water quality calibration. The locations of these two gages are presented below in Figure 4-1. Statistical summaries and flow regime analysis of the water quality monitoring datasets from the San Gabriel River and Coyote Creek mass emission stations S14 and S13 are presented in Attachment E.

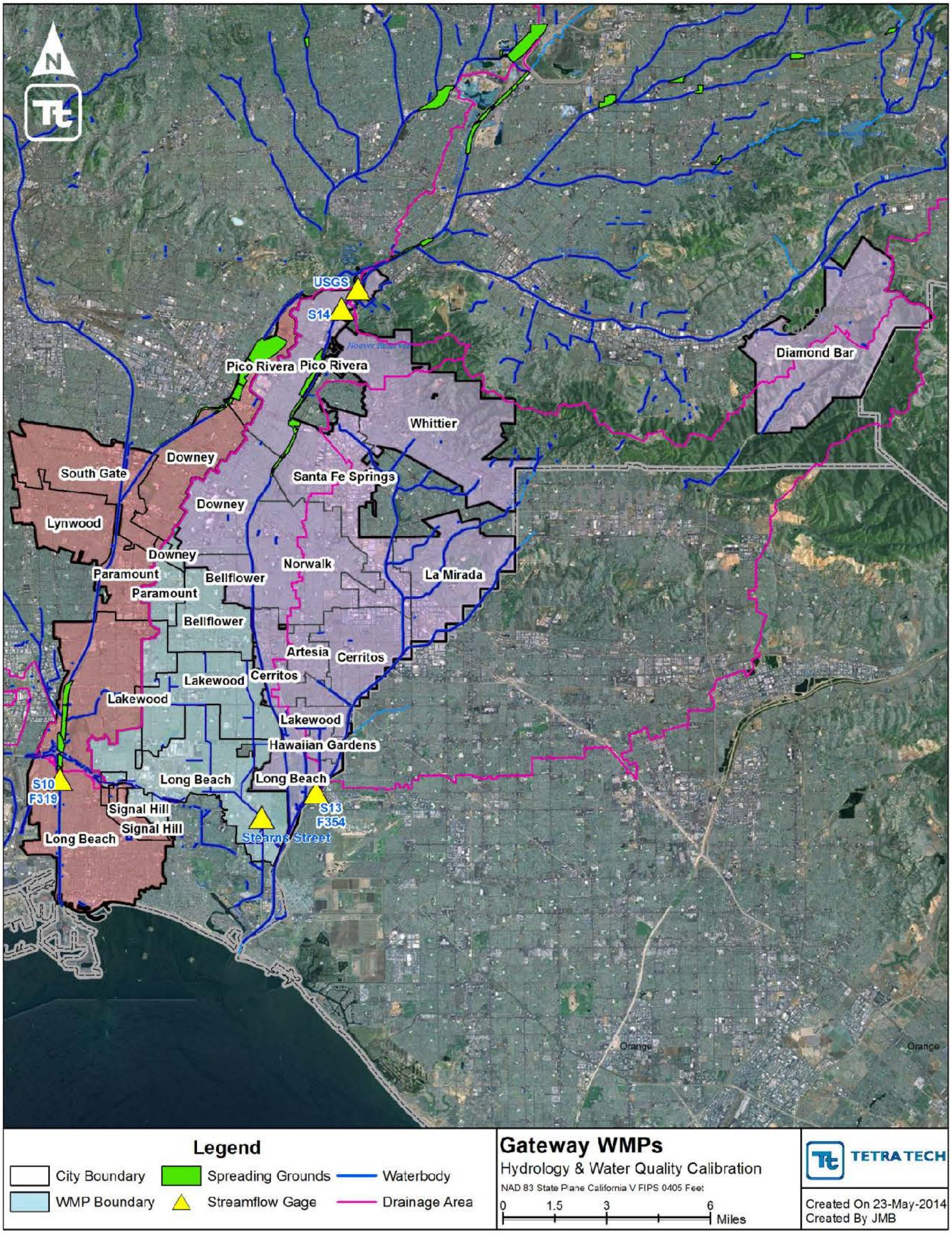

Figure 4-1. WMP groups hydrology and water quality calibration sites.

To demonstrate the ability to predict the effect of watershed processes and management actions, model calibration and validation are necessary and critical steps in any model application. Acceptable model calibration criteria for

benchmarking an RAA were developed by the Regional Board and are listed below in Table 4-1 (LARWQCB 2014). The objectives of establishing model assessment criteria are to ensure the calibrated model reflects all the model conditions and properly utilizes the available modeling parameters, thus yielding meaningful results. The lower bound of "Fair" level of agreement listed in Table 4-1 is considered a target tolerance for the model calibration process.

Table 4-1. Model assessment criteria from the RAA Guidelines

Constituent Group	Percent Difference Between Modeled and Observed		
	Very Good	Good	Fair
Hydrology / Flow	0 – 10	>10 – 15	>15 – 25
Sediment	0 – 20	>20 – 30	>30 – 40
Water Quality	0 – 15	>15 – 25	>25 – 35
Pesticides / Toxics	0 – 20	>20 – 30	>30 – 40

4.1.1. Hydrology Calibration

Table 4-2 and Table 4-3 present the hydrology calibration assessment for the Lower Los Angeles River and Lower San Gabriel River gages, respectively. Nash-Sutcliffe efficiency is a correlation coefficient commonly used in hydrological modeling to measure how well a model predicts temporal variation. A value of 1.0 means a perfect match between modeled and observed. A value of 0 means that the computed mean of observed data is as good a predictor as the model. A negative value means that the data-mean is a better predictor than the model. Because the Regional Board guidance only required annual average flow volume metric, evaluating Nash-Sutcliffe helped to demonstrate that the model also performed well at predicting *intra-annual* flow variablilty.

Table 4-2. Summary of model hydrology calibration performance for Lower Los Angeles River

Water Quality Parameter	Model Period	Hydrology Parameter	Modeled vs. Observed Volume (% Error)	Regional Board Guidance Assessment
In-stream flow at Los Angeles River below Wardlow Road (LA DPW F319)	10/1/2002 – 9/30/2011	Flow Volume	8.72	Very Good
		Nash-Sutcliffe	0.680	n/a

Table 4-3. Summary of model hydrology calibration performance for Lower San Gabriel River

Water Quality Parameter	Model Period	Hydrology Parameter	Modeled vs. Observed Volume (% Error)	Regional Board Guidance Assessment
In-stream flow at SAN GABRIEL R AB WHITTIER NARROWS DAM CA (USGS 1108702)	10/1/2001 – 9/30/2011	Flow Volume	-3.31	Very Good
		Nash-Sutcliffe	0.64	n/a
Coyote Creek near Spring Street (LA DPW F354)	10/1/2003 – 9/30/2011	Flow Volume	-6.17	Very Good
		Nash-Sutcliffe	0.62	n/a

4.1.2. Water Quality Calibration

Water quality calibration for the LLAR, LCC, and LSGR incorporated sampling from LA County mass emission stations at S10 (LA River), Strearns Street (LCC), and S13 and S14 along Coyote Creek and the San Gabriel River, respectively. The updated observed concentration data collected at these sites were used to refine the calibration and benchmark model performance. Daily observed loads were calculated by multiplying observed concentration and daily observed flow. Daily loads were estimated for LCC using simulated flows due to the lack of observed data. The percent error between this daily observed load and the daily modeled load was then calculated for each constituent. The results of this evaluation at the two gages are presented in Table 4-4 through Table 4-7.

Table 4-4. Summary of model performance by constituent at the Los Angeles River (S10) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	91	-6.8	Very Good
Total Copper	58	-3.4	Very Good
Total Zinc	58	-18.1	Good
Total Lead	52	-0.1	Very Good
Fecal Coliform	57	-5.1	Very Good
Total Nitrogen	58	-4.0	Very Good
Total Phosphorous	57	6.9	Very Good

Table 4-5. Summary of model performance by constituent at Los Cerritos Channel (Stearns St.) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	85	2.7	Very Good
Total Copper	57	-2.1	Very Good
Total Zinc	56	1.5	Very Good
Total Lead	57	2.2	Very Good
Fecal Coliform	55	1.0	Very Good
Total Nitrogen	56	17.5	Good
Total Phosphorous	56	-0.4	Very Good

Table 4-6. Summary of model performance by constituent at the San Gabriel River (S14) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	45	8.57	Very Good
Total Copper	42	-9	Very Good
Total Zinc	44	16.1	Very Good
Total Lead	44	-3.97	Very Good
Fecal Coliform	43	1.85	Very Good
Total Nitrogen	*Not evaluated at this location*		
Total Phosphorous	44	-2.27	Very Good

Table 4-7. Summary of model performance by constituent at the Coyote Creek (S13) monitoring location

Water Quality Parameter	Sample Count	Modeled vs. Observed Load (% Error)	Regional Board Guidance Assessment
Total Sediment	42	1.28	Very Good
Total Copper	27	-28.9	Fair
Total Zinc	27	-32.44	Fair
Total Lead	25	-1.58	Very Good
Fecal Coliform	24	-34.48	Fair
Total Nitrogen	*Not evaluated at this location*		
Total Phosphorous			

Two fecal coliform samples were removed from the observed dataset at the San Gabriel River S14 mass emission station prior to performing the load calculation. These two samples appear to be outliers in the dataset with concentration values 10-100x greater than the remaining samples. These observations occurred on 10/17/2005 and 10/13/2009.

For pollutants not explicitly represented in the WMMS LSPC model, and for dry weather analysis, 90th percentile concentrations were calculated based on observed monitoring data at the LACDPW mass emission sites. The 90th percentile concentration was used for compliance with the Regional Board RAA guidelines (LARWQCB 2014). A summary of the 90th percentile concentrations for each constituent and waterbody are presented below in Table 4-8. For subsequent load reduction analyses, these concentrations were assumed for all wet or dry weather conditions they were assigned to represent existing conditions within their respective watersheds.

Table 4-8. 90th percentile concentrations assumed for non-modeled pollutants

Waterbody	Pollutant	Wet Weather	Dry Weather	90th Percentile Concentration	Units
Los Angeles River (S10)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Cadmium	●		4.8	ug/l
	Copper		●	25.68	ug/l
	Lead		●	3.43	ug/l
	E. coli		●	19,600	MPN/100 mL
Los Cerritos Channel (Stearns)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	25.4	ug/l
	E. coli		●	14,200	MPN/100 mL
San Gabriel River (S14)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	29.89	ug/l
	Selenium		●	4.77	ug/l
	E. coli		●	2,190	MPN/100 mL
Coyote Creek (S13)	DDT	●		0.005[1]	ug/L
	PCBs	●		0.0325[1]	ug/L
	PAHs	●		0.835[1]	ug/L
	Copper		●	28.54	ug/l
	E. coli		●	11,500	MPN/100 mL

[1] DDT, PCBs and PAHs were below MDL, so concentrations were assumed half MDL.

4.2. Current Best Management Practices/Minimum Control Measures

It is important to note the model calibration incorporates local stormwater BMPs implemented through late 2012 into the baseline condition. The only BMPs/control devices that were explicitly incorporated into the baseline model were the Dominguez Gap basins. All other BMPs, which individually were assumed to have a small effect on water quality at the watershed scale, are implicitly represented in the baseline condition. BMPs implemented in 2013 can be categorized as WMP implementation measures and their volume/load reductions are a component of the pollutant reduction plan for attaining interim and final milestones.

5. Estimated Required Pollutant Load Reductions

This section provides a description of the process for identifying critical conditions and calculating required load reductions to meet interim and final limitations.

5.1. Selected Average (Interim) and Critical (Final) Conditions

The RAA Guidelines specify that average conditions shall be used to establish load reductions for interim milestones and critical conditions shall be used to establish load reductions for final limits. In addition, the Permits provide two pathways for addressing WQ Priorities (see Figure 5-1):

- Volume-based: Retain the standard runoff volume from the 85th percentile, 24-hour storm
- Load-based: Achieve the necessary pollutant load reductions to attain Permit limits

Both types of numeric goals were evaluated as part of this RAA.

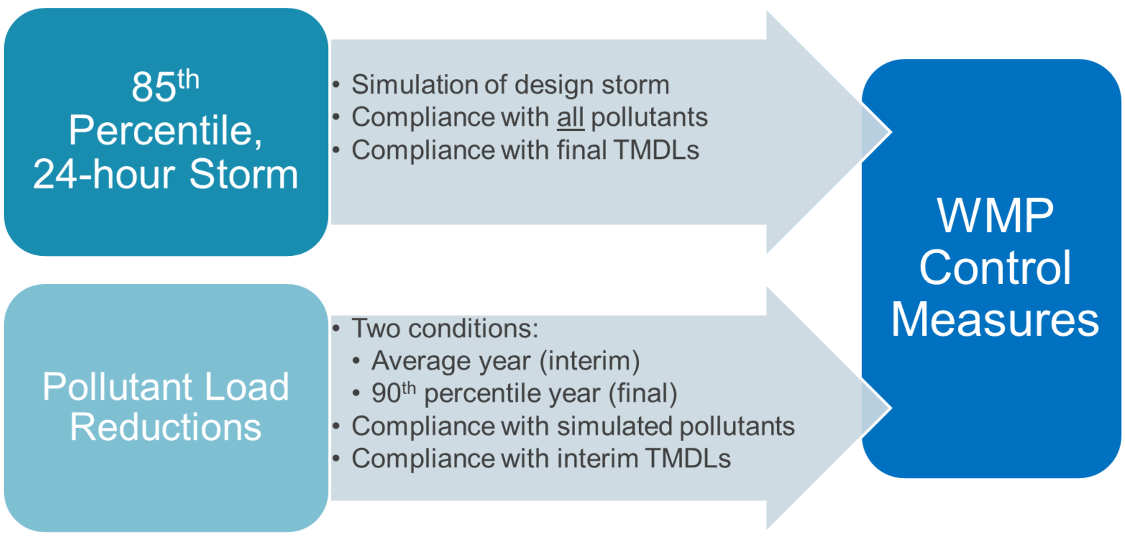

Figure 5-1. Two Types of Numeric Goals and WMP Compliance Paths according to the Permits

5.2. Representative Conditions for Wet Weather

Two approaches were considered and ultimately used in the RAA to represent wet weather critical conditions: the 90th percentile wet year and 85th percentile, 24-hour (design) storm, as described in the following subsections.

5.2.1. Average and 90th Percentile Wet Years

This RAA is based on continuous simulation, and a "representative" year-long time period was selected to represent average and critical conditions, which allows the modeling to capture the variability of rainfall and storm sizes/conditions. For LLAR, LCC, and LSGR, WY2008 was selected as the representative year for average conditions and WY2003 was selected as the representative year for the 90th percentile critical wet conditions.

To select these average and critical years for the RAA, the following steps were taken:

1. **Calculated key rainfall metrics for the last 25-years:** the average and critical years were identified by aggregating data from available rain gages across the entire Los Angeles River and San Gabriel River watersheds (LCC is in between, so the analysis for LLAR and LSGR also applies to LLC). For

comparison, other regional watersheds were also analyzed and presented. The two key metrics evaluated were: (1) total annual rainfall, and (2) average rainfall per wet day (with wet days defined as days with rainfall totals greater than 0.1 inches). The first is clearly an indicator of volume, while the second is an indicator of rainfall intensity. To evaluate long-term conditions, the analysis covered 25 water years (WY) from 1987 through 2011—the total rainfall for each precipitation gage was area-weighted and aggregated into annual totals by water year (i.e. previous October through current September).

2. **Selected years from the most recent 10-years that are most representative of average and 90th percentile**: per the RAA Guidelines, the most recent 10-year period represented in the available data were used to develop the RAA. Table 5-1 and Table 5-2 show average rainfall volumes and intensities (inches per wet day), respectively, for the most recent 10 years compared against the entire 25-years. Both the average and 90th percentile values were compared across the 10- and 25-year records. For the San Gabriel River, 2007-08 is a representative average year based on both the rainfall volume (Table 5-1) and intensity (Table 5-2) metrics. Because BMP performance is typically intensity-dependent, average rainfall per wet day (Table 5-2) was selected as a better metric for use in determining the 90th percentile than annual average rainfall (Table 5-1), which led to selection of 2002-03 as the critical year.

It should be noted that wet weather conditions were also reflective on the definition of dry/wet days. As described in Section 5, for analysis of non-bacteria pollutants (including the limiting pollutant zinc) days with greater than 90th percentile daily average flow were flagged as "wet," which aligns with the critical condition used for the LAR and LSGR metals TMDLs.

5.2.2. 85th Percentile, 24-hour Storm

The design storm is identified in the RAA Guidelines as an acceptable critical condition, and capture of design storm volumes by BMPs is a specified compliance metric in the Permits for TMDLs. The design storm was evaluated and used as a wet weather critical condition for the RAA. As described above, the design storm is a volume-based standard. Each subwatershed within each WMP area has a unique 85th percentile runoff volume, due to varying rainfall amounts and land characteristics (imperviousness, soils, slope, and the like). The rainfall depths associated with the 85th percentile, 24-hour storm are shown in Figure 5-2, based on rolling 24-hour intervals for the 25-year period between October 1, 1987 and September 30, 2011. Within the WMP area, the 85th percentile rainfall depth values range between 0.72 and 1.08 inches.

To determine the "standard volume" associated the design storm, initial conditions were set in LSPC to reflect representative conditions at the start of the simulation, along with regionally derived infiltration rates, and 85th percentile rainfall depths were used as rainfall boundary conditions. At each location the storm distribution presented in Figure 5-3 was used to temporally distribute the 24-hour rainfall volumes (LACDPW 2006). The model was then run to predict the associated runoff volumes for each subwatershed in the WMP area. Those runoff volumes represent the volumes that would need to be retained in order to attain the numeric goals associated with the 85th percentile, 24-hour storm.

Shown in Figure 5-4 are the rainfall depths and runoff depths (runoff volume divided by subwatershed area) associated with the design storm for each subwatershed in the WMP areas. About 50 percent of the subwatersheds in all three WMP areas experiences 0.4 inches or more of runoff under the 85th percentile, 24-hour storm, while about 10 percent of the area experiences about 0.55 inches or more of runoff. Figure 5-5 summarizes the total design storm volumes (in acre-feet) for each jurisdiction. The runoff depths for each subwatershed in the WMP area are graphically shown in Figure 5-6, Figure 5-7, and Figure 5-8.

Table 5-1. Average Rainfall Depths (Water Years 2002–2011 vs. 25-year Average and 90th Percentile)

Year	Average Rainfall Totals (in./year)				
	Ballona Creek	Dominguez Channel	Malibu Creek	San Gabriel River	Los Angeles River
2001-02	25.4	19.1	28.1	30.6	30.5
2002-03	17.1	13.9	20.8	23	20.4
2003-04	10.2	8.1	9.2	13.7	11.2
2004-05	39.3	28.4	42.6	49.6	46.7
2005-06	14.1	9.8	16.9	17.9	17.5
2006-07	4.3	3.1	6.8	6.4	5.8
2007-08	13.2	11.9	18.6	19.4	17.5
2008-09	9.6	8.5	12.3	14.6	12.5
2009-10	16.8	14.9	20.3	24.1	20.5
2010-11	21.2	18.5	25.3	28.5	25.7
Avg. (1987-2011)	15.9	12.5	18.4	20.7	19.2
90th %ile (1987-2011)	30.8	22.9	34.7	37.8	36.9

Red Box: WMP Watersheds. Blue highlighted cells are the two years in each basin with the smallest difference from the 25-year average. Orange cells have the smallest difference from the 90th percentile of the 25-year record.

Table 5-2. Average Rainfall Intensity (Water Years 2002–2011 vs. 25-year Average and 90th Percentile)

Year	Average Rainfall Per Wet Day (in./wet day)				
	Ballona Creek	Dominguez Channel	Malibu Creek	San Gabriel River	Los Angeles River
2001-02	0.36	0.32	0.41	0.42	0.36
2002-03	0.79	0.66	0.88	0.92	0.84
2003-04	0.61	0.48	0.61	0.66	0.58
2004-05	0.98	0.69	1.03	1.07	1.03
2005-06	0.53	0.41	0.61	0.64	0.61
2006-07	0.31	0.27	0.39	0.41	0.37
2007-08	0.56	0.52	0.68	0.76	0.71
2008-09	0.49	0.48	0.56	0.65	0.57
2009-10	0.64	0.6	0.71	0.82	0.72
2010-11	0.62	0.58	0.73	0.76	0.7
Avg. (1987-2011)	0.59	0.52	0.67	0.72	0.66
90th %ile (1987-2011)	0.78	0.66	0.91	0.97	0.89

Red Box: WMP Watersheds. Blue highlighted cells are the two years in each basin with the smallest difference from the 25-year average. Orange cells have the smallest difference from the 90th percentile of the 25-year record.

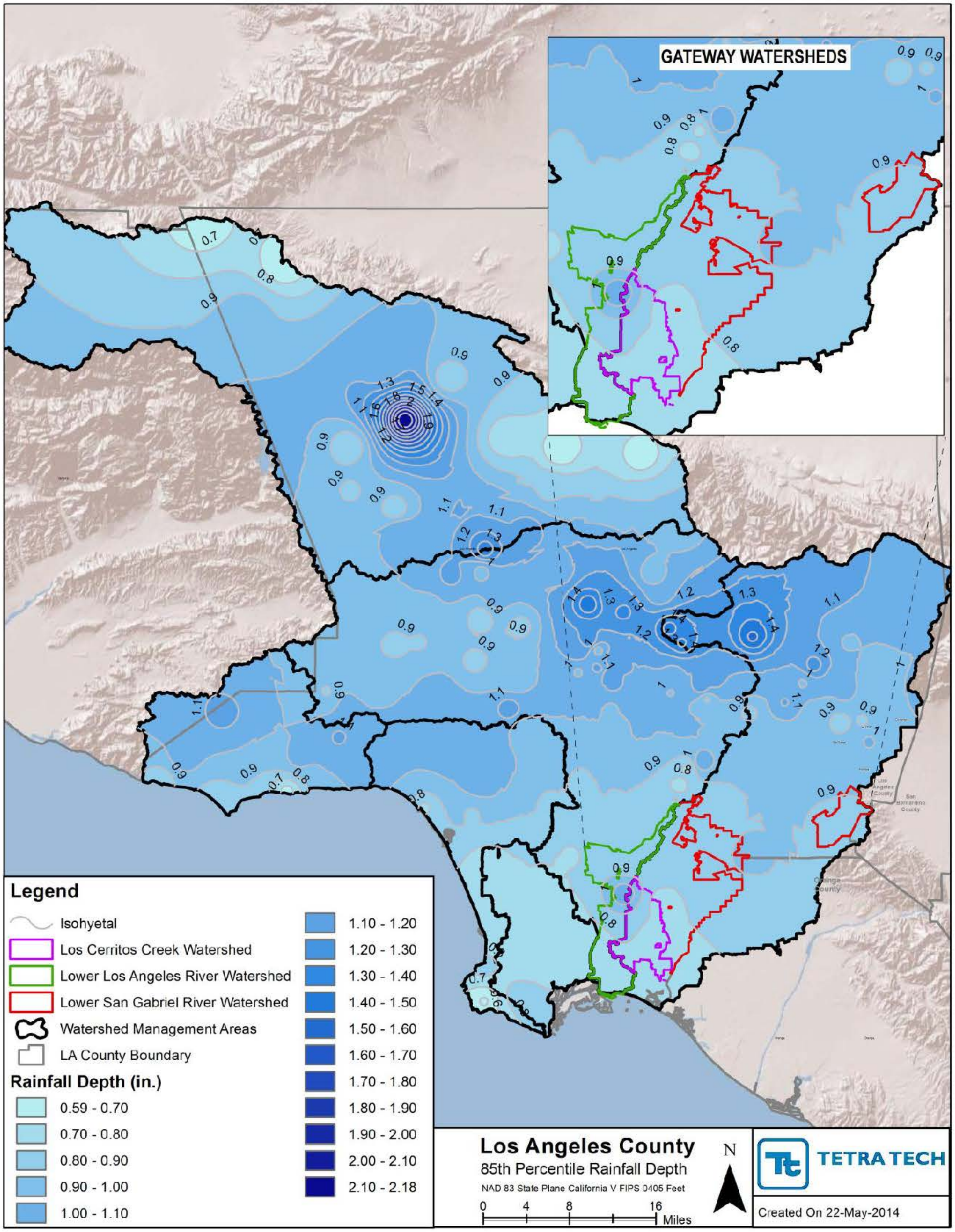

Figure 5-2. Rainfall depths associated with the 85th percentile, 24-hour storm.

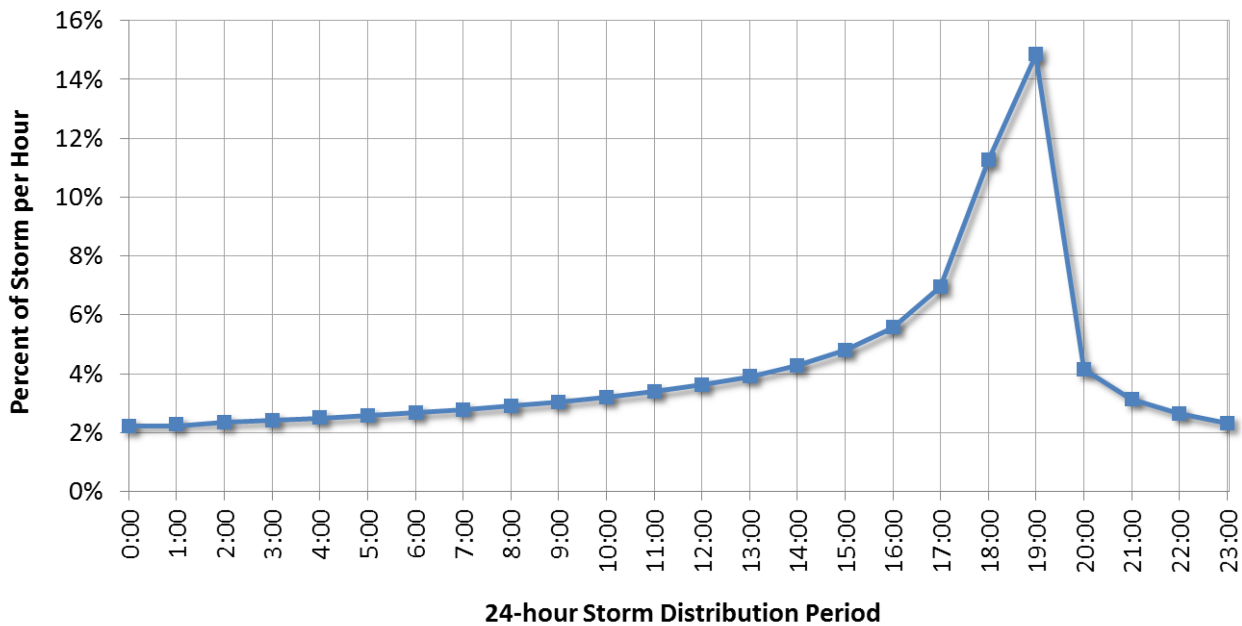

Figure 5-3. Temporal Distribution for 85th Percentile 24-hour Storm for LSPC Simulation.

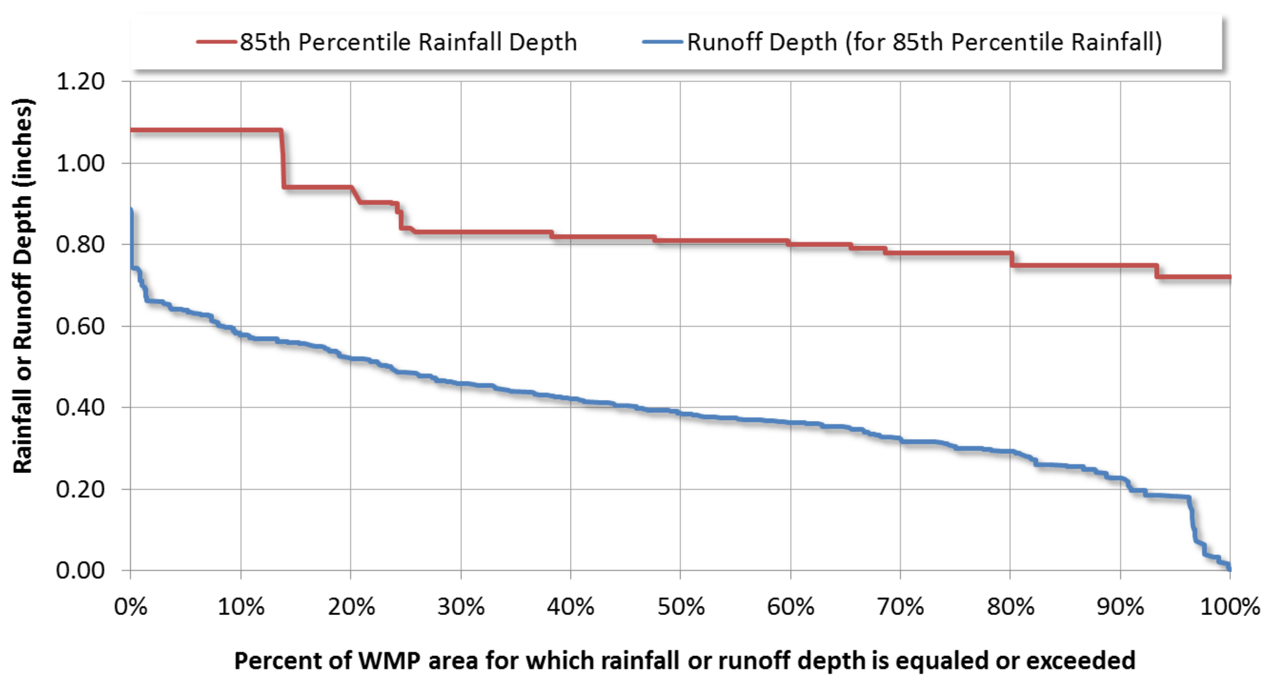

Figure 5-4. Rainfall and Runoff Depths Associated with 85th Percentile Rainfall in the WMP subwatersheds.

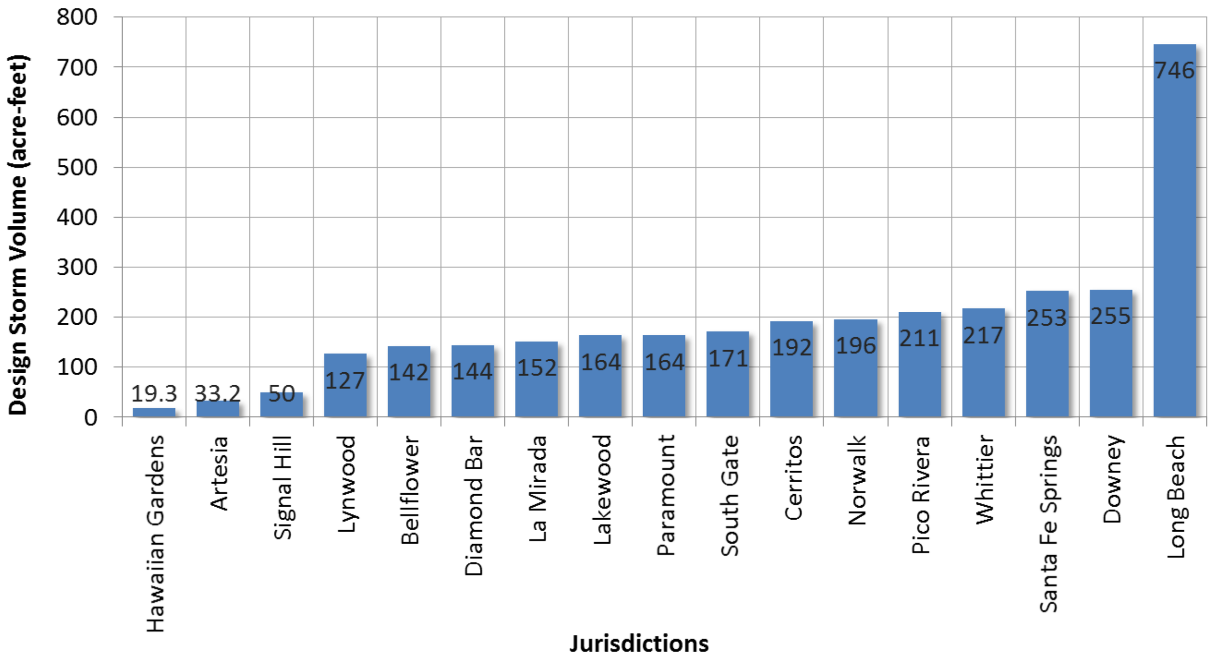

Figure 5-5. Runoff Volume Associated with the 85th Percentile, 24-hour Storm (by jurisdiction).

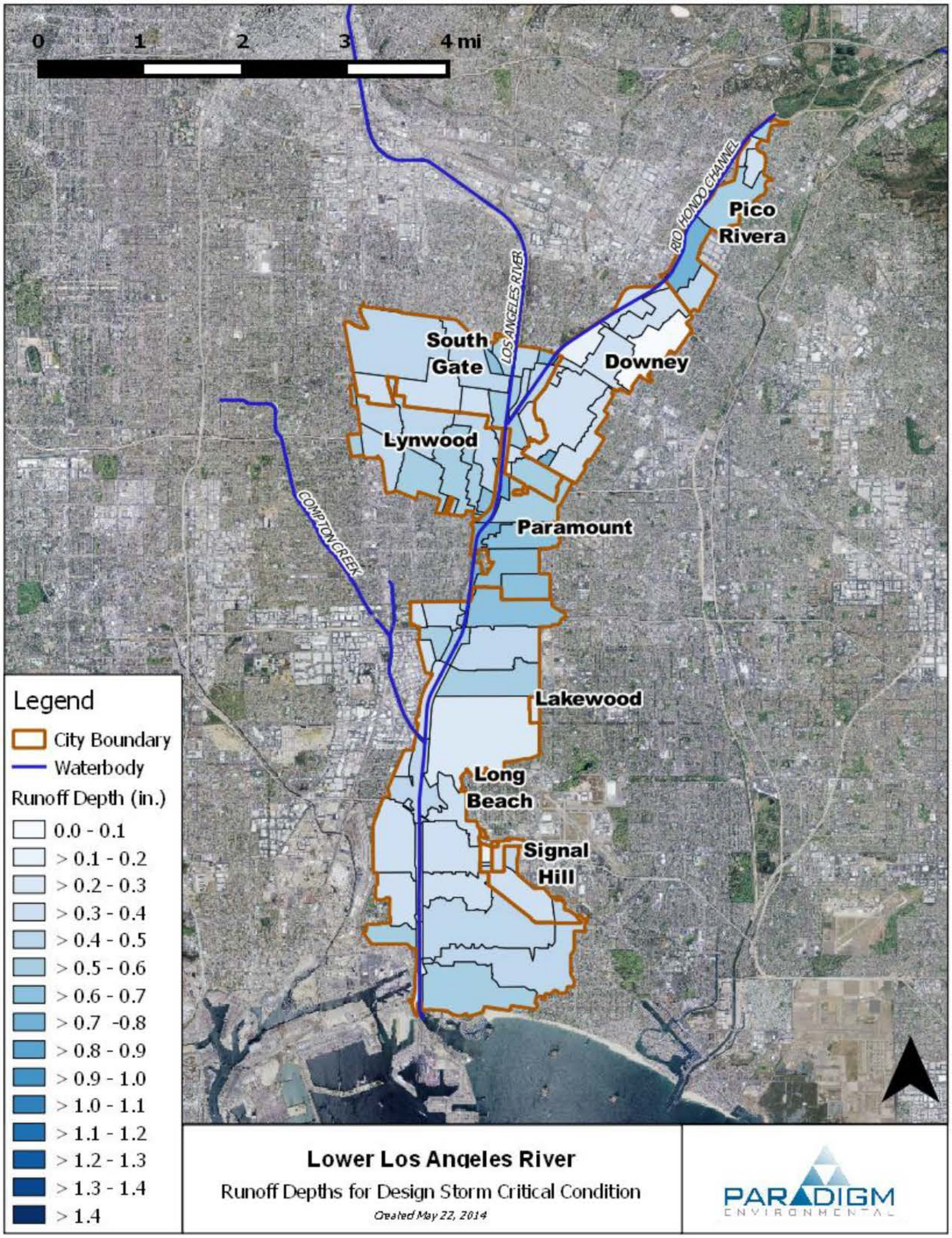

Figure 5-6. Runoff Associated with the 85th Percentile, 24-hour Storm for Lower Los Angeles River.

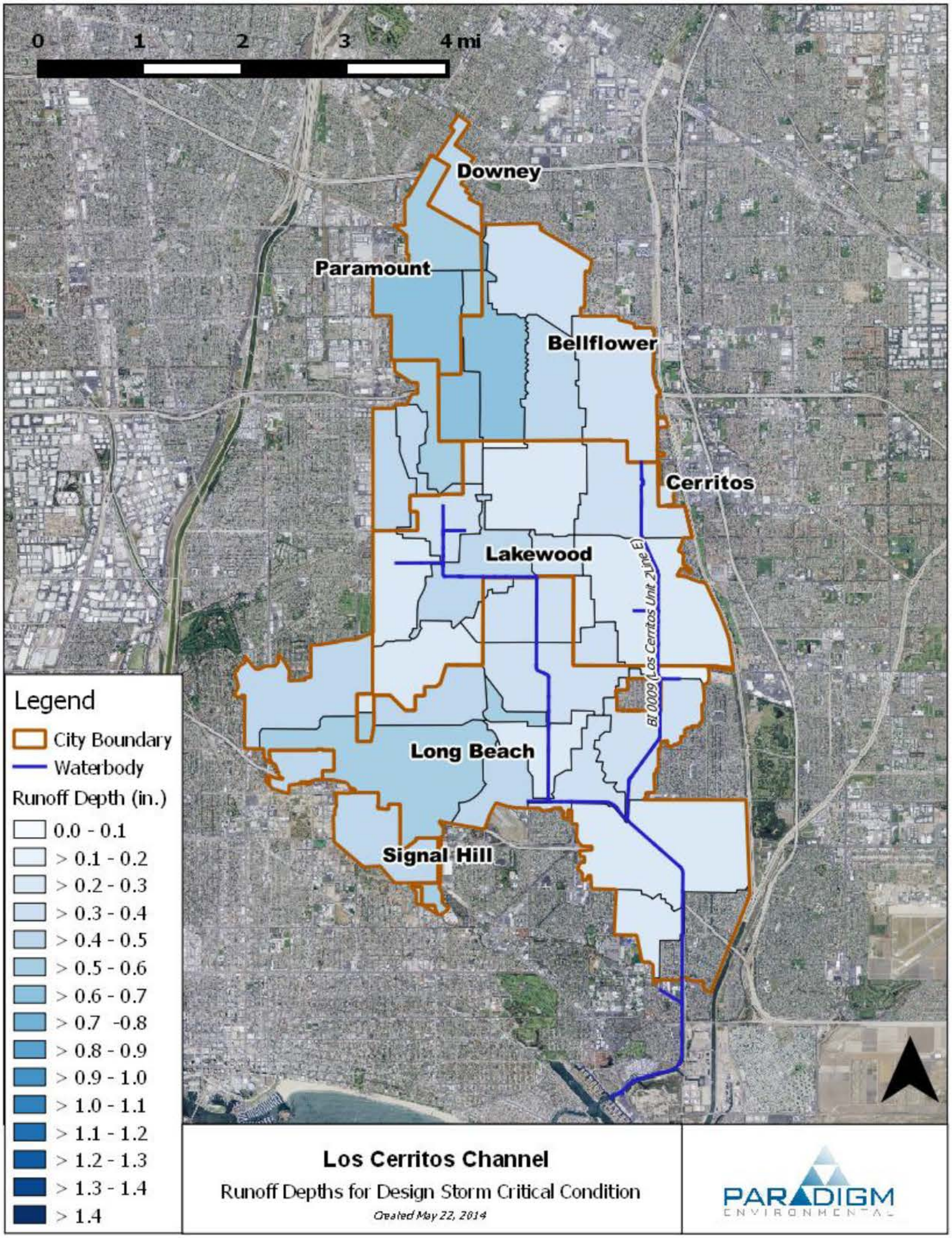

Figure 5-7. Runoff Associated with the 85th Percentile, 24-hour Storm for Los Cerritos Channel.

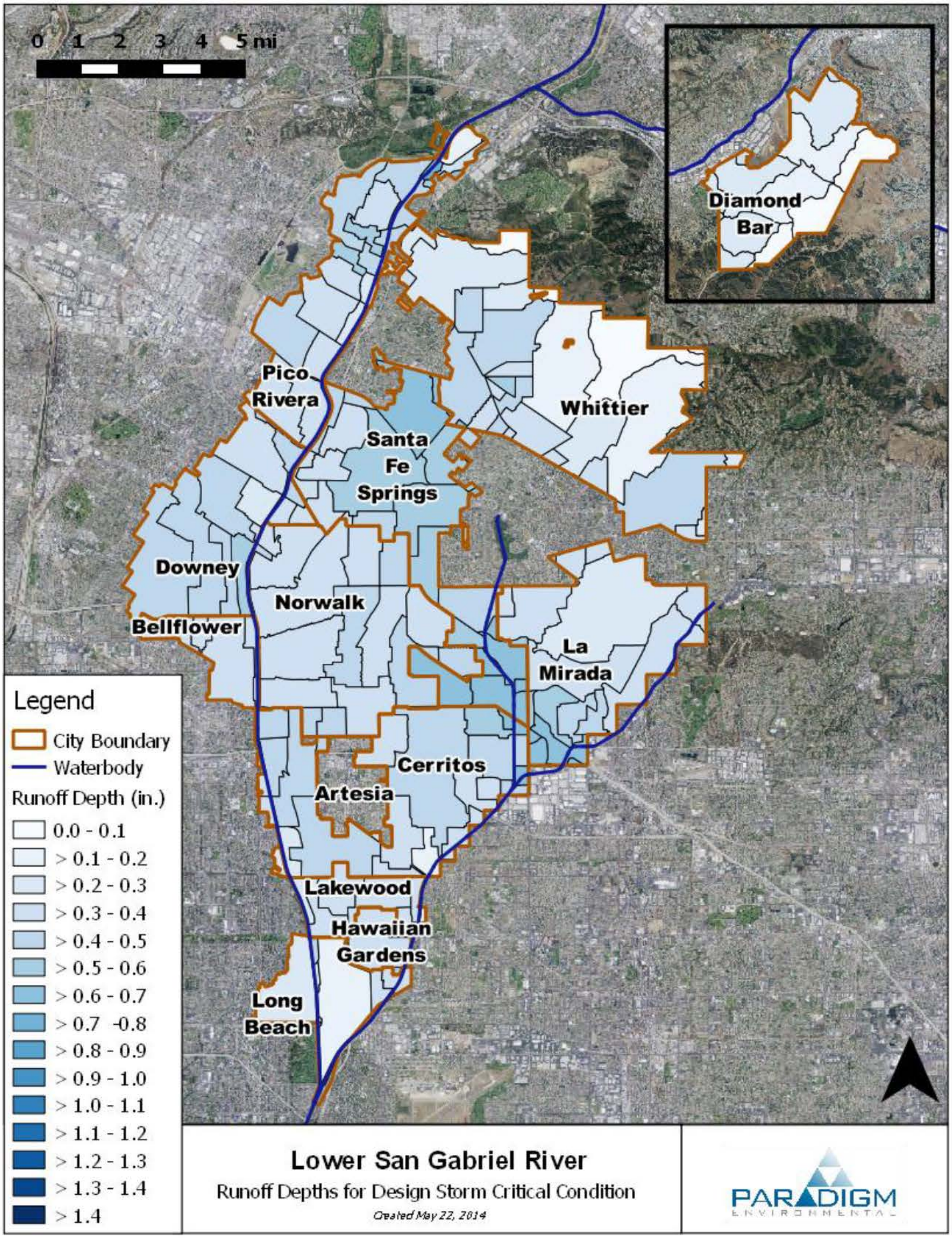

Figure 5-8. Runoff Associated with the 85th Percentile, 24-hour Storm for Lower San Gabriel River.

5.2.3. Representative Conditions for Dry Weather

Although clearly defined definitions exist for wet periods, definitions for dry periods are less clearly defined. Wet weather periods are either defined in terms of rainfall or instream flow. For bacteria, a wet day is one with a rainfall total greater than 0.1 inches plus the three subsequent days, while metals criteria define wet days as those with instream flow above the 90th percentile. One seemingly intuitive way of defining a dry period is simply to use the "non-wet" days represented as the inverse of wet days. However, summary of model results indicate some residual influence of wet weather among the "non-wet" days. This presents some challenges for estimating loads and evaluating dry weather compliance because BMP planning would be better served by choosing design conditions that are more influenced by natural background baseflow and/or anthropogenic activities such as point source discharges or dry weather runoff from irrigation (instead of post-rain event interflow).

The RAA Guidelines recommend using the most recent 10 years of data for modeling scenarios to ensure that the plans are based on a representative range of wet and dry conditions. Regional precipitation and instream flow patterns are highly variable; therefore, a representative dry period is one that consistently represents minimal influence to wet weather conditions. To identify a representative dry period, the analysis covered 25 WYs from 1987 through 2011. The following steps were taken:

1. The total rainfall for each precipitation gage in the study area was summarized and classified into wet and non-wet periods according to the bacteria criteria definition for wet weather (i.e. days with rainfall > 0.1 inches plus the three subsequent days).
2. Dry periods were evaluated on a monthly time scale. Table 5-3 shows the average number of consecutive 30-day dry periods, counted by month of the associated mid-interval date, for each of the rainfall gages within the three WMP areas over the 25 years of rainfall evaluated. The color-ramp indicates relative dryness, with red being driest. Table 5-3 indicates that on average, the months of June, July, and August are the driest months in the year, averaging 24-30 consecutive dry intervals. Note that because this table counts mid-interval dates by month, values approaching 30 actually indicate continuous dry intervals approaching 60 days (15 days on either side of the 30 day interval).
3. Select periods within the average and critical year were identified for dry weather simulations. The areal coverage or non-wet intervals in the two selected representative years (2008 and 2003) were compared against the 10-year period (2001-2011) and the long-term 25-year period (1998-2011). Figure 5-9, Figure 5-10, and Figure 5-11 show the selected representative dry period against summaries of non-wet weather conditions in the LLAR, LCC, and LSGR WMP areas, respectively. Within the two selected years, the 45-day period between 8/17 and 9/30 was found to be the most representative of dry weather conditions because (1) no rainfall occurred at any of the gages throughout all three WMP areas, (2) it was during a time of the year that was historically shown to experience the least amount of spatially-weighted rainfall in a year, and (3) it was late in the summer following an extended period of no rainfall for both 2003 and 2008.

The identified periods between 8/17 and 9/20 during the average and critical years were used for subsequent dry weather simulations for the dry weather component of the RAA.

Table 5-3. Consecutive 30-day Dry Periods per month by WMP and rainfall gage (10/1/1987 – 9/30/2011)

WMP	StaID	Average Number of Consecutive 30-Day Dry Intervals Per Month (10/1/1987 – 9/30/2011)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Los Cerritos Channel	D1254	2.2	1.9	6.2	11.9	22.3	25.2	28.9	28.9	21.4	12.7	7.8	4.4
	D1255	2.8	1.8	4.4	8.8	20.3	25.1	29.7	29.8	21.8	13.0	7.3	2.9
	D225	3.0	2.3	6.3	10.5	20.6	24.7	28.8	29.5	21.4	13.1	9.1	3.6
	D388	2.1	1.3	3.8	8.5	18.6	24.0	27.6	29.2	21.0	12.3	5.1	3.2
	D415	1.9	1.2	5.7	9.6	19.0	24.0	28.1	29.1	23.4	13.1	8.9	3.7
Lower Los Angeles River	D1113	4.2	2.5	8.3	9.8	19.5	24.4	28.1	27.8	23.6	13.7	8.8	4.5
	D1114	1.6	1.1	4.0	8.9	19.6	25.1	29.7	29.6	20.8	12.3	5.5	3.0
	D1256	2.1	1.4	4.8	10.4	20.5	24.6	28.8	29.8	23.5	14.2	6.2	3.1
	D291	3.3	1.1	5.0	8.8	19.4	24.4	28.7	28.4	21.9	11.6	4.6	3.5
	D388	2.1	1.3	3.8	8.5	18.6	24.0	27.6	29.2	21.0	12.3	5.1	3.2
	D415	1.9	1.2	5.7	9.6	19.0	24.0	28.1	29.1	23.4	13.1	8.9	3.7
Lower San Gabriel River	D106	4.2	0.6	6.0	10.9	19.7	24.6	28.6	29.0	23.9	14.0	8.2	4.0
	D1088	2.2	1.0	3.8	9.0	17.6	24.1	28.5	29.0	20.9	12.6	5.9	2.7
	D1095	2.4	0.5	4.4	10.0	19.2	24.6	28.6	29.1	21.2	14.2	7.1	4.2
	D1114	1.6	1.1	4.0	8.9	19.6	25.1	29.7	29.6	20.8	12.3	5.5	3.0
	D1254	2.2	1.9	6.2	11.9	22.3	25.2	28.9	28.9	21.4	12.7	7.8	4.4
	D1255	2.8	1.8	4.4	8.8	20.3	25.1	29.7	29.8	21.8	13.0	7.3	2.9
	D1256	2.1	1.4	4.8	10.4	20.5	24.6	28.8	29.8	23.5	14.2	6.2	3.1
	D1257	2.0	0.5	4.5	10.6	18.9	24.4	28.6	29.8	21.2	10.3	5.7	3.0
	D1271	1.8	1.6	3.9	9.4	18.1	24.4	28.6	29.7	21.6	11.7	7.3	3.4
	D156	3.0	1.5	5.2	10.1	19.2	24.6	28.5	29.3	21.0	13.4	7.2	5.0
	D17	1.7	1.2	5.2	9.1	17.5	22.4	28.6	29.0	22.6	11.3	5.2	3.7
	D225	3.0	2.3	6.3	10.5	20.6	24.7	28.8	29.5	21.4	13.1	9.1	3.6
	D269	1.8	0.5	4.2	8.1	18.0	24.2	28.6	29.1	22.2	13.0	6.7	3.2

Legend:	Wet	→	Dry

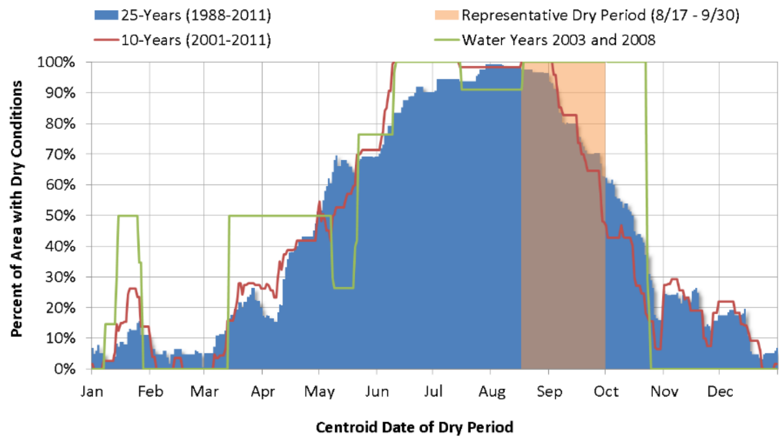

Figure 5-9. Spatiotemporal summary of non-wet weather conditions in the Lower Los Angeles River WMP area.

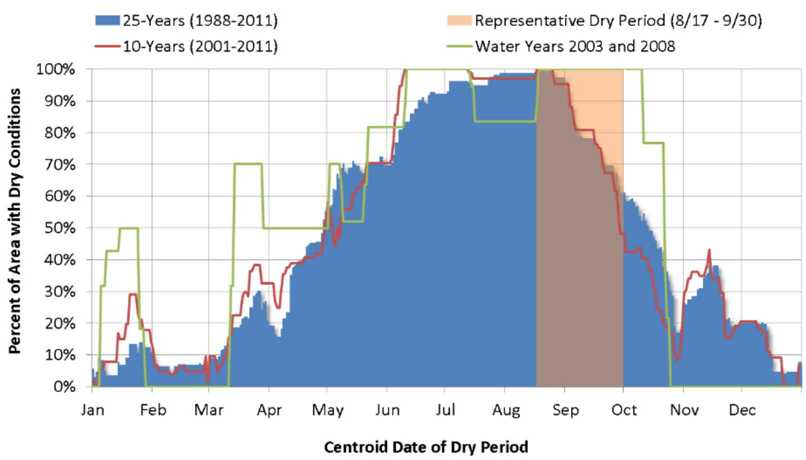

Figure 5-10. Analysis of summary of non-wet weather conditions in the Los Cerritos Channel WMP area.

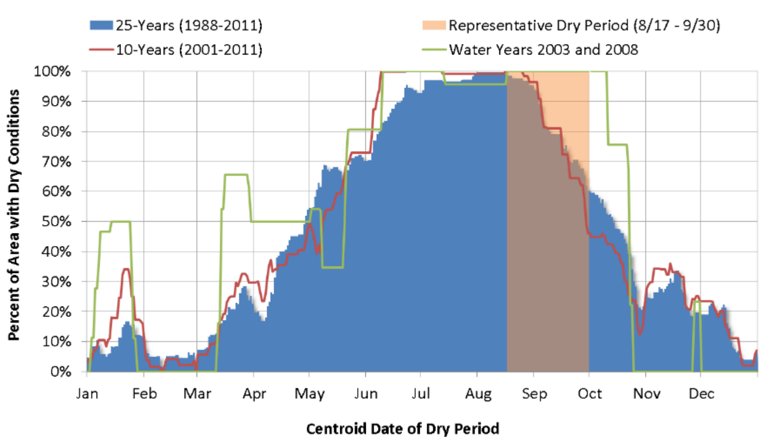

Figure 5-11. Spatiotemporal summary of non-wet weather conditions in the Lower San Gabriel River WMP area.

5.3. Calculated Required Pollutant Reductions to Achieve Final Limits

Using the average storm year (2007-08) and 90th percentile storm year (2002-03), required pollutant reductions were calculated for attainment of interim and final limitations, respectively, applicable to each WMP area. Per the RAA Guidelines, the percent reduction used to determine the control measures necessary to attain interim milestones shall be based on the average year, while the control measures for attainment of the final limits are based on the 90th percentile year.

Required load reductions were evaluated at RAA Assessment Points located at the bottom-most discharge from each WMP areas (shown in Figure 3-2 through Figure 3-4). The RAA Assessment Points represent locations where the collective discharge from each jurisdiction with each WMP area can be assessed to contribute to pollutant loads to the receiving waters. Pollutant loads outside of the WMP areas are not considered in this loading analysis at the RAA Assessment Points, although in reality other loads exist. However, transport of pollutant loads from individual jurisdictions within the WMP areas are considered, including the effect of LACFCD infrastructure and other hydraulic features that can impede flows and associated pollutant loads to the location of the RAA Assessment Points. The result is an accounting system that provides reasonable tracking and estimation of required load reductions throughout each individual WMP area so that meaningful goals can be set for BMP implementation planning.

Applicable targets for wet and dry conditions for Category 1 WQ Priorities (corresponding to the TMDLs within each watershed) are listed in Table 5-4 and Table 5-5, respectively. These targets were used to establish the daily "exceedance load" and daily "allowable load". The differences in these loads, as predicted by LSPC, were tracked across the average year and 90th percentile year and used to calculate the required pollutant reduction. While Category 1 WQ Priorities were emphasized, targets were also applied for Category 2 and Category 3 WQ Priorities. In particular, to provide a comprehensive WMP planning approach, copper, lead, zinc and *E. coli* were assessed for all RAA assessment points (even if a TMDL is not applicable).

For bacteria targets, it should be noted that Allowable Exceedance Days and high flow suspension (HFS) days were incorporated (if applicable) into the percent reduction calculation. The approach of the LA River Bacteria TMDL was used to align Exceedance Days and HFS days. The HFS applies to LLAR and LSGR but not LCC (and thus HFS days were not incorporated into the required reduction calculation for LCC). For LSGR and LCC, a bacteria TMDL has not been adopted but the RAA Guidelines state that targets and critical conditions from other TMDLs in the region should be utilized. If the Allowable Exceedance Days were removed from the percent reduction calculations for LSGR and LCC, the required reductions would increase.

Table 5-4. Applicable wet weather TMDL targets for Category 1 WQ Priorities

WMP Area	Waterbody	Pollutant	Target	Source
LLAR	LAR Reach 1 (freshwater)	Cd kg/d	2.8×10^{-9} X daily storm volume (L) - 1.8	WQBEL
	LAR Reach 1 (freshwater)	Cu kg/d	1.5×10^{-8} X daily storm volume (L) - 9.5	WQBEL
	LAR Reach 1 (freshwater)	Pb kg/d	5.6×10^{-8} X daily storm volume (L) - 3.85	WQBEL
	LAR Reach 1 (freshwater)	Zn kg/d	1.4×10^{-7} X daily storm volume (L) - 83	WQBEL
	All LLAR	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	All LLAR	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	All LLAR	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL
	LAR Reach 1 (freshwater)	*E-coli* MPN/100mL	235 (exceedances allowed during HFS days and 10 exceedance days)	WQBEL

WMP Area	Waterbody	Pollutant	Target	Source
LCC	All LCC	Cu g/d	$4.709X10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	Pb g/d	$26.852X10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	Zn g/d	$46.027X10^{-6}$ X daily storm volume (L)	WQBEL
	All LCC	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	All LCC	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	All LCC	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL
LSGR	SG Reach 2	Pb ug/L	81.34	WQBEL
	Coyote Cr.	Cu ug/L	24.71	WQBEL
	Coyote Cr.	Pb ug/L	96.99	WQBEL
	Coyote Cr.	Zn ug/L	144.57	WQBEL
	SG Reach 1 & Coyote Cr.	DDT ug/kg TSS	1.58	Harbor Toxics TMDL
	SG Reach 1 & Coyote Cr.	PCBs ug/kg TSS	22.7	Harbor Toxics TMDL
	SG Reach 1 & Coyote Cr.	PAHs ug/kg TSS	4,022	Harbor Toxics TMDL

Table 5-5. Applicable dry weather TMDL targets for Category 1 WQ Priorities

WMP Area	Waterbody	Pollutant	Target	Source
LLAR	LAR Reach 1 (freshwater)	Cu ug/L	23	WQBEL
	LAR Reach 1 (freshwater)	Pb ug/L	12	WQBEL
	LAR Reach 1 (freshwater)	*E-coli* MPN/100mL	126	WQBEL
LCC	All LCC	Cu g/d	67.2	WQBEL
	All LCC	*E-coli* MPN/100mL	126	WQBEL
LSGR	SG Reach 1	Cu ug/L	18	WQBEL
	SG Reach 1	*E-coli* MPN/100mL	126	WQBEL
	San Jose Cr. Reach 1&2	Se ug/L	5	WQBEL
	San Jose Cr. Reach 1&2	*E-coli* MPN/100mL	126	WQBEL
	Coyote Cr.	Cu kg/d	0.941	WQBEL
	Coyote Cr.	*E-coli* MPN/100mL	126	WQBEL

5.3.1. Wet-Weather Required Pollutant Reductions

The wet weather pollutant baseline loading and reduction targets for average and critical conditions are summarized in Table 5-6 and Table 5-7 respetively (all WMP areas) and shown graphically in Figure 5-12 through Figure 5-15 (individual WMP areas). These analyses were used to determine the limiting pollutant. The limiting pollutant is defined as the pollutant requiring the greatest load reduction, and BMPs implemented to achieve the limiting pollutant reductions are protective of other pollutant reductions (e.g., sediment or volume reductions). In Table 5-6. Wet-weather pollutant baseline loading by WMP area with analysis of limiting pollutants

WMP	Year[1]	Organics (kg)				Metals (kg)		Bacteria (Billion #)[1]
		DDT	PCB	PAH	TCu [2]	TPb	TZn [3]	E-Coli
Lower Los Angeles River (LLAR)	2003	0.12	0.77	19.80	2,437	2,464	11,153	2.78E+07
	2008	0.09	0.61	15.59	1,935	1,968	8,878	5.46E+07
Los Cerritos Channel (LCC)	2003	0.07	0.45	11.60	1,611	1,719	7,481	2.55E+08
	2008	0.05	0.35	9.13	505	386	2,607	2.40E+08
Lower San Gabriel River (LSGR)	2003	0.06	0.42	10.80	768	544	3,805	2.06E+06
	2008	0.05	0.33	8.50	393	337	2,512	1.98E+06
Coyote Creek (CC)	2003	0.11	0.71	18.20	1,640	1,197	8,373	6.57E+05
	2008	0.09	0.56	14.33	839	736	5,450	6.72E+06

Color ramps highlight potentially limiting (Red) vs. pollutants determined to be non-limiting for this analysis (Blue)

1. LLAR, LSGR, CC bacteria loads are for bacteria wet-days and exclude high flow suspension (HFS) days.
   LCC bacteria loads are for bacteria wet-days
2. Red box: Organics managed through sediment and associated metals reduction. Organic load reductions above influenced by assigned concentrations at half the MDLs (monitoring data below MDLs), and therefore are suspect and not considered limiting. Cu is not limiting after brake-pad reductions
3. Blue Box: Zinc is limiting pollutant for the 90^{th} percentile year
4. Metals loads are for wet-weather days (90^{th} percentile flow and greater)
5. Organics are summarized on an annual basis

Table 5-7, the red color gradient highlights limiting pollutants, with a deeper red generally indicating a more limiting pollutant. Zinc was identified as the limiting pollutant for each WMP area[4]. The determination of limiting pollutant considered implementation actions to control the pollutant – for example, Senate Bill 346 will result in significant reductions of copper loading from brake pads. Because total source control measures are not on the horizon for zinc, it becomes the limiting pollutant instead of copper. The evaluation of copper and organics as limiting pollutants and rationale for their exclusion is described below.

Although DDT and PCBs were estimated to have high load reduction requirements to meet WQBELs, they were not identified as limiting pollutants because the maximum detection limits (MDLs) used for the analysis heavily affected the calculated required reductions. Rather than use LSPC for reduction calculations, monitoring data were used directly and many reported concentrations for DDT, PCBs, and PAHs were below MDLs, so concentrations were assumed in the model to equal half the MDL. The MDL is above the target leading to non-detects requiring reductions. Of course, toxics will be addressed by control measures implemented for zinc. The Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL states that

[4] In LSGR, a higher percent reduction for bacteria was calculated for the average year than the 90^{th} percentile (see Figure 5-14). Although total annual rainfall in 2008 and 2003 were virtually identical over the entire SGR watershed (20.5 and 20.4 inches/year, respectively), 2003 had fewer wet days than 2008, resulting in relatively more intense events on average (about 18 percent higher). As a result, 2003 had more HFS days than 2008—exceedances during HFS days are not considered when computing the required load reduction, lowering the required reduction.

"implementation of other TMDLs in the watershed may contribute to the implementation of this TMDL," and implementation of the effective TMDLs in Los Angeles River and San Gabriel River are integrated within Phase I of the implementation of the toxics TMDL (LARWQCB and USEPA 2011). As a result, DDT, PCBs, and PAHs were not represented in Figure 5-12 through Figure 5-15.

Although copper was calculated to have a higher required reduction than zinc, the effect of Senate Bill 346 is expected to reduce those reductions without any implementation of structural control measures. The Brake Pad Partnership was formed in 1999 as a collaboration of cities, industry, and other entities to address the lack of information and research regarding the impact of brake debris material in the environment. After its formation, the Brake Pad Partnership commissioned several technical studies to better quantify the fate and transport of copper to San Francisco Bay including a detailed source assessment. Overall findings of the study estimated that of the anthropogenic sources of copper, approximately 35 percent are attributed to brake pad releases (BPP 2010). Even if the reduction was only half of this amount, the adjustment to the required copper reduction would still result in zinc being the limiting pollutant in LLAR, LCC, and LSGR.

After excluding organics and total copper for the reasons described previously, total zinc becomes the limiting pollutant in each of the WMP areas during the 90th percentile year. In other words, reductions of zinc during WMP implementation will drive reduction of other pollutants, particularly because the pollutant reduction plan emphasizes sediment control (other pollutants are typically transported with sediment) and retention/infiltration rather than pollutant treatment.

Plots showing the differences between the baseline loads, allowable loads, and exceedance loads are shown in Attachment F.

Table 5-6. Wet-weather pollutant baseline loading by WMP area with analysis of limiting pollutants

WMP	Year[1]	Organics (kg)			Metals (kg)			Bacteria (Billion #)[1]
		DDT	PCB	PAH	TCu [2]	TPb	TZn [3]	E-Coli
Lower Los Angeles River (LLAR)	2003	0.12	0.77	19.80	2,437	2,464	11,153	2.78E+07
	2008	0.09	0.61	15.59	1,935	1,968	8,878	5.46E+07
Los Cerritos Channel (LCC)	2003	0.07	0.45	11.60	1,611	1,719	7,481	2.55E+08
	2008	0.05	0.35	9.13	505	386	2,607	2.40E+08
Lower San Gabriel River (LSGR)	2003	0.06	0.42	10.80	768	544	3,805	2.06E+06
	2008	0.05	0.33	8.50	393	337	2,512	1.98E+06
Coyote Creek (CC)	2003	0.11	0.71	18.20	1,640	1,197	8,373	6.57E+05
	2008	0.09	0.56	14.33	839	736	5,450	6.72E+06

Color ramps highlight potentially limiting (Red) vs. pollutants determined to be non-limiting for this analysis (Blue)

6. LLAR, LSGR, CC bacteria loads are for bacteria wet-days and exclude high flow suspension (HFS) days.
   LCC bacteria loads are for bacteria wet-days
7. Red box: Organics managed through sediment and associated metals reduction. Organic load reductions above influenced by assigned concentrations at half the MDLs (monitoring data below MDLs), and therefore are suspect and not considered limiting. Cu is not limiting after brake-pad reductions
8. Blue Box: Zinc is limiting pollutant for the 90th percentile year
9. Metals loads are for wet-weather days (90th percentile flow and greater)
10. Organics are summarized on an annual basis

Table 5-7. Wet-weather pollutant reduction targets by WMP area with analysis of limiting pollutants[5]

WMP	Year	Organics			Metals			Bacteria
		DDT	PCB	PAH	TCu [2]	TPb	TZn [3]	E-Coli
Lower Los Angeles River (LLAR)	2003	87.3%	72.0%	0.0%	84.1%	38.6%	67.4%	23.4%
	2008	90.0%	77.9%	0.0%	82.8%	32.9%	64.9%	45.1%
Los Cerritos Channel (LCC)	2003	86.6%	70.3%	0.0%	95.6%	76.7%	90.8%	40.4%
	2008	89.6%	77.1%	0.0%	87.1%	3.6%	75.6%	47.9%
Lower San Gabriel River (LSGR)	2003	79.5%	54.6%	0.0%	40.1%	0.0%	29.3%	22.9%
	2008	91.4%	80.7%	0.0%	18.0%	0.0%	25.0%[4]	53.0%
Coyote Creek (CC)	2003	75.9%	46.8%	0.0%	37.5%	0.0%	28.3%	19.1%
	2008	91.3%	76.8%	0.0%	22.7%	0.0%	30.4%[4]	59.2%

Color ramps highlight potentially limiting (Red) vs. pollutants determined to be non-limiting for this analysis (Blue)

1. Average year is 2008 and 90th percentile year is 2003
2. Red box: Organics managed through sediment and associated metals reduction. Organic load reductions above influenced by assigned concentrations at half the MDLs (monitoring data below MDLs), and therefore are suspect and not considered limiting. Cu is not limiting after brake-pad reductions
3. Blue Box: Zinc is limiting pollutant for the 90th percentile year
4. Bacteria reduction target is lower in 2003 than 2008 because more days were classified as HFS

[5] For the Diamond Bar jurisdiction of the San Gabriel River WMP area, a portion flows to the Santa Ana River. Since this area is open space and therefore not associated with MS4 runoff, no reductions were determined necessary. Loadings for the 90th percentile year from this area are 1.16 kg/year of total Cu, 0.87 kg/year of total Pb, 5.21 kg/year of total Zn, and 4.91×10^{12} #/year of E-coli.

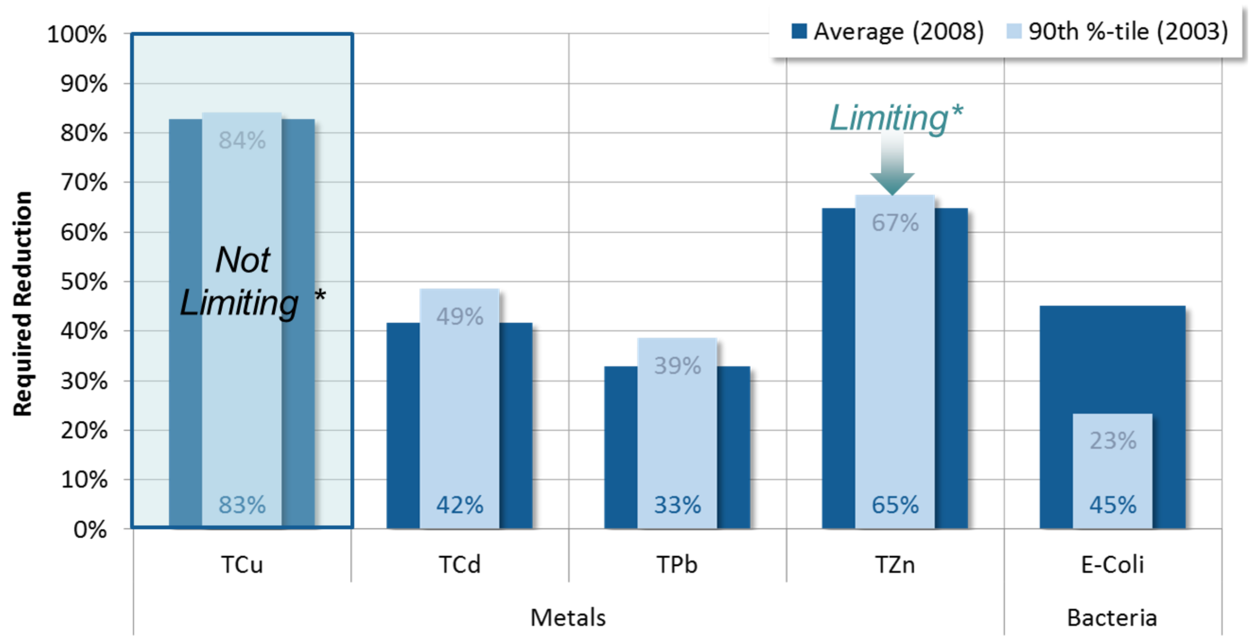

Figure 5-12. Wet-weather pollutant reduction targets and limiting pollutant for Lower Los Angeles River WMP.[6]

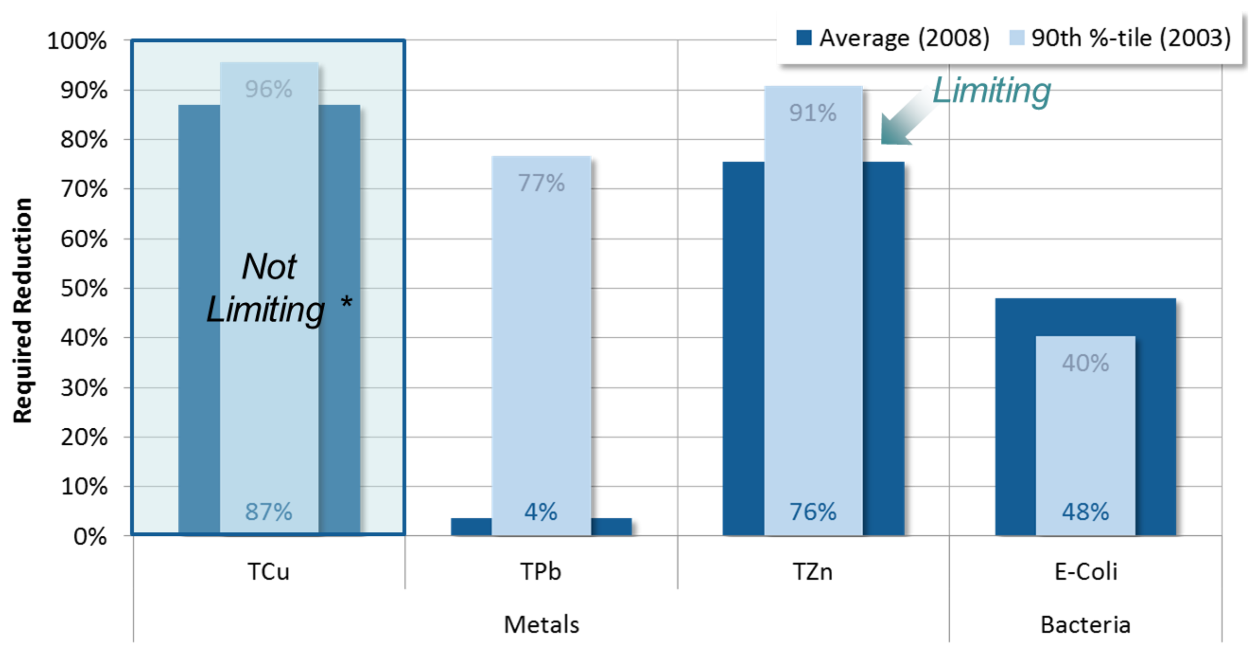

Figure 5-13. Wet-weather pollutant reduction targets and limiting pollutant for Los Cerritos Chanel WMP.

[6] Note that the Los Cerritos Channel TMDLs for Metals requires no reduction of Pb.

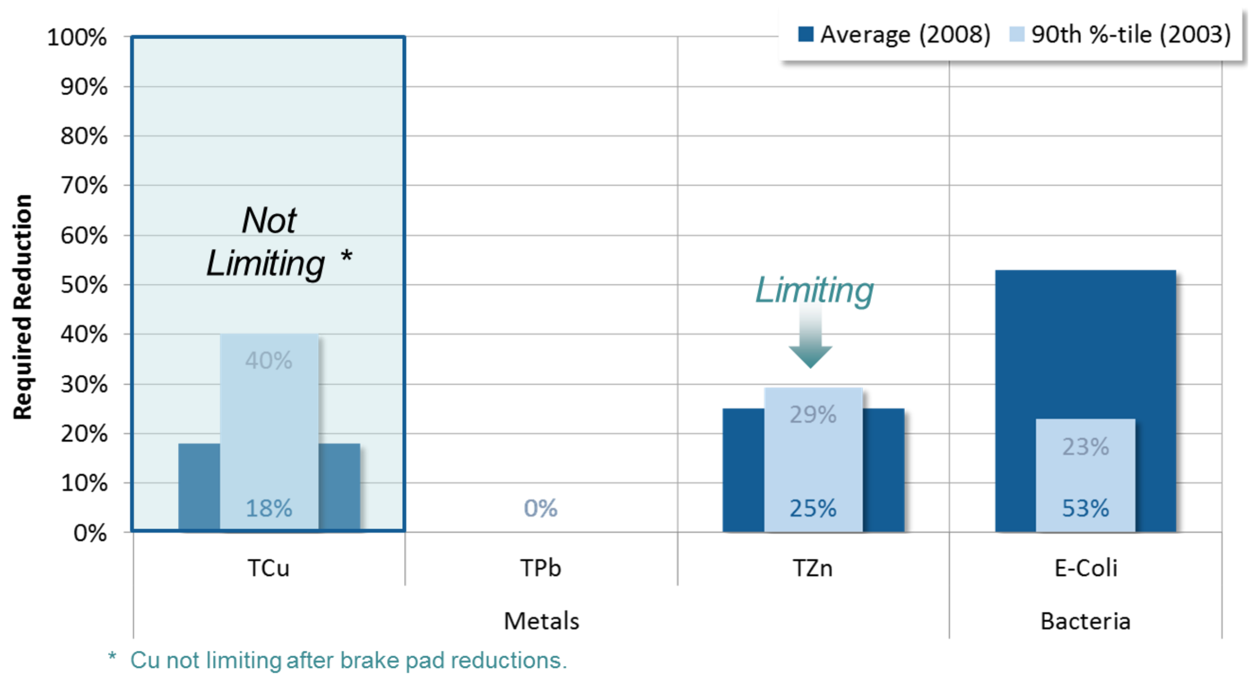

Figure 5-14. Wet-weather pollutant reduction targets and limiting pollutant for Lower San Gabriel River.

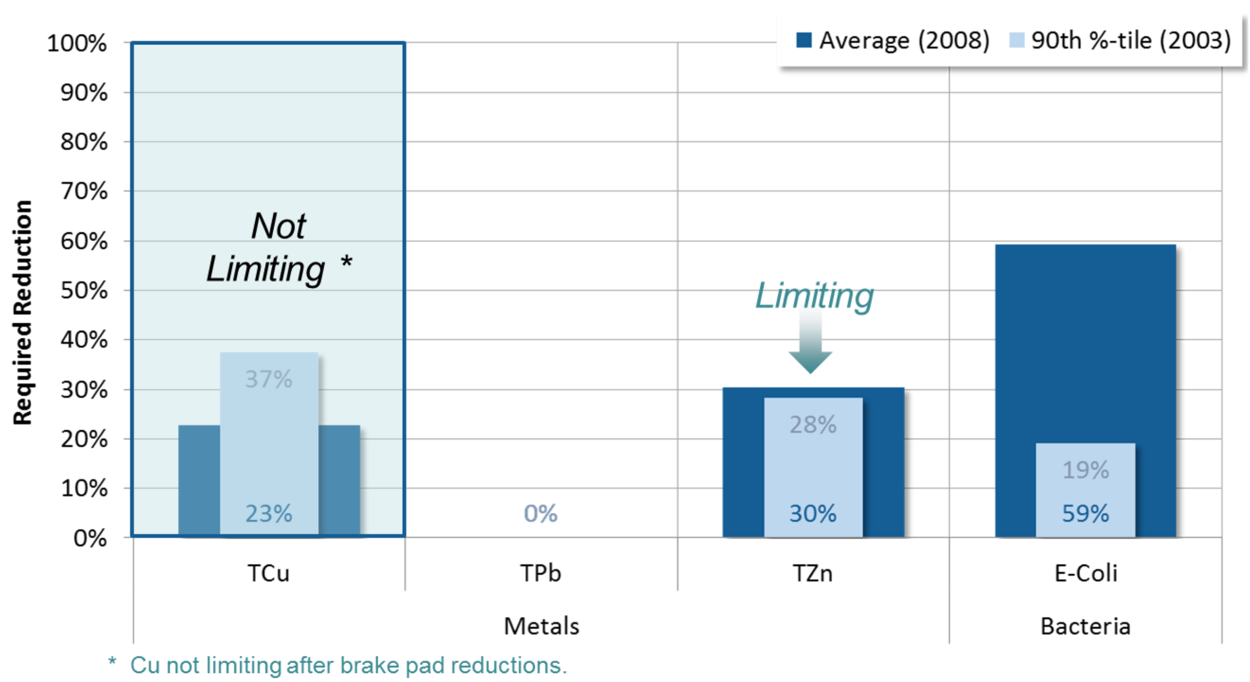

Figure 5-15. Wet-weather pollutant reduction targets and limiting pollutant for Coyote Creek.

5.3.2. Dry-Weather Pollutant Reduction Targets

Using the representative dry-weather period of August 17 through September 30, as defined in Section 5.2.3, modeled instream flow was multiplied by the observed dry weather concentrations to get existing conditions loads, which are shown in Table 5-8. Likewise, target concentrations were also multiplied by modeled instream flow to get allowable load for each waterbody, which is shown in Table 5-9. Finally, Table 5-10 summarizes dry-weather reduction targets for each listed segment for both the average year and the 90th percentile year.

For dry weather, bacteria is the limiting pollutant (not zinc) because the required reductions are much higher than other pollutants. Reductions of bacteria during WMP implementation will drive reductions of other pollutants.

Table 5-8. Modeled existing condition dry-weather loads by water body

Existing Condition		Dry Weather Flow (cfs)		Existing Load (kg/day or MPN/day)		
Waterbody	**Pollutant**	**2003**	**2008**	**2003**	**2008**	**Mean**
LAR Reach 1 (freshwater)	Cu ug/L	99.97	65.63	6.28	4.12	5.20
LAR Reach 1 (freshwater)	Pb ug/L	99.97	65.63	0.84	0.55	0.69
LAR Reach 1 (freshwater)	*E. coli* MPN/100ml	99.97	65.63	4.79E+13	3.15E+13	3.97E+13
LCC	Cu ug/L	4.65	2.20	0.29	0.14	0.21
LCC	*E. coli* MPN/100ml	4.65	2.20	1.62E+12	7.64E+11	1.19E+12
SG Reach 1	Cu ug/L	69.04	75.36	5.05	5.51	5.28
SG Reach 1	*E. coli* MPN/100ml	69.04	75.36	3.70E+12	4.04E+12	3.87E+12
San Jose Cr. Reach 1 & 2	Se ug/L	12.54	19.62	0.06	0.09	0.07
San Jose Cr. Reach 1 & 2	*E. coli* MPN/100ml	12.54	19.62	6.72E+11	1.05E+12	8.62E+11
Coyote Cr.	Cu ug/L	19.65	15.69	1.37	1.10	1.23
Coyote Cr.	*E. coli* MPN/100ml	19.65	15.69	5.53E+12	4.41E+12	4.97E+12

Table 5-9. Allowable TMDL dry-weather loads by water body

Existing Condition		Dry Weather Flow (cfs)		Allowable Load (kg/day or MPN/day)		
Waterbody	Pollutant	2003	2008	2003	2008	Mean
LAR Reach 1 (freshwater)	Cu ug/L	99.97	65.63	5.63	3.69	4.66
LAR Reach 1 (freshwater)	Pb ug/L	99.97	65.63	2.94*	1.93*	2.43*
LAR Reach 1 (freshwater)	*E. coli* MPN/100ml	99.97	65.63	3.08E+11	2.02E+11	2.55E+11
LCC	Cu ug/L	4.65	2.20	0.07	0.07	0.07
LCC	*E. coli* MPN/100ml	4.65	2.20	1.43E+10	6.78E+09	1.06E+10
SG Reach 1	Cu ug/L	69.04	75.36	3.04	3.32	3.18
SG Reach 1	*E. coli* MPN/100ml	69.04	75.36	2.13E+11	2.32E+11	2.23E+11
San Jose Cr. Reach 1 & 2	Se ug/L	12.54	19.62	0.15*	0.24*	0.20*
San Jose Cr. Reach 1 & 2	*E. coli* MPN/100ml	12.54	19.62	3.87E+10	6.05E+10	4.96E+10
Coyote Cr.	Cu ug/L	19.65	15.69	0.94	0.94	0.94
Coyote Cr.	*E. coli* MPN/100ml	19.65	15.69	6.06E+10	4.48E+10	5.45E+10

*Existing dry-weather loads are currently below the allowable loads thus showing compliance for this pollutant.

Table 5-10. Required dry-weather percent reductions by water body

WMP	Waterbody	Pollutant	Required Dry-Weather Percent Reductions		
			2003	2008	Mean
LLAR	LAR Reach 1 (freshwater)	Cu	10%	10%	10%
	LAR Reach 1 (freshwater)	Pb	0%	0%	0%
	LAR Reach 1 (freshwater)	*E. coli*	99.36%	99.36%	99.36%
LCC	LCC	Cu	76.74%	50.85%	68.43%
	LCC	*E. coli*	99.11%	99.11%	99.11%
LSGR	Coyote Cr.	Cu	31.42%	14.11%	23.73%
	Coyote Cr.	*E. coli*	98.90%	98.90%	98.90%
	SG Reach 1	Cu	39.78%	39.78%	39.78%
	SG Reach 1	*E. coli*	94.25%	94.25%	94.25%
	San Jose Cr. Reach 1 & 2	Se	0%	0%	0%
	San Jose Cr. Reach 1 & 2	*E. coli*	94.25%	94.25%	94.25%

Color Ramp shows relative magnitude of reductions—darker means higher reductions

6. Determination of Potential BMP Capacity for RAA

The process for determining the necessary cumulative BMP capacity depends on the type of numeric goal being addressed. As shown in Figure 6-1, the volume-based (design storm) approach, necessary BMP capacity was determined through a design storm analysis. For the load-based (pollutant reduction), the analysis leveraged the optimization routines in the customized WMMS. An initial step in the RAA was a comparison of the volume reductions required by the load-based and volume-based numeric goals, to support selection of the wet weather critical conditions.

For LLAR, LCC, and LSGR, the 90th percentile WY (2002-03) weather was selected as the critical condition for wet weather.

Details on the analyses performed to determine potential BMP treatment capacity are provided in Attachment A. The attachment describes the approach for incorporating nonstructural BMPs, accounting for the effect of LACFCD infrastructure, and separating the contribution from non-MS4 sources.

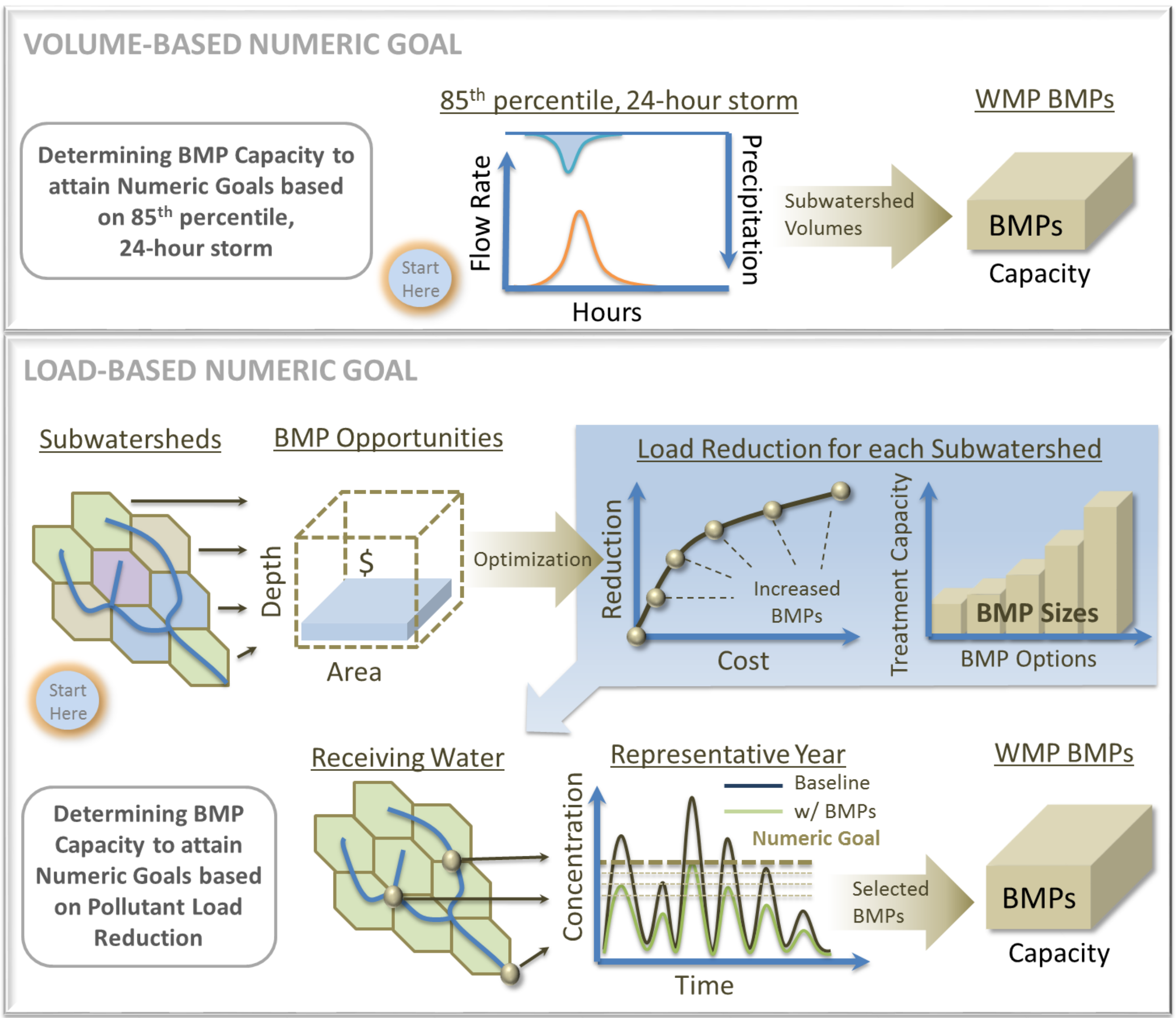

Figure 6-1. Illustration of Process for Determining Required BMP Capacities for the WMP using Volume-Based (top panel) and Load-Based (bottom panel) Numeric Goals.

7. Cumulative Volume Reduction Goals to Achieve Required Pollutant Reductions

The first output of the RAA is a series of "volume reduction goals" for each subwatershed and jurisdiction in the WMP area. WMMS was used to determine the stormwater retention volumes for each subwatershed that would achieve the required load reductions, as reported in this section. These calculated runoff reduction volumes for each subwatershed are a surrogate compliance metric for the responsible agencies. It should be noted that upon implementation, opportunities may arise where flow-through BMPs may provide similar ultimate pollutant load reduction, and may replace the need to implement volume-based reduction BMPs.

These volumes also form the basis for selection of BMPs to achieve those volume reductions, as described in Section 9 and Attachment A.

7.1. Volume Reductions for Structural BMPs

Structural BMPs were modeled using the assumptions outlined in Attachment A. BMP capacities were optimized across the entire study area to achieve the final milestone pollutant reduction requirements at each of the assessment points. Instead of summarizing optimization results in terms of BMP capacity, which is really specific to the network described in Attachment A, the results were summarized as required *annual* wet-weather retention volume (in acre-feet). This provides a volumetric basis that is (1) closely related to load reduction and (2) readily transferable as a control target for parallel BMP modeling at a finer resolution. Because the volumes were isolated to wet days, it is also not skewed by dry-weather runoff retention. The following subsections provide more details about the wet- and dry-weather analysis components.

7.1.1. Wet Weather

Using the structural BMP routing network in WMMS (described in Attachment A), the required *annual* wet-weather retention volume (in acre-feet) were calculated using the critical year time series. For milestones, the percent reduction was based on average year targets while final limits were based on critical year targets. The reported annual volumes are (1) based on required load reductions and (2) ready for BMP modeling at a finer resolution. A 10 percent load reduction was assumed to result from implementation of all nonstructural control measures outlined in the WMPs, setting the foundation of WMP implementation, and structural control measures provide additional load reduction.

Table 7-1 through Table 7-4 present incremental and cumulative retention volumes required to achieve each load reduction milestone by jurisdiction. The milestones are based on the metals TMDLs as described in Section 2. In order to calculate the incremental volume reductions for each milestone, optimization was performed for each jurisdiction to (1) emphasize BMP implementation in subwatersheds that volume reduction could most cost effectively reduce pollutants and (2) establish a cost-effective sequence of subwatersheds for each jurisdiction to achieve the milestones over time. In other words, WMMS was used to develop an implementation schedule that provides early gains in receiving water quality.

Table 7-1. Annual volume reduction goals to achieve interim and final milestones for Lower Los Angeles River WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Downey	31%	143.8	143.8
	50%	221.7	365.5
	Final	360.5	726.0
Lakewood	31%	14.3	14.3
	50%	0.0	14.3
	Final	0.0	14.3
Long Beach	31%	540.7	540.7
	50%	1090.8	1,631.5
	Final	2270.1	3,901.7
Lynwood	31%	303.3	303.3
	50%	185.2	488.6
	Final	619.6	1,108.1
Paramount	31%	181.8	181.8
	50%	227.8	409.6
	Final	579.2	988.8
Pico Rivera	31%	365.3	365.3
	50%	0.0	365.3
	Final	12.0	377.3
Signal Hill	31%	32.8	32.8
	50%	106.6	139.4
	Final	58.4	197.9
South Gate	31%	229.3	229.3
	50%	343.2	572.6
	Final	940.0	1,512.6

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less

2: Includes full implementation of planned non-structural practices

Table 7-2. Annual volume reduction goals to achieve interim and final milestones for Los Cerritos Channel WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Bellflower	10%	NS	NS
	35%	336.1	336.1
	Final	801.3	1,137.4
Cerritos	10%	NS	NS
	35%	9.7	9.7
	Final	3.2	12.9
Downey	10%	NS	NS
	35%	77.0	77.0
	Final	35.8	112.8
Lakewood	10%	NS	NS
	35%	282.4	282.4
	Final	874.8	1,157.2
Long Beach	10%	NS	NS
	35%	560.9	560.9
	Final	2115.2	2,676.1
Paramount	10%	NS	NS
	35%	278.8	278.8
	Final	353.1	631.9
Signal Hill	10%	NS	NS
	35%	269.9	269.9
	Final	52.7	322.6

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

Table 7-3. Annual volume reduction goals to achieve interim and final milestones for Lower San Gabriel River WMP

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Artesia	10%	NS	NS
	35%	1.1	1.1
	Final	0.0	1.1
Bellflower	10%	NS	NS
	35%	1.3	1.3
	Final	61.5	62.8
Cerritos	10%	NS	NS
	35%	6.6	6.6
	Final	52.8	59.4
Diamond Bar	10%	NS	NS
	35%	0.3	0.3
	Final	32.8	33.0
Downey	10%	NS	NS
	35%	4.3	4.3
	Final	259.6	263.9
Lakewood	10%	NS	NS
	35%	7.4	7.4
	Final	2.2	9.6
Long Beach	10%	NS	NS
	35%	26.9	26.9
	Final	2.3	29.2
Norwalk	10%	NS	NS
	35%	0.8	0.8
	Final	136.1	136.9
Pico Rivera	10%	NS	NS
	35%	0.2	0.2
	Final	74.8	75.1
Santa Fe Springs	10%	NS	NS
	35%	0.0	0.0
	Final	106.0	106.0
Whittier	10%	NS	NS
	35%	0.0	0.0
	Final	7.5	7.5

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

Table 7-4. Annual volume reduction goals to achieve interim and final milestones for the Coyote Creek portion of Lower San Gabriel River WMP by jurisdiction

Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)		
	Milestone	Incremental	Cumulative[1]
Artesia	10%	NS	NS
	35%	47.9	47.9
	Final	0.0	47.9
Cerritos	10%	NS	NS
	35%	0.1	0.1
	Final	194.2	194.3
Diamond Bar	10%	NS	NS
	35%	1.0	1.0
	Final	73.0	74.0
Hawaiian Gardens	10%	NS	NS
	35%	27.0	27.0
	Final	3.4	30.4
La Mirada	10%	NS	NS
	35%	0.8	0.8
	Final	174.9	175.7
Lakewood	10%	NS	NS
	35%	17.5	17.5
	Final	8.2	25.7
Long Beach	10%	NS	NS
	35%	37.5	37.5
	Final	0.0	37.5
Norwalk	10%	NS	NS
	35%	3.0	3.0
	Final	149.5	152.5
Santa Fe Springs	10%	NS	NS
	35%	0.4	0.4
	Final	260.3	260.7
Whittier	10%	NS	NS
	35%	2.1	2.1
	Final	252.6	254.7

1: Color Ramp highlights relative amount of required retention volume for milestones: darker is more, lighter is less
NS: Non-structural practices achieve 10% milestone

7.1.2. Dry Weather

Dry-weather reductions from non-structural BMPs were calculated using flow from representative dry period (Section 5.2) of 8/17/2003 through 9/30/2003 and 90th percentile concentrations calculated from observed data (Section 5.2.1). Similar to wet weather, a 10% load reduction is assumed to result from the cumulative effect of nonstructural BMPs. Also, the effects of a 25% reduction in irrigation of urban grass was explicitly simulated in the model to estimate the resulting associated reduction of dry weather flows at the RAA Assessment Points. Irrigation was modeled as artificial rainfall within the LSPC model as a function of the potential evapotranspiration of urban grass. Once irrigation was reduced 25%, this directly impacted a large portion of the nonstormwater discharges drivin primarily from over irrigation and impacts on dry weather flows were significant. The projected effect of non-structural and irrigation controls on dry weather flow and loads is presented in Table 7-5. Since *E. Coli* is the limiting dry weather pollutant with required reductions in excess of 90%, the remaining volume reduction not controlled by non-structural measures will be treated by the structural BMPs described in the previous section.

Table 7-5. Projected dry weather reductions from non-structural control measures

Watershed	Constituent	Quantity (Volume or Mass)			Percent Reduction Achieved	
		Baseline	NM	NS	NM	NS
Lower Los Angeles River	Flow (M Gal.)	198.3	178.5	86.6	10.0%	56.4%
	Copper (kg)	19.28	17.35	8.42	10.0%	56.4%
	Lead (kg)	2.58	2.32	1.12	10.0%	56.4%
	E. Coli (Billion MPN)	147,166	132,449	64,230	10.0%	56.4%
Los Cerritos Channel	Flow (M Gal.)	133.6	120.2	56.3	10.0%	57.8%
	Copper (kg)	12.84	11.56	5.42	10.0%	57.8%
	E. Coli (Billion MPN)	71,808	64,627	30,277	10.0%	57.8%
Lower San Gabriel River	Flow (M Gal.)	163.3	147.0	71.2	10.0%	56.4%
	Copper (kg)	18.48	16.63	8.06	10.0%	56.4%
	Selenium (kg)	2.95	2.65	1.29	10.0%	56.4%
	E. Coli (Billion MPN)	13,540	12,186	5,903	10.0%	56.4%
Coyote Creek	Flow (M Gal.)	213.4	192.0	88.4	10.0%	58.6%
	Copper (kg)	23.05	20.75	9.55	10.0%	58.6%
	E. Coli (Billion MPN)	92,887	83,599	38,491	10.0%	58.6%

NM: Non-modeled non-structural practices achieve 10% reduction

NS: Non-structural 25% irrigation reduction practices achieve an additional approximately 60% reduction

8. MS4 Volume Reduction Goals to Achieve Required Pollutant Reductions

Each jurisdiction in the Group's WMP area is subject to stormwater runoff from non-MS4 facilities. In particular, Caltrans roads and facilities regulated by nontraditional or general industrial permits contribute to the runoff volume for each subwatershed. It will be important for these entities to retain their runoff and/or eliminate their cause/contribution to receiving water exceedances. The runoff from these non-MS4 facilities was therefore estimated and subtracted from the cumulative volume reduction goal (Section 7) to establish the MS4 responsible targets as described in Attachment A.

8.1. Summary of MS4 Responsible Reduction Goals

Runoff volumes estimated for non-MS4 permitted areas and Caltrans were subtracted from the reduction target to generate the required MS4 treatment capacity shown in Table 8-1 through Table 8-4.

Table 8-1. Lower Los Angeles River Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

	COMPLIANCE TARGET – FINAL MILESTONE		
Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Downey	726.0	654.7	71.2
Lakewood	14.3	14.3	-
Long Beach	3,901.7	3,039.6	862.1
Lynwood	1,108.1	667.9	440.2
Paramount	988.8	606.1	382.7
Pico Rivera	377.3	287.2	90.0
Signal Hill	197.9	188.9	9.0
South Gate	1,512.6	1,174.3	338.2
TOTAL	8,826.5	6,633.1	2,193.5

Table 8-2. Los Cerritos Channel Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

	COMPLIANCE TARGET – FINAL MILESTONE		
Jurisdiction	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Bellflower	1,137.4	990.4	147.0
Cerritos	12.9	12.9	0.0
Downey	112.8	93.0	19.8
Lakewood	1,157.2	1,152.1	5.1
Long Beach	2,676.1	1,629.8	1,046.2
Paramount	631.9	525.5	106.4
Signal Hill	322.6	284.3	38.3
TOTAL	6,050.9	4,688.0	1,364.8

Table 8-3. San Gabriel River Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

Jurisdiction	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Artesia	1.1	1.1	0.0
Bellflower	62.8	57.4	5.4
Cerritos	59.4	4.1	55.3
Diamond Bar	33.0	1.1	32.0
Downey	263.9	87.3	176.7
Lakewood	9.6	2.2	7.4
Long Beach	29.2	29.2	0.0
Norwalk	136.9	4.8	132.1
Pico Rivera	75.1	60.4	14.7
Santa Fe Springs	106.0	30.3	75.8
Whittier	7.5	7.1	0.4
TOTAL	784.6	284.9	499.7

Table 8-4. Coyote Creek Critical Year Runoff Volume from MS4 and Non-MS4 Facilities

Jurisdiction	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
Artesia	47.9	15.9	32.0
Cerritos	194.3	56.7	137.6
Diamond Bar	74.0	36.7	37.4
Hawaiian Gardens	30.4	27.1	3.4
La Mirada	175.7	124.9	50.8
Lakewood	25.7	19.7	6.0
Long Beach	37.5	0.0	37.5
Norwalk	152.5	52.5	99.9
Santa Fe Springs	260.7	12.6	248.1
Whittier	254.7	200.1	54.6
TOTAL	1,253.4	546.1	707.3

9. Pollutant Reduction Plan

The BMPs used to achieve the MS4 volume reduction goals in Section 8 are not, per se, a component of the Permit compliance determination. Instead, over time each agency will report and demonstrate that the *cumulative* effect of projects implemented over time add up to the required reductions for interim milestones and final targets (reported as "MS4 Compliance Target"). However, the initial scenario of BMPs for WMP implementation (referred to as a Pollutant Reduction Plan in the RAA Guidelines) and their costs may be the most beneficial outcome of the WMP. A detailed WMP implementation scenario is presented in Attachment B, broken down by jurisdiction and subwatershed. The volume reductions are separated among right-of-way (ROW) BMPs and Low Impact Development (LID) on public parcels (in combination with nonstructural BMPs).

The Pollutant Reduction Plan is considered an "initial" scenario because over time, through adaptive management, the responsible agencies will likely "shift" among different types of BMPs (e.g., increase implementation of green streets and reduce implementation of regional BMPs) or substitute alterative BMPs altogether (e.g., implement dry wells instead of green streets). These shifts will be supported by analyses to show the substituted BMPs provide an equivalent volume reduction as the replaced BMPs.

9.1. Existing/Planned Regional Control Measures

Existing regional BMPs play an integral part in measuring the current reductions and need for future control measures. The annual volume or load removed from the existing and planned regional control measures were subtracted from the MS4 responsible runoff to determine the remaining treatment volume required. Detailed information for the existing and planned regional control measures is found in Attachment A.

The existing and planned regional control measure information was provided for the Lower Los Angeles River and Lower San Gabriel River. The jurisdictions that were impacted are listed with the associated annual reduction provided by these facilities in Table 9-1 and Table 9-2.

Table 9-1. Lower Los Angeles River Critical Year Existing/Planned Regional BMP Runoff Volume Reductions

	COMPLIANCE TARGET		
Jurisdiction	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Existing/Planned Regional BMP Reductions (acre-ft/year)	Remaining MS4 Responsible Critical Year Storm Volume (acre-ft/year)
Lakewood	14.3	6.4	7.9
Long Beach	3,039.6	633.4	2,406.2
Signal Hill	188.9	22.7	166.2

Table 9-2. Lower San Gabriel River Critical Year Existing/Planned Regional BMP Runoff Volume Reductions

	COMPLIANCE TARGET		
Jurisdiction	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Existing/Planned Regional BMP Reductions (acre-ft/year)	Remaining MS4 Responsible Critical Year Storm Volume (acre-ft/year)
Downey	87.3	24.0	63.3

9.2. Future Control Measures for Attainment of Interim and Final Limits

The Pollutant Reduction Plans for wet and dry weather illustrate the sequencial BMP implementation strategy to attain all interim and final limits. Within each of the jurisdictions, the subwatershed subareas were individually prioritized and associated with milestones on the basis of cost-effectiveness for zinc removal. The optimization modeling results presented in Section 7 and Figure 9-1, Figure 9-2 and Figure 9-3 shown below identify the prioritization of subwatershed implementation based on the most effective combination of BMPs. The implementation schedule outlined in the Pollutant Reduction Plans for wet and dry weather are based upon this prioritization. The plans are presented in the following subsections.

9.2.1. Wet Weather

The interim and final targets are presented in total acre-feet per year that requires treatement through structural BMPs (less the non-MS4 and existing regional volumes as described in Sections 8 and 9.1). To properly capture the annual volume, BMPs are sized to the minimum volume needed to capture the target annual volume. Thus, the BMPs are presented as a volume (acre-feet) that has the ability to capture the required annual total to meet compliance.

An overall jurisdictional summary table is presented in Table 9-3 that outlines the required BMP volume to achieve compliance in the associated WMP group. The BMP volumes are the sum of existing distributed BMPs, potential green street BMPs, LID on public parcels, and remaining BMP volume that must be implemented as regional (or other) projects as necessary to meet the annual volume reduction target.

Table 9-4 through Table 9-7 outlines the jurisdiction-wide BMP volume targets necessary to meet the annual volume interim and final limits established in Section 8. Each distributed BMP was associated with a jurisdictional subwatershed and the associated implementation schedule, thus summing their impact across different interim goals. The remaining BMP volume after accounting for existing distributed BMPs is spread across right-of-way BMPs, LID on public parcels, and remaining BMP volume including potential regional projects. Priority was given to LID on public parcels, followed by right-of-way BMPs and finally other BMPs. The incremental column shows the total additional BMP volume required for each milestone while the cumulative measures the total BMP volume required by each milestone to hit the final compliance targets. Deatiled discussion on how the BMPs in the right-of-way and LID on public parcels were determined is found in Attachment A. Detailed tables are provided in Attachment B for each jurisdiction and associated subwatersheds. Detailed tables describing the existing distributed BMPs are found in Attachment D.

Table 9-3. Jurisdictional Final Target BMP Volumes by WMP Group

	LLAR	LCC	LSGR - SGR	LSGR - CC	
Jurisdiction	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**Total BMP Volume to Achieve Compliance (acre-ft)**	**TOTAL**
Artesia	-	-	0.1	1.1	**1.2**
Bellflower	-	118.2	5.5	-	**123.7**
Cerritos	-	1.6	0.6	6.4	**8.6**
Diamond Bar	-	-	0.2	8.9	**9.1**
Downey	83.4	10.2	17.5	-	**111.2**
Hawaiian Gardens	-	-	-	2.2	**2.2**
La Mirada	-	-	-	15.2	**15.2**
Lakewood	1.2	169.5	0.4	1.9	**173.0**
Long Beach	319.1	208.7	2.7	0.0	**530.5**
Lynwood	95.5	-	-	-	**95.5**
Norwalk	-	-	0.3	4.7	**5.0**
Paramount	76.6	55.1	-	-	**131.7**
Pico Rivera	41.2	-	10.8	-	**52.0**
Santa Fe Springs	-	-	4.9	2.1	**7.0**
Signal Hill	22.3	28.6	-	-	**50.9**
South Gate	173.0	-	-	-	**173.0**
Whittier	-	-	1.4	39.1	**40.5**
TOTAL	**812.3**	**591.9**	**44.4**	**81.6**	**1,530.2**

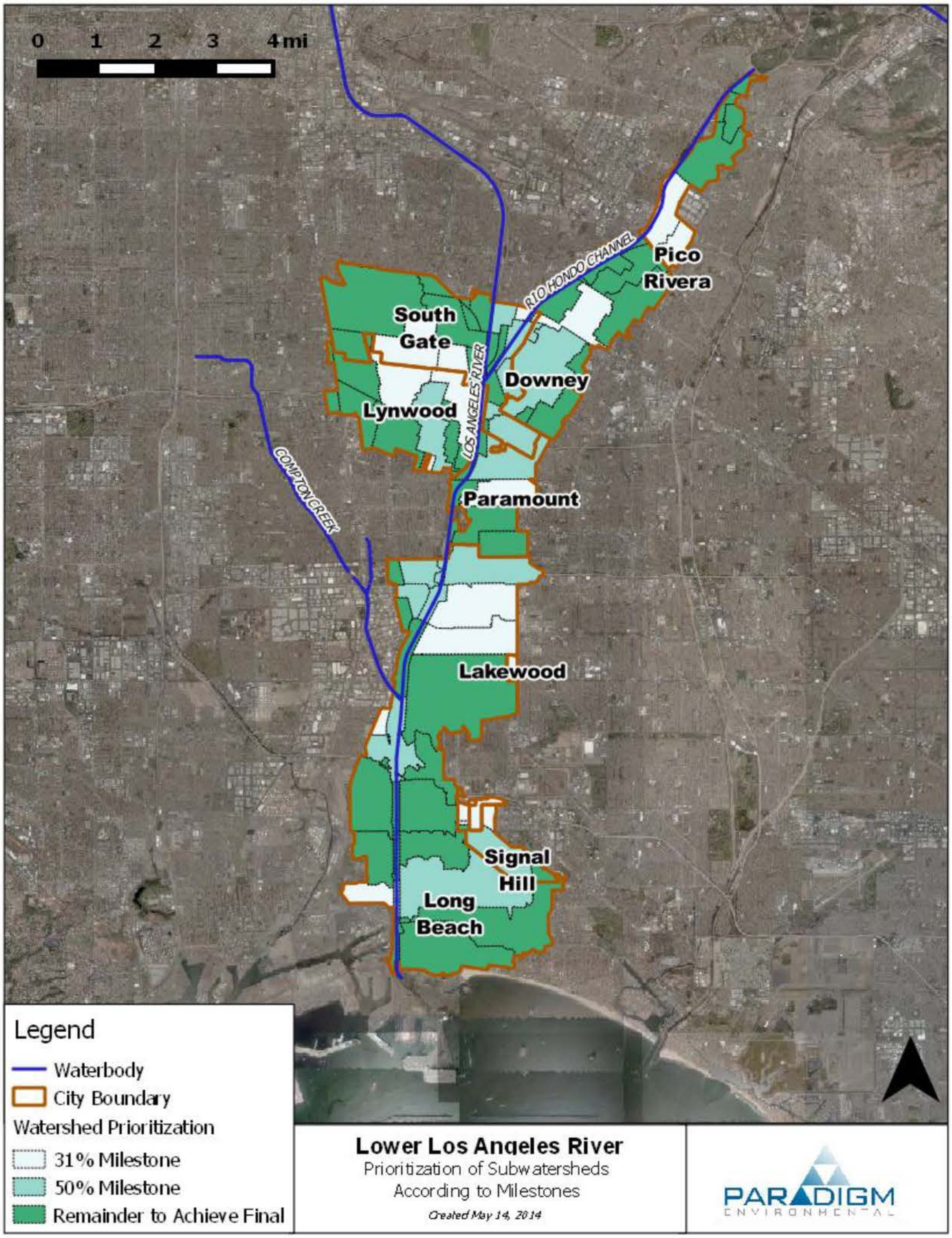

Figure 9-1. LLAR implementation areas associated with Interim and final milestones.

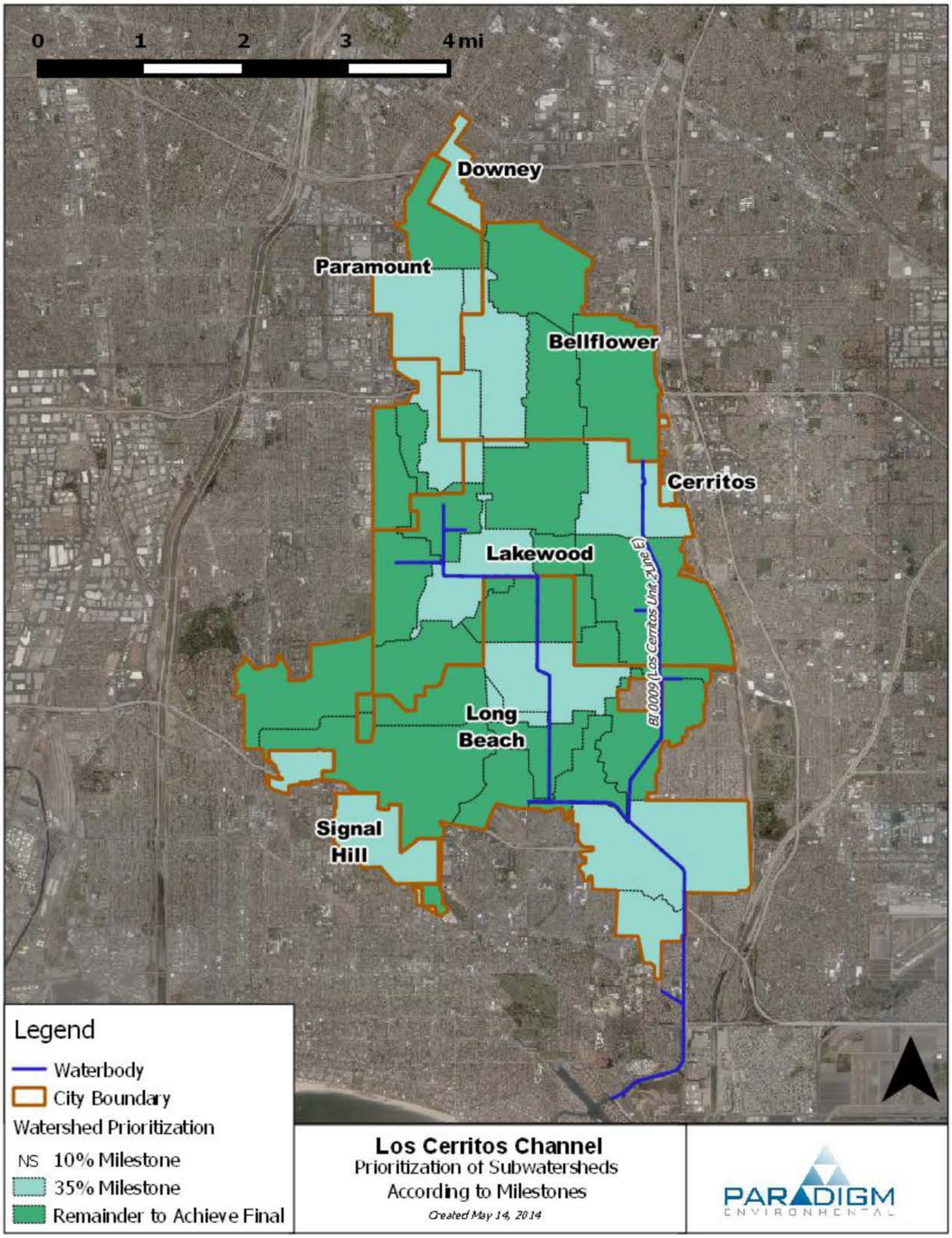

Figure 9-2. LCC implementation areas associated with Interim and final milestones.

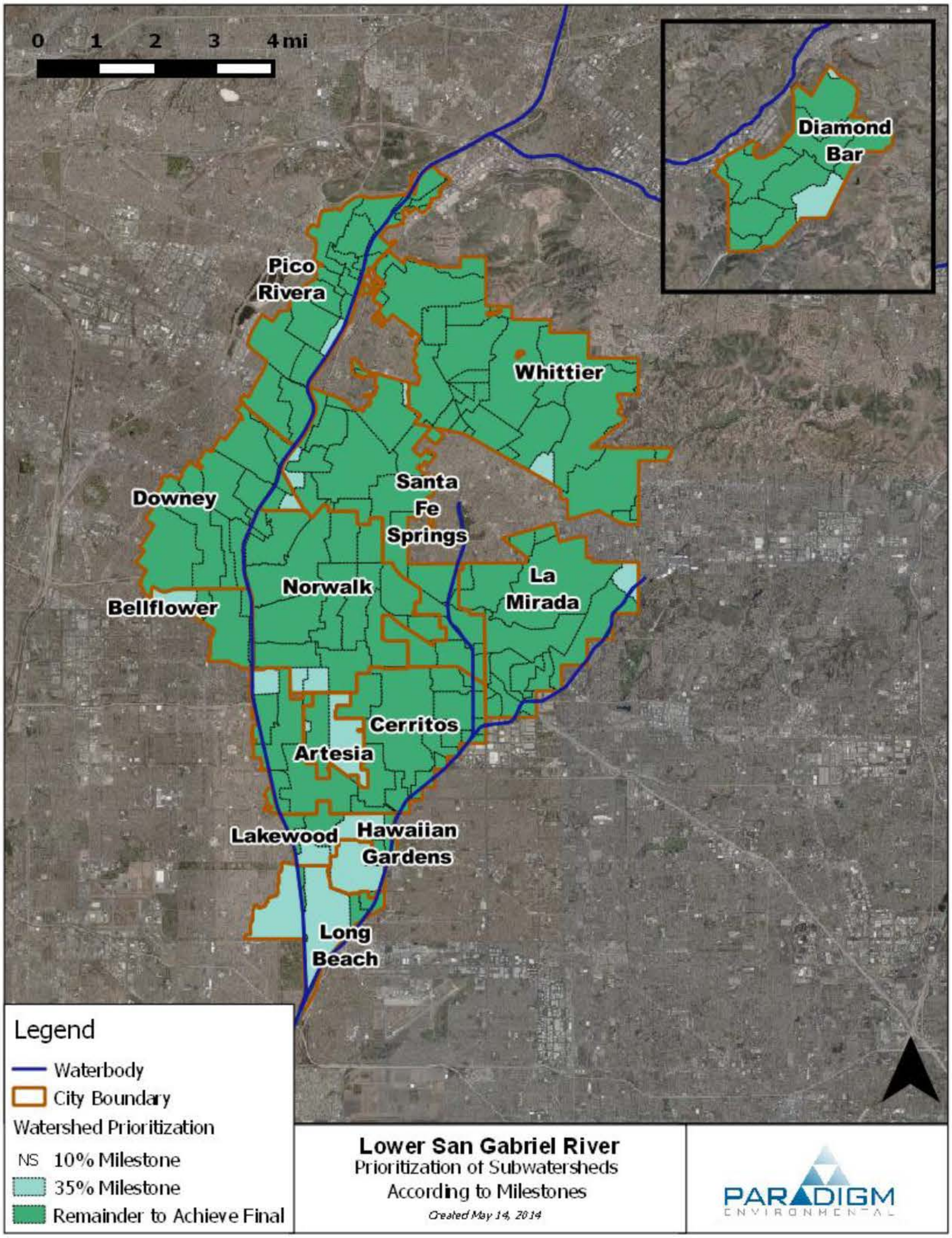

Figure 9-3. LSGR implementation areas associated with Interim and final milestones.

Table 9-4. Lower Los Angeles River Pollutant Reduction Plan for Attainment of Interim and Final Limits

		COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
Jurisdiction	Milestone	Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Downey	31%	143.8	143.8	1.1	12.2	12.2	0.7	0.7	7.1	7.1
	50%	187.1	330.9	0.7	2.5	14.7	10.1	10.8	0.6	7.7
	Final	323.9	654.7	2.0	31.2	45.9	4.4	15.3	10.7	18.4
Lakewood	31%	7.9	7.9	NA	1.1	1.1	0.0	0.0	-	-
	50%	-	7.9		-	1.1	-	0.0	-	-
	Final	-	7.9		-	1.1	-	0.0	-	-
Long Beach	31%	6.5	6.5	NA	1.0	1.0	0.0	0.0	-	-
	50%	567.0	573.5		40.3	41.3	7.5	7.5	24.7	24.7
	Final	1,832.7	2,406.2		113.4	154.6	20.8	28.3	111.5	136.2
Lynwood	31%	235.9	235.9	NA	18.4	18.4	2.7	2.7	13.1	13.1
	50%	134.9	370.8		12.8	31.2	3.8	6.5	0.1	13.2
	Final	297.2	667.9		22.7	53.9	4.5	11.1	17.3	30.5
Paramount	31%	163.7	163.7	0.1	9.0	9.0	1.7	1.7	10.2	10.2
	50%	65.7	229.4		7.4	16.4	0.8	2.5	0.3	10.4
	Final	376.6	606.1		14.9	31.2	2.1	4.7	30.2	40.6
Pico Rivera	31%	275.3	275.2	NA	11.5	11.5	0.5	0.5	27.4	27.4
	50%	-	275.2		-	11.5	-	0.5	-	27.4
	Final	12.0	287.2		1.3	12.8	0.0	0.5	0.5	27.9
Signal Hill	31%	8.5	8.5	0.2	0.8	0.8	0.2	0.2	0.2	0.2
	50%	105.8	114.3		7.0	7.8	0.9	1.1	5.9	6.1
	Final	51.9	166.2		2.2	10.0	0.0	1.1	4.9	11.0
South Gate	31%	229.3	229.3	4.7	23.2	23.2	0.9	0.9	6.5	6.5
	50%	198.1	427.4		15.0	38.3	0.8	1.7	12.6	19.1
	Final	746.9	1,174.3		49.3	87.5	5.1	6.8	54.7	73.8

Table 9-5. Los Cerritos Channel Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Bellflower	10%	NS	NS		-	-	-	-	-	-
	35%	244.4	244.4	NA	15.1	15.1	1.2	1.2	16.2	16.2
	Final	746.0	990.4		43.0	58.1	3.2	4.5	39.4	55.6
Cerritos	10%	NS	NS		-	-	-	-	-	-
	35%	9.7	9.7	NA	1.0	1.0	0.0	0.0	0.5	0.5
	Final	3.2	12.9		-	1.0	-	0.0	0.1	0.6
Downey	10%	NS	NS		-	-	-	-	-	-
	35%	57.2	57.2	0.1	5.3	5.3	0.0	0.0	2.7	2.7
	Final	35.8	93.0		-	5.3	-	0.0	2.1	4.8
Lakewood	10%	NS	NS		-	-	-	-	-	-
	35%	282.4	282.4	NA	31.5	31.5	4.7	4.7	6.9	6.9
	Final	869.7	1,152.1		90.0	121.5	7.0	11.8	29.3	36.2
Long Beach	10%	NS	NS		-	-	-	-	-	-
	35%	473.5	473.5	NA	33.8	33.8	12.3	12.3	16.4	16.4
	Final	1,156.3	1,629.8		87.9	121.7	9.5	21.8	48.9	65.3
Paramount	10%	NS	NS		-	-	-	-	-	-
	35%	267.0	267.0	NA	14.3	14.3	3.0	3.0	17.1	17.1
	Final	258.5	525.5		8.5	22.8	3.5	6.4	8.7	25.8
Signal Hill	10%	NS	NS		-	-	-	-	-	-
	35%	231.6	231.6	0.0	11.2	11.2	1.2	1.2	14.2	14.2
	Final	52.7	284.3		-	11.2	-	1.2	2.0	16.2

NS: Non-structural practices achieve 10% milestone

NA: No information/not enough information provided

*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

Table 9-6. San Gabriel River Pollutant Reduction Plan for Attainment of Interim and Final Limits

		COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN						
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
Jurisdiction	Milestone	Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Artesia	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.1	1.1		-	-	0.1	0.1	-	-
	Final	-	1.1		-	-	-	0.1	-	-
Bellflower	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.3	1.3		0.2	0.2	0.0	0.0	-	-
	Final	56.1	57.4		1.5	1.8	3.7	3.7	0.0	0.0
Cerritos	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	4.1	4.1		0.6	0.6	0.0	0.0	-	-
Diamond Bar	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	1.1	1.1		0.2	0.2	-	-	-	-
Downey	10%	NS	NS		-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	63.3	63.3	7.1	10.0	10.0	0.4	0.4	-	-
Lakewood	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	2.2	2.2		0.2	0.2	0.0	0.0	0.1	0.1
Long Beach	10%	NS	NS	NA	-	-	-	-	-	-
	35%	26.9	26.9		1.1	1.1	1.3	1.3	-	-
	Final	2.3	29.2		0.3	1.4	-	1.3	0.0	0.0

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Norwalk	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.8	0.8		-	-	0.1	0.1	-	-
	Final	4.0	4.8		-	-	0.3	0.3	-	-
Pico Rivera	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.2	0.2		0.0	0.0	-	-	-	-
	Final	60.2	60.4		10.7	10.8	-	-	0.0	0.0
Santa Fe Springs	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	30.3	30.3		4.6	4.6	-	-	0.3	0.3
Whittier	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.0	0.0		-	-	-	-	0.0	0.0
	Final	7.1	7.1		1.4	1.4	-	-	-	0.0

NS: Non-structural practices achieve 10% milestone
NA: No information/not enough information provided
*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

Table 9-7. Coyote Creek Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET: Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		POLLUTANT REDUCTION PLAN: Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Artesia	10%	NS	NS	NA	-	-	-	-	-	-
	35%	15.9	15.9		-	-	1.1	1.1	-	-
	Final	-	15.9		-	-	-	1.1	-	-
Cerritos	10%	NS	NS	NA	-	-	-	-	-	-
	35%	0.1	0.1		0.0	0.0	-	-	-	-
	Final	56.6	56.7		3.0	3.1	3.4	3.4	-	-
Diamond Bar	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.0	1.0		0.3	0.3	-	-	-	-
	Final	35.6	36.7		8.0	8.2	-	-	0.7	0.7
Hawaiian Gardens	10%	NS	NS	NA	-	-	-	-	-	-
	35%	23.6	23.6		0.3	0.3	1.5	1.5	-	-
	Final	3.4	27.1		0.2	0.6	0.1	1.6	0.0	0.0
La Mirada	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	124.9	124.9		9.6	9.6	5.6	5.6	-	-
Lakewood	10%	NS	NS	NA	-	-	-	-	-	-
	35%	17.5	17.5		0.9	0.9	0.7	0.7	-	-
	Final	2.3	19.7		-	0.9	0.3	0.9	-	-
Long Beach	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	0.0	0.0		-	-	0.0	0.0	-	-

Jurisdiction	Milestone	COMPLIANCE TARGET		POLLUTANT REDUCTION PLAN							
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)		Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Norwalk	10%	NS	NS	NA	-	-	-	-	-	-
	35%	1.6	1.6		-	-	0.2	0.2	-	-
	Final	50.9	52.5		1.4	1.4	3.2	3.4	-	-
Santa Fe Springs	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	12.6	12.6		1.0	1.0	-	-	1.1	1.1
Whittier	10%	NS	NS	NA	-	-	-	-	-	-
	35%	-	-		-	-	-	-	-	-
	Final	200.1	200.1		39.0	39.0	-	-	0.0	0.0

NS: Non-structural practices achieve 10% milestone

NA: No information/not enough information provided

*Runoff from non-MS4 sources and reductions fro existing regional BMPs are excluded from compliance target (see Attachment A)

9.2.2. Dry Weather

Dry weather reductions are attained through a combination of non-structural practices and structural BMPs as they are implemented as part of the wet weather attainment of limits. As wet-weather BMPs are implemented, they serve to remove the dry-weather flows thus meeting the compliance set forth to achieve dry-weather reductions. As a summary of the dry weather analysis, Table 9-8 through Table 9-11 outline the jurisdiction-wide attainment of interim and final milestones for dry weather. The reduction from implemented BMPs compares the actual dry-weather reduction versus the compliance target.

Table 9-8. Lower Los Angeles River Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Downey	31%	30.8%	65.9%
	50%	49.7%	76.9%
	Final	99.4%	99.4%
Lakewood	31%	30.8%	99.4%
	50%	49.7%	99.4%
	Final	99.4%	99.4%
Long Beach	31%	30.8%	62.1%
	50%	49.7%	74.3%
	Final	99.4%	99.4%
Lynwood	31%	30.8%	71.8%
	50%	49.7%	80.2%
	Final	99.4%	99.4%
Paramount	31%	30.8%	51.0%
	50%	49.7%	72.4%
	Final	99.4%	99.4%
Pico Rivera	31%	30.8%	71.8%
	50%	49.7%	71.8%
	Final	99.4%	99.4%
Signal Hill	31%	30.8%	69.3%
	50%	49.7%	94.9%
	Final	99.4%	99.4%
South Gate	31%	30.8%	62.8%
	50%	49.7%	75.9%
	Final	99.4%	99.4%

Table 9-9. Los Cerritos Channel Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Bellflower	10%	9.9%	58.1%
	35%	34.7%	71.4%
	Final	99.1%	99.1%
Cerritos	10%	9.9%	56.4%
	35%	34.7%	99.1%
	Final	99.1%	99.1%
Downey	10%	9.9%	59.8%
	35%	34.7%	99.1%
	Final	99.1%	99.1%
Lakewood	10%	9.9%	55.6%
	35%	34.7%	69.6%
	Final	99.1%	99.1%
Long Beach	10%	9.9%	60.1%
	35%	34.7%	76.9%
	Fin al	99.1%	99.1%
Paramount	10%	9.9%	52.8%
	35%	34.7%	79.8%
	Final	99.1%	99.1%
Signal Hill	10%	9.9%	60.8%
	35%	34.7%	99.1%
	Final	99.1%	99.1%

Table 9-10. San Gabriel River Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Artesia	10%	9.4%	57.6%
	35%	33.0%	94.3%
	Final	94.25%	94.25%
Bellflower	10%	9.4%	49.9%
	35%	33.0%	57.6%
	Final	94.25%	94.25%
Cerritos	10%	9.4%	43.7%
	35%	33.0%	48.1%
	Final	94.25%	94.25%
Diamond Bar	10%	9.4%	58.2%
	35%	33.0%	58.8%
	Final	94.25%	94.25%
Downey	10%	9.4%	57.4%
	35%	33.0%	58.1%
	Final	94.25%	94.25%
Lakewood	10%	9.4%	43.1%
	35%	33.0%	73.7%
	Final	94.25%	94.25%
Long Beach	10%	9.4%	46.6%
	35%	33.0%	91.6%
	Final	94.25%	94.25%
Norwalk	10%	9.4%	54.8%
	35%	33.0%	55.7%
	Final	94.25%	94.25%
Pico Rivera	10%	9.4%	51.8%
	35%	33.0%	51.9%
	Final	94.25%	94.25%
Santa Fe Springs	10%	9.4%	54.4%
	35%	33.0%	57.9%
	Final	94.25%	94.25%
Whittier	10%	9.4%	57.9%
	35%	33.0%	58.0%
	Final	94.25%	94.25%

Table 9-11. Coyote Creek Dry Weather Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	Dry Weather *E. coli* Load Reduction	
		Compliance Target	Reduction from Implemented BMPs
Artesia	10%	9.9%	60.9%
	35%	34.6%	85.1%
	Final	98.9%	98.9%
Cerritos	10%	9.9%	56.3%
	35%	34.6%	56.3%
	Final	98.9%	98.9%
Diamond Bar	10%	9.9%	61.3%
	35%	34.6%	65.9%
	Final	98.9%	98.9%
Hawaiian Gardens	10%	9.9%	59.7%
	35%	34.6%	96.9%
	Final	98.9%	98.9%
La Mirada	10%	9.9%	57.4%
	35%	34.6%	58.7%
	Final	98.9%	98.9%
Lakewood	10%	9.9%	60.7%
	35%	34.6%	76.5%
	Final	98.9%	98.9%
Long Beach	10%	9.9%	54.5%
	35%	34.6%	91.9%
	Final	98.9%	98.9%
Norwalk	10%	9.9%	59.2%
	35%	34.6%	60.8%
	Final	98.9%	98.9%
Santa Fe Springs	10%	9.9%	51.7%
	35%	34.6%	52.0%
	Final	98.9%	98.9%
Whittier	10%	9.9%	60.7%
	35%	34.6%	61.4%
	Final	98.9%	98.9%

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Attachment A: DETERMINATION OF BMP TREATMENT CAPACITY

Submitted to:

LLAR WMP Group   LCC WMP Group   LSGR WMP Group

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January 15, 2015

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1. Determination of BMP Treatment Capacity

The process for determining the necessary cumulative BMP capacity depends on the type of numeric goal being addressed. As shown in Figure 1-1, the volume-based (design storm) approach, necessary BMP capacity was determined through a design storm analysis. For the load-based (pollutant reduction), the analysis leveraged the optimization routines in the customized WMMS. An initial step in the RAA was a comparison of the volume reductions required by the load-based and volume-based numeric goals, to support selection of the wet weather critical conditions.

This appendix describes key analyses conducted to determine the potential capacity of different BMPs including non-structural BMPs. In addition, it describes the approach for non-MS4 sources.

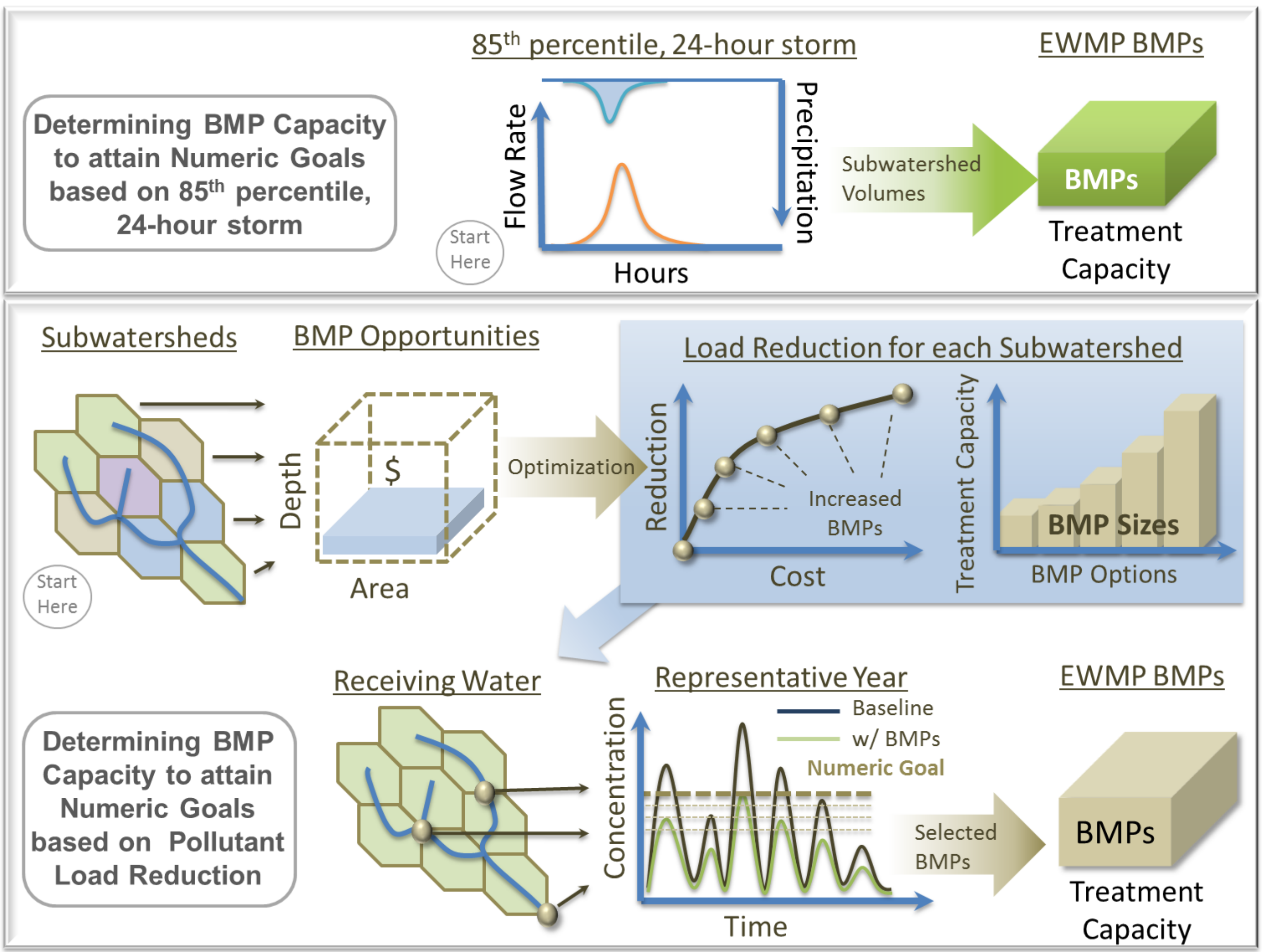

Figure 1-1. Illustration of Process for Determining Required BMP Capacities for the WMP using Volume-Based (top panel) and Load-Based (bottom panel) Numeric Goals.

1.1. Load Reduction Optimization Modeling Analysis

During development of WMMS, distributed BMPs were modeled at the subwatershed-scale using a generalized BMP treatment train. Depending on the land use type, different types of BMPs were applied. The three generalized BMP pathways were: (1) transportation, (2) residential, and (3) commercial/industrial/institutional. A conceptual schematic of the BMP network and pathways is presented in Figure 1-2 (LACDPW 2011).

For the RAA, subwatershed-scale SUSTAIN models were developed using the WMMS modeling assumptions. Each BMP from the treatment train described in Figure 1-2 was configured consistently with modeling performed during development of the WMMS system and followed the Regional Board RAA guidelines. A summary of key BMP parameters used for RAA modeling are presented in Table 1-1. Background infiltration rates were changed from those used during WMMS development (0.5 inches per hour) to site-specific infiltrations rates provided in the Los Angeles County Hydrology Manual and associated spatial datasets (LACDPW 2006). These rates also deviate somewhat from the values suggested in the RAA Guidelines (0.1 – 0.3 inches per hour); however, the data are locally-derived, published and reliable which provides adequate justification for their use.

First, SUSTAIN models were configured using the existing condition watershed model runoff timeseries and land use distributions as inputs, and benchmarked against the aggregated LSPC model results to establish baseline consistency. Second, using the SUSTAIN configuration with the respective BMP opportunities per pathway (as presented in Figure 1-2) in each subwatershed, optimization runs were formulated to maximize zinc reduction (i.e. the limiting target pollutant) while minimizing total estimated implementation cost. This resulted in a matrix of high-resolution cost-effectiveness curves for each subwatershed. Finally, a Tier-II optimization framework was configured to collectively optimize target load reductions at the downstream assessment point, with an added equitability constraint to ensure that each jurisdiction shared proportionally in the reduction effort. For the Tier-II optimization, instead of the decision variables being individual BMPs within a network like before, they were comprised of individual solutions taken off the cost-effectiveness curves at each subwatershed. The primary objective was to quantify the stormwater retention volume and load reductions provided by the collective actions occurring within each contributing jurisdiction tributary to the assessment point.

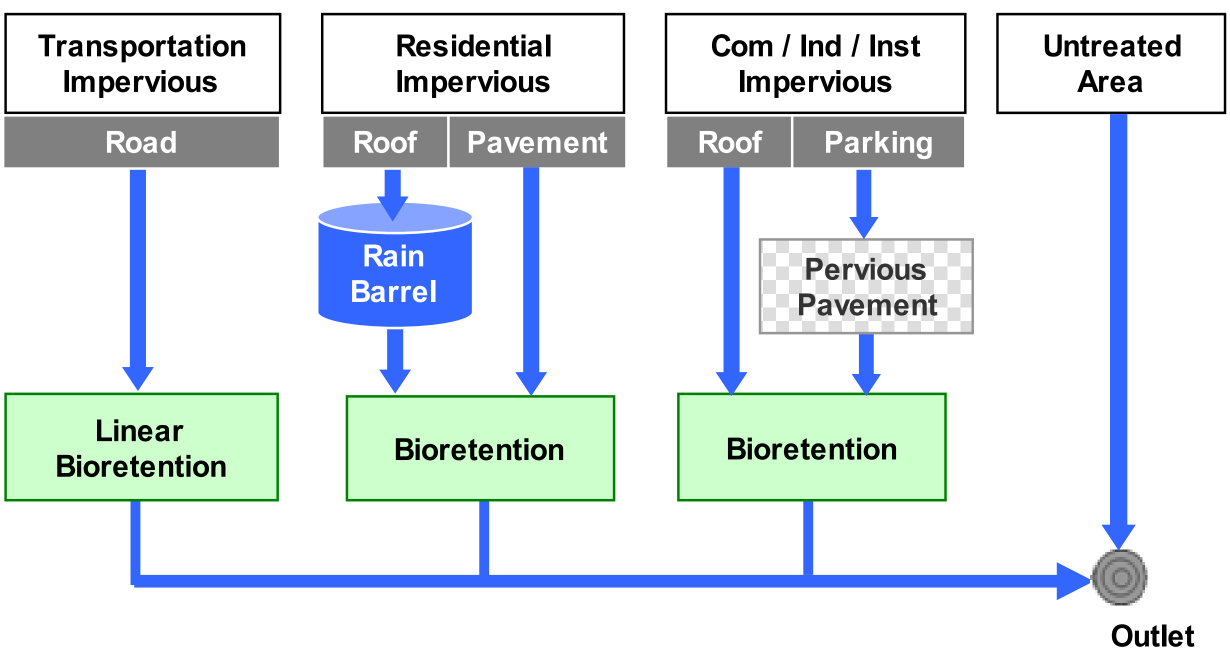

Figure 1-2. Conceptual schematic of the WMMS aggregate BMP treatment train (LACDPW 2011b).

Table 1-1. BMP parameters used in the load reduction modeling analysis

Constituent Group	Rain Barrel	Bioretention	Porous Pavement
Media Infiltration Rate (in/hr)	n/a	0.1 – 0.9	0.1 – 0.9
Substrate Layer Porosity (fraction)	n/a	0.4	0.4
Substrate Layer Field Capacity (fraction)	n/a	0.3	0.055
Substrate Layer Wilting Point (fraction)	n/a	0.1	0.05
Underdrain Gravel Porosity (fraction)	n/a	0.5	0.45
Vegetative Parameter, A (unitless)	n/a	0.6	1.0
Background Infiltration Rate (in/hr)	n/a	0.1 – 0.9	0.1 – 0.9
First Order Decay Rate (1/day)[1]	0.2 – 0.8	0.2 – 0.8	0.2 – 0.8
Underdrain Filtration Rate (%)[1]	n/a	0.5 – 0.9	0.5 – 0.9

1. Rates vary by pollutant and the type of BMP soil media

1.2. BMP Capacity Analysis for the Rights-of-Way

A key consideration for WMP implementation is the potential BMP capacity that could be provided by rights-of-way (ROW). In order to highlight the potential structural BMP implementation approaches to meet the volume targets, a BMP opportunity analysis was conducted. Two broad categories of BMPs – ROW BMPs and LID on public parcels – were used to describe the networks of BMPs needed to meet the target reductions.

This section describes how right-of-ways were evaluated for opportunities to locate BMPs and evaluate the key components that affect the ability of the ROW BMP networks to be effective: space available in the ROW, types of BMPs to site in the ROW, drainage areas that could potentially be treated by ROW BMPs, and estimated BMP infiltration rates.

Stormwater BMPs in the ROW are treatment systems arranged linearly within the street ROW and are designed to reduce runoff volumes and improve runoff water quality from the roadway and adjacent parcels. Implementing BMPs in the ROW provides an opportunity to meet water quality goals by locating BMPs in areas owned or controlled by a municipality to avoid the cost of land acquisition or establishing an easement. Implementing BMPs in the ROW allows for direct control of construction, maintenance, and monitoring activities by the responsible jurisdiction. Bioretention and permeable pavement are typically best suited for implementation in the ROW

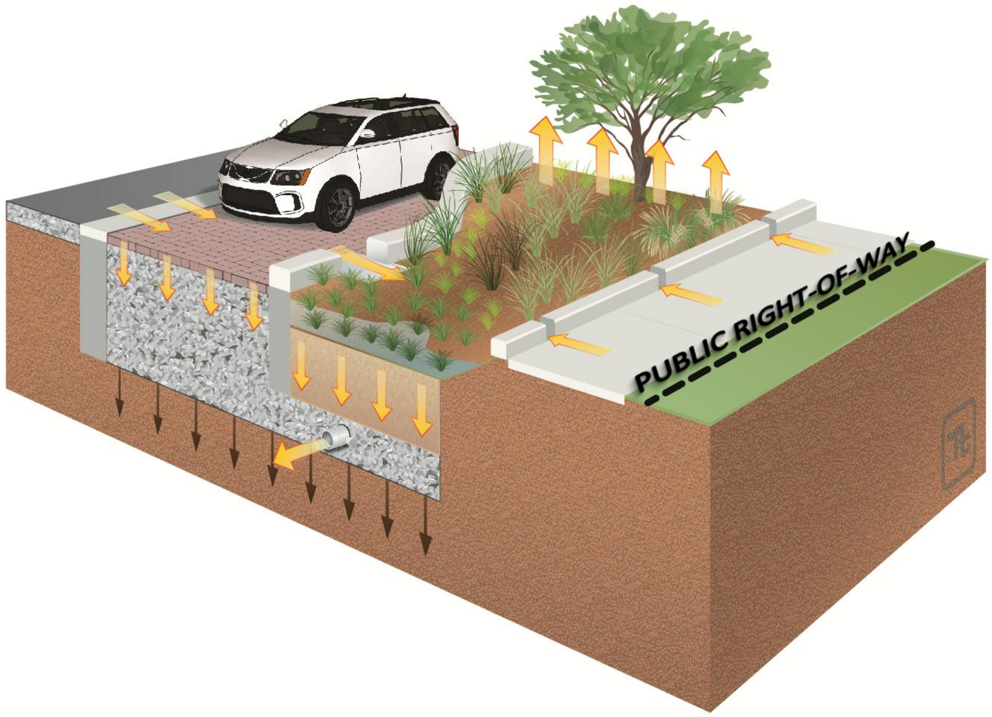

Figure 1-3. Conceptual schematic of ROW BMPs with an underdrain (Arrows indicate water pathways).

Not all roads are suited for ROW BMP retrofits; therefore, screening is required to eliminate roads where ROW BMP retrofits are impractical or infeasible due to physical constraints. While ROW BMP retrofits can be implemented in a variety of settings, the physical characteristics of the road itself such as the road type, local topography, and depth to groundwater can significantly influence the practicality of designing and constructing these features. A screening protocol was established to identify realistic opportunities for retrofits based on the best available GIS data. The opportunities identified during this process provide the foundation for the engineering analysis to determine the volume of stormwater that can be treated by ROW BMP retrofits in the subject watersheds. This section describes the data and the screening process used to identify the best available roads for ROW BMP retrofits.

1.2.1. Data Used

To evaluate BMP opportunities and available implementation areas, several key data sets were processed and formatted. Table 1-2 outlines the data set names, formats, descriptions, and sources.

Table 1-2. Summary of Data

Data Set	Format	Description	Source
Parcels	GIS Shapefile	Outlines property boundaries and sizes	Los Angeles County (LAC) Assessor
Roads	GIS Shapefile	Shows street centerline network & classification by Topologically Integrated Geographic Encoding and Reference (TIGER)	LAC GIS Portal
Land Use	GIS Shapefile	Subdivides the region into predefined land use categories with similar runoff properties. Each individual land use feature identifies the associated percent impervious coverage.	LAC WMMS Model
Subwatersheds	GIS Shapefile	Defines drainage areas to selected outlet points	LAC WMMS Model
Slopes	GIS Shapefile	Classifies regions by the slope category	LAC WMMS Model
Soils	GIS Shapefile	Outlines spatial extents of dominant soil types	LAC GIS Portal
Jurisdictions	GIS Shapefile	Establishes city and county boundaries	LAC GIS Portal
Drainage Network	GIS Shapefile	Identifies stormwater structure layout and conveyance methods	LAC GIS Portal
Groundwater Contours	GIS Shapefile	Illustrates groundwater depth as measured from the surface	LAC BOS
Soil Runoff Coefficient Curves	PDF File	Curves characterize effect of rainfall intensity on runoff coefficient per soil type	Hydrology Manual Appendix C (LADPW 2006)
Aerial Imagery	Layer File	Orthoimage of entire region	ESRI Maps & Data Imagery
Runoff Rates	Time Series	Hourly runoff for land uses for the continuous simulation model	LAC WMMS Model

1.2.2. ROW BMP Screening

High traffic volumes, speed limits, slopes, and groundwater tables, impact the feasibility of ROW BMP implementation. Road classification data contains information typically useful for determining if the street is subject to high traffic volumes and speeds, and Census TIGER road data provides the best available road classification information for the study area. Table 1-3 shows the Master Address File (MAF)/TIGER Feature Classification Codes (MTFCC) deemed appropriate for ROW BMP retrofit opportunities. Only roads with the MTFCCs listed in Table 1-3 can be considered for ROW BMP retrofits in this screening analysis. All other roads are screened out.

Table 1-3. ROW BMP MTFCC

MTFCC	Description
S1400	Local neighborhood road, rural road, city street
S1730	Alley
S1780	Parking lot road

In addition to the screening of road types, opportunities were further screened to remove segments that have steep slopes. BMP implementation on streets with grades greater than 10 percent present engineering challenges that substantially reduce the cost effectiveness of the retrofit opportunity. From the available slope information, roads were considered as retrofit opportunities if the slope was less than 10 percent.

The final screen applied to the roads is the depth to groundwater. Implementing ROW BMPs in areas where the groundwater table is high is not recommended due to the fact that the BMPs are rendered ineffective due to their storage capacity being seriously diminished with groundwater inflow. From the groundwater contours provided, roads were eliminated as opportunities if the depth to groundwater was less than 10 feet. Attachment C highlights the areas identified with groundwater depths of 10 feet or less. The highlighted areas provide a starting point for elimination, however it should be noted that further evaluation may be necessary based on local knowledge of areas with high groundwater tables or daylighting of perched groundwater layers as identified by the jurisdictions.

The results of the ROW BMP screening are presented in Attachment C. Attachment C shows the roads available for retrofit (highlighted in green) versus all of the roads within the study area. An overall watershed map and individual jurisdictional maps for each watershed show all the identified retrofit opportunities. The maps indicate that a majority of the roads within each jurisdiction pass through the screening as potential retrofits. It should be noted that due to the coarse nature of the road classification data, only freeways, highways, and major roads were eliminated in the classification screening process. In practice, retrofitting every street that passed through the screening will likely not be feasible and adaptive management strategies will be necessary in the future to further refine the road classification data layer to more accurately identify road types suitable for ROW BMP retrofits.

The screened opportunities were used as the basis to evaluate the potential runoff volume reduction provided by ROW BMP implementations. In the following section, an engineering assessment is presented that determines the ROW BMP contributing drainage areas and the overall volume reductions achieved through ROW BMP implementation.

1.2.3. ROW BMP Configuration

The three most important assumptions necessary to evaluate BMP volume reduction performance are (1) the physical BMP configuration assumptions, (2) the contributing drainage area characteristics, and (3) the in-situ soil infiltration rates. By understanding the area draining to the BMPs and the volume capacity and function of the BMPs, an assessment can be performed to evaluate the potential of ROW retrofit BMPs to capture the required runoff volume in each subwatershed. This section summarizes the information and processes used to establish BMP configuration assumptions to be used for the runoff analysis presented in the following section.

1.2.4. BMP Assumptions Based on Green Streets

ROW BMPs consists of multiple types and combinations of stormwater treatment options. A well-established and often utilized ROW BMP is green streets. Green streets provide multiple benefits for pollutant and volume reduction and have been implemented in locations throughout the nation. In the future and as updates are made to the WMP, other ROW BMPs may be incorporated to achieve the required volume reductions.

Green streets typically consist of bioretention areas between the curb and sidewalk (herein referred to as the parkway) and/or permeable pavement within the parking lane. Prior to evaluating green street BMP treatment capacity, it is imperative to establish a configuration that can be assumed for typical implementation watershed-wide. This establishes the parkway space needed for the BMPs (plan view) and also determines the hydraulic function and storage capacity of the subsurface systems.

Bioretention systems are surface and subsurface water filtration systems, which use vegetation and underlying soils to store, filter, and reduce runoff volume while removing pollutants. Figure 1-4 represents a typical bioretention system incorporated into a green street design. Bioretention systems consist of a ponding depth and engineered soil media depth to treat runoff. Table 1-4 outlines typical widths, depths, and soil parameters associated with green street bioretention cells. Green streets were assumed to have no underdrains because the

WMP emphasizes low impact development and stormwater volume reduction to achieve pollutant load reductions.

Driveways and utilities limit the road length that can be converted into a green street. From past experience and aerial imagery review in the local watersheds, it was determined that 30 percent of the road length could be considered as the maximum possibility for conversion into bioretention area. This factor was used to limit the total length of potential green street bioretention areas. The parameters outlined above and in the table below were assumed to be the typical green street BMP implementation configuration for the screening analysis and the BMP treatment capacity evaluation described in the next section.

Table 1-4. BMP Design and Modeling Parameters for Subsequent Analyses

Component	Design Parameter	Value
Ponding Area	Depth	0.8 feet
	Width	4.0 feet
Media Layer	Depth	3.0 feet
	Porosity	0.4
Overall Profile	Effective Depth[1]	2.0 feet

[1] Effective depth is the maximum equivalent depth of water stored within the bioretention area less the depth displaced by soil media (vertical summation of surface ponding depth and void storage depth)

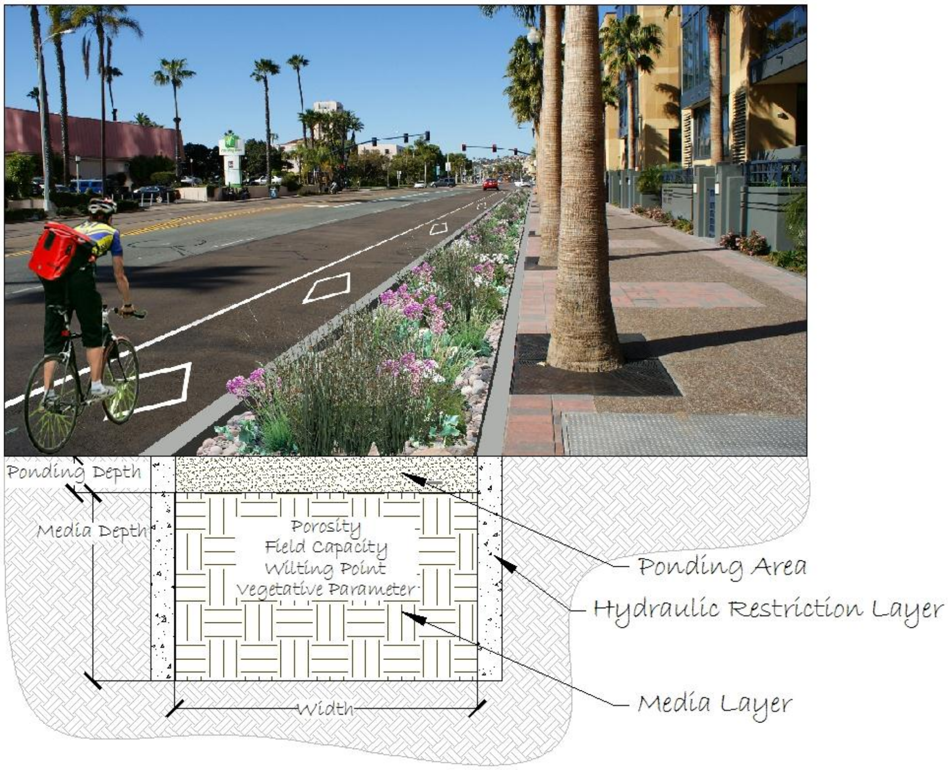

Figure 1-4. Typical bioretention section view (City of San Diego 2011).

Contributing Drainage Area Analysis

The purpose of this analysis was to realistically represent the area, type, and impervious coverage of land draining to potential green streets throughout the entire watershed. This is a critical step in WMP development because it predicts what volume of runoff can be assumed treated by green streets and what remaining (untreated) runoff must be routed to regional BMPs or addressed in other ways. The following engineering analyses were performed at a subwatershed-scale within the limits of available data and resources to estimate the maximum potential green street treatment capacity; given more detailed street-by-street drainage area data, the assumptions and results presented herein could be refined in future efforts to optimize green street treatment capacity. Figure 1-5 illustrates a simplified routing schematic used to represent the available runoff flow pathways to green street and regional BMPs throughout the watershed. The following subsections explain how each representative drainage area illustrated in Figure 1-5 was characterized.

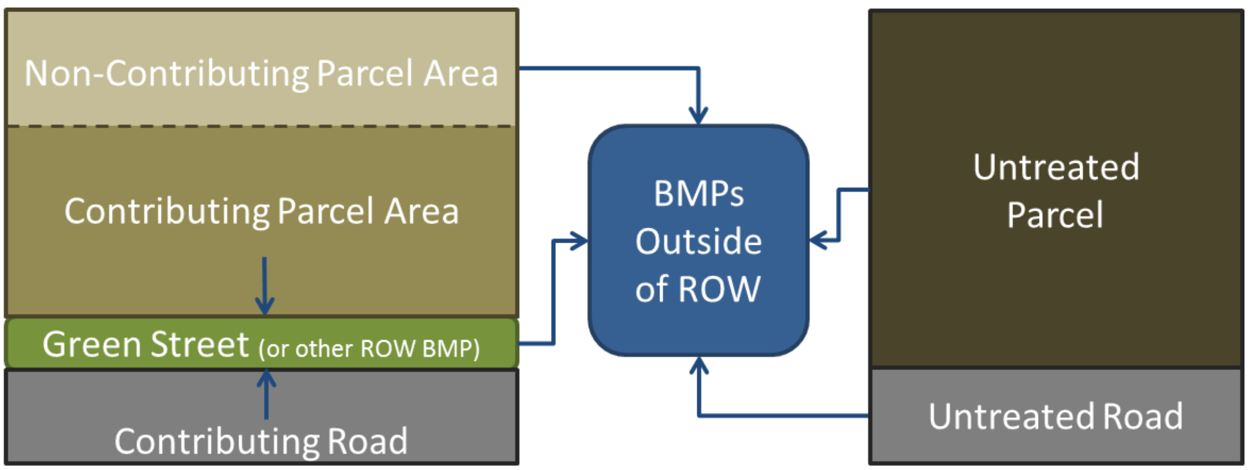

Figure 1-5. Green streets model schematic (arrows denote direction of runoff routing; figure not to scale).

Typical Parcel Size & Street Frontage Analysis

The nature of the green street analysis requires an understanding of typical parcel sizes and how much of the parcel drains to the ROW. Much of the runoff from parcels and the road drains to the ROW and is conveyed downstream through curb, gutter, and pipes. By identifying the typical parcel size, frontage length, and associated road area that drains to a candidate right-of-way area (Figure 1-6) the total area draining to potential green street retrofit opportunities was extrapolated throughout the watershed. For purposes of this study, only the high-density residential, multifamily residential, commercial, institutional, and industrial land uses were considered as contributing substantial runoff to the ROW (all other land uses contain minimal impervious area and thus contribute insubstantial runoff to the ROW).

The typical parcel size for each land use was determined by identifying all parcels for each land use. Once all the parcels were selected, the median parcel size for each land use was calculated and tabulated. This method evaluated thousands of parcels throughout the entire watershed and provided the most accurate depiction of the typical parcel size for each land use based on available data. Results are shown in Table 1-5.

Each parcel is adjacent to a portion of the ROW where the green street would be implemented. A subset of parcels approximate to the median parcel size for each land use was selected to determine the average frontage length. The portion of the selected parcels that was in contact with the ROW was measured using desktop analysis tools and averaged between all parcels of the same land use. Results are shown in Table 1-5.

Road area draining to green streets constitutes a substantial component of the total impervious drainage area. To establish road drainage areas, typical road widths were defined by sampling representative road segments located in each land use. Widths were measured from curb-to-curb using aerial orthoimagery and reported to the nearest even integer. The median sampled road width for each land use was calculated and compared with the City of Los Angeles Standard Street Dimensions (City of Los Angeles Bureau of Engineering 1999) for validation. To predict the resulting contributing road areas, the previously measured frontage length was multiplied by half the road width. Roads were assumed to be crowned; therefore, only half of the width would drain to one side of the road. Results are shown in Table 1-5.

As discussed in Section 1.2.4, only 30 percent of the frontage length could be converted into bioretention area. This factor was multiplied by the frontage length and used in limiting the total length of bioretention available within the model, as presented in Table 1-5.

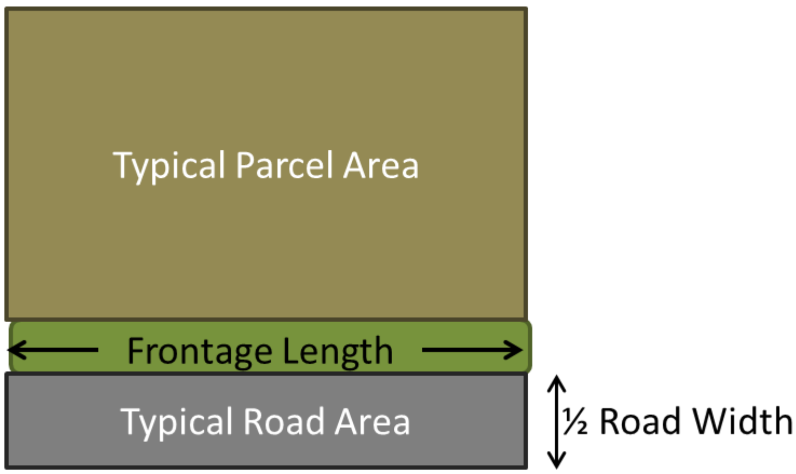

Figure 1-6. Typical parcel area, road width, road area, and frontage length schematic (figure not to scale)

Table 1-5. Typical parcel area, road area, and frontage length

Land Use	Typical Parcel Area (ft^2)	Frontage Length (ft)	Typical Road Width (ft)	Typical Road Area (ft^2)	BMP Length (ft)
High-density Residential	6,528	57	38	1,083	17
Multifamily Residential	13,526	60	30	900	18
Commercial	12,429	100	63	3,150	30
Institutional	38,215	143	37	2,646	43
Industrial	26,467	117	46	2,691	35
Other Land Use (Open Space, Vacant, etc.)	n/a[1]	100	40	2,000	30

[1] assumed not draining to ROW

Contributing Parcel Area Analysis

Many parcels will not always entirely drain to the ROW because portions can be retained on-site or flow onto an adjacent property. The actual volume of water that can be treated by a green street BMP was determined by identifying the typical proportion of the parcel that drains to the ROW (as shown in context of the model

schematic in Figure 1-7). This step also determines the area, and associated runoff, that is *not* expected to drain to green streets and is routed directly to downstream regional facilities or other practices (herein referred to as non-contributing parcel area).

The contributing areas to the green street BMPs were found using random sampling and identifying the surrounding parcel drainage patterns. Parcels were selected using a random number generator and drainage areas were determined on a desktop analysis using topography, aerial imagery, and drainage infrastructure features. The average contributing percentage was identified by evaluating multiple sites. Table 1-6 shows the percent contributing areas by land use that were determined from this analysis.

The impervious coverage of contributing parcel areas was also characterized during this step so that runoff could be simulated and routed to green streets in each land use. This was performed by tabulating the imperviousness data from the WMMS Model for each individual land use feature. The area-weighted mean impervious coverage was then calculated for each land use type. Results are tabulated for each land use in Table 1-6.

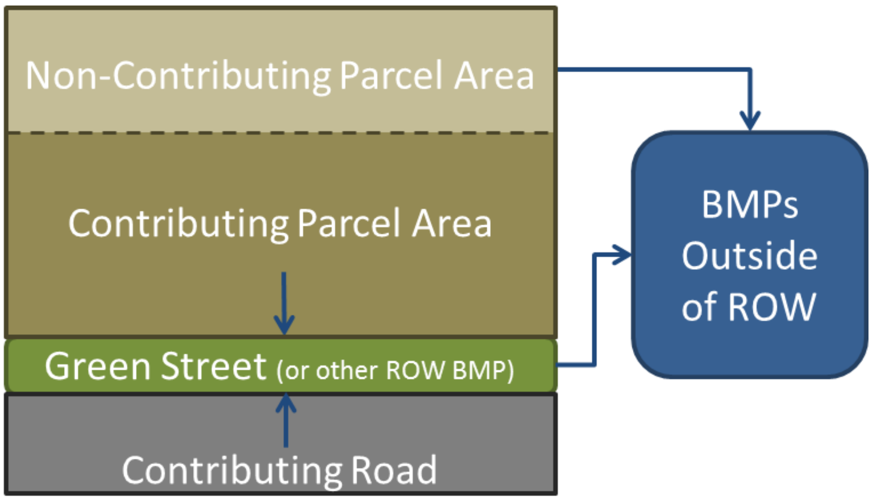

Figure 1-7. Parcel contributing area to ROW (impervious varies by land use; arrows denote direction of runoff routing; figure not to scale).

Table 1-6. Contributing area percentage by land use

Land Use	Contributing to ROW	Non-contributing to ROW	Percent Impervious
High-density Residential	80%	20%	36%
Multifamily Residential	80%	20%	60%
Commercial	80%	20%	90%
Institutional	80%	20%	72%
Industrial	35%	65%	66%
Other Land Use (Open Space, Vacant, etc.)	0%	100%	n/a

Untreated Roads Tabulation

Untreated roads consist of roadways with steep slopes, classifications not suited for green street implementation, or adjacent to open space or vacant parcels. Untreated road and associated adjacent parcel area that will ultimately drain to other BMPs was tabulated using available GIS data and screening results from Section 1.2.2 (conceptually illustrated in Figure 1-8).

Because green streets are implemented in the linear environment of the transportation corridor, it was assumed that the percentage of parcel area draining to green streets would be proportional to the percentage of suitable roads for green streets (as identified in Section 1.2.2) in each subwatershed. In other words, parcels associated with unsuitable roads were assumed to bypass green street treatment and routed directly to other facilities (these areas are defined herein as *untreated parcels*). The total treated and untreated parcel areas were reconciled with the total areas of each land use (per subwatershed) in the WMMS Model for validation and consistency.

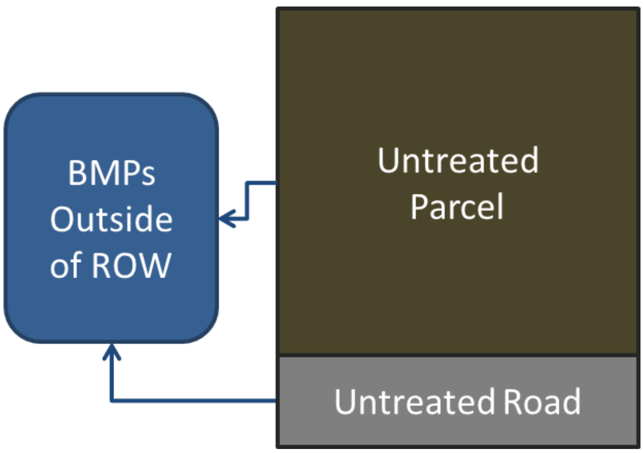

Figure 1-8. Schematic depicting untreated parcel and untreated road runoff routing (arrows denote direction of runoff routing; figure not to scale).

Summary of Contributing Drainage Areas

Results of the preceding analyses are presented in Figure 1-9. Areas that were assumed *un*treated by green streets include unsuitable roads and adjacent parcels, portions of suitable parcels that do not drain to the ROW, and predominantly pervious parcels (Open Space, Vacant, etc.), as discussed in preceding subsections; runoff from these untreated areas is assumed routed directly to regional facilities. Note that contributing areas are not necessarily proportional to contributing runoff due to variation in impervious coverage; runoff routing resulting from the preceding analyses is presented in the following section.

Given more detailed street-by-street engineering analyses, the potential area treated by green streets could be optimized, but the results below represent realistic estimates based on sound engineering judgment and currently available data and resources. Adaptive management strategies could target specific land uses that tend to bypass green street treatment (e.g. runoff, and associated treatment capacity, generated by industrial areas could be addressed through relevant industrial permits or onsite BMPs). Additional discussion on adaptive management strategies is provided in Section 8 of the main report.

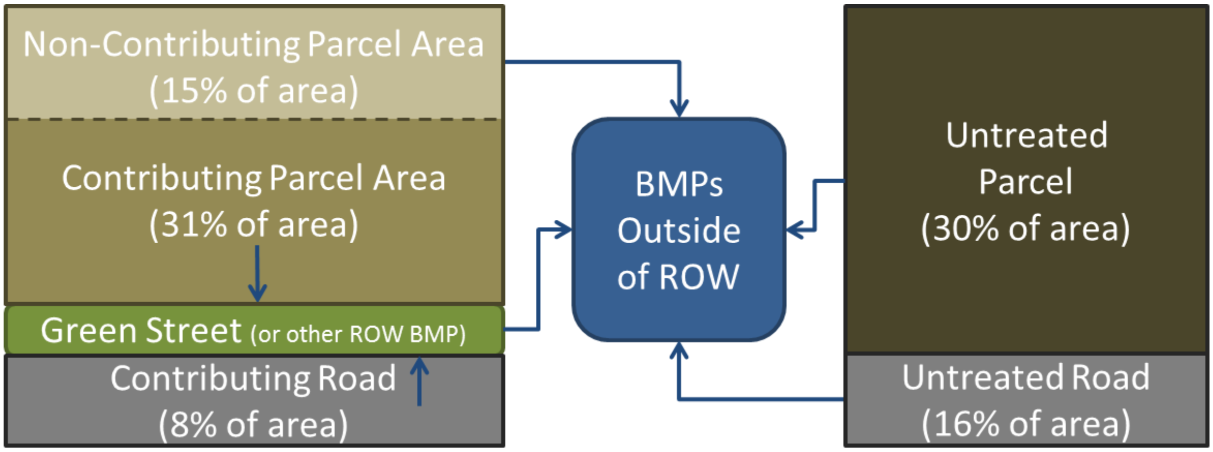

Figure 1-9. Schematic characterizing approximate distribution of routing to BMPs in the ROW for all WMP areas (arrows denote direction of runoff routing; figure not to scale).

BMP Infiltration Rates by Subwatershed

The purpose of performing the subwatershed infiltration rate analysis was to assign an average green street BMP infiltration rate to each subwatershed using soils data. Infiltration rates were assigned at the subwatershed level, which is the finest resolution at which the model performs hydrologic and water quality computations.

Soil data coverage provided through the LACDPW categorized soil unit areas into soil types. Runoff coefficient curves reported in the Hydrology Manual were developed by LACDPW for each soil type using double ring infiltrometer tests performed on areas of homogeneous runoff characteristics (LACDPW 2006). LADPW employed a sprinkling-type infiltrometer to perform the tests in each homogeneous area.

Runoff coefficient curves represent the response of the runoff coefficient (defined as the ratio of runoff to rainfall from a land area) to varying rainfall intensities. Each curve displays an inflection point representing the rainfall intensity at which substantial runoff initiates. According to LADPW (2006), each curve was assigned a minimum runoff coefficient of 0.1, “indicating that there is some runoff even at the smallest rainfall intensities.” If it is assumed that substantial runoff initiates when the intensity of rainfall is greater than the soil’s inherent infiltration rate, then the infiltration rate can be assumed equal to the rainfall intensity at the inflection point (less the assumed minimum runoff).

As demonstrated conceptually in Figure 1-10, the inflection point, and subsequently calculated infiltration rate, for each unique soil type in the WMP areas were identified using the runoff coefficient curves in Appendix C of the *Hydrology Manual* (LADPW 2006). Subwatershed areas were then intersected with the soil type coverage to calculate an area-weighted infiltration rate. Attachment C shows the distribution of the infiltration rates.

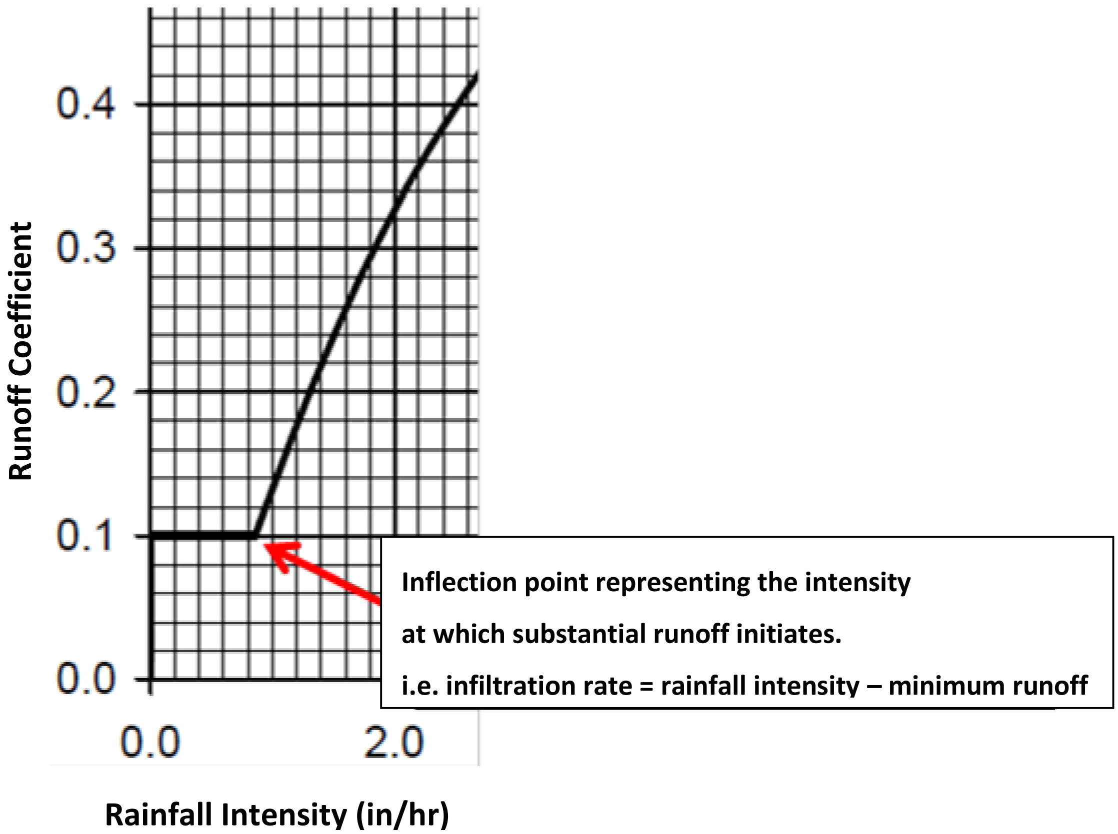

Figure 1-10. Example determination of runoff coefficient inflection point for an arbitrary soil type in Appendix C of LACDPW (2006).

1.3. LID on Public Parcels Assessment

Retrofitting public parcels with LID can be an efficient strategy for reducing stormwater runoff. This method allows municipalities the flexibility to prioritize and schedule stormwater projects to coincide with improvements that are already on the books (such as scheduled parking lot resurfacing, utility work, and public park improvements). Implementing LID on public parcels also allows municipalities the freedom to construct, inspect, and maintain BMPs without the need to purchase private property or to create stormwater easements.

The spatial extent of public parcels in each subwatershed was identified by selecting all parcels labeled as public by their assessors identification number (AIN). A total of 7,052 acres of public land was identified during this process (7% of the total WMP area). Each public parcel was assumed to implement BMPs that would treat the 85th percentile, 24-hour storm. The BMP volume was assumed to equal the 85th percentile, 24-hour storm depth times the impervious area.

LID retrofits are not feasible in all locations due to steep slopes, soil contamination hazards, and other constrains. The total runoff to be retained on public parcels was therefore discounted by 30% in order to provide a more realistic goal; this estimate was made in the lack of more detailed data, based on past LID screening exercises performed in Los Angeles County. The discount factor should be refined as actual public project sites are screened and prioritized.

1.4. Existing, Planned, and Potential BMPs

Existing and planned BMPs throughout the WMP areas were identified by the jurisdictions. These BMPs will provide capacity to reduce the annual storm runoff volume and demonstrate progress towards achieving the target runoff volume reduction.

1.4.1. Modeled Existing/Planned Subwatershed-Scale Regional BMPs

Regional BMPs that treat large portions of, or entire, subwatersheds (i.e. those with drainage areas larger than 50 acres) were modeled to quantify the impact to the upstream jurisdictions. The modeling approach and predicted performance for these specific sites is detailed in the following subsections. It is important to note that modeling was performed at a planning level coincident with the resolution of the subwatershed-scale WMMS model. Limited data were available to represent the sites, so conservative engineering assumptions were applied where appropriate. The calculated equivalent volume reductions from the BMPs can be refined during the adaptive management process once detailed design and monitoring data become available for the sites.

DeForest Wetlands Project

The DeForest Wetlands Project is located along the east bank of the Los Angeles River in the City of Long Beach and is comprised of approximately 34 acres of restored terrestrial and freshwater habitat and recreational amenities. The Project provides both groundwater recharge and surface water quality improvement. Site and modeling details are listed in Table 1-7.

Table 1-7. DeForest Wetlands Project details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	In Development		
Compliance Targets for Contributing Subwatersheds[1]	**248.7**	**ac-ft/yr**	Subwatershed 486066
	247.6	**ac-ft/yr**	Subwatershed 486068
Given Details			
Drainage Area	1490	ac	Delineated in GIS using WMMS subwatershed boundaries
Average Annual Infiltration Volume	15-35	ac-ft/yr	Per Section 3 of the WMP
Average Annual Treated Volume	800-1000	ac-ft/yr	Per Section 3 of the WMP; assumed volume is fully treated by wetland pollutant removal mechanisms prior to discharge; assumed treated volume is in addition to infiltration volume
Annual Runoff Volume Entering Wetland[1]	1589	ac-ft/yr	WMMS output
Annual Zinc Load Entering Wetland[1]	1808	lb Zn/yr	WMMS output
Wetland Zinc Effluent Concentration	20	µg/L	Upper limit of 95% confidence interval for wetland channels, per RAA Guidelines (LARWQCB 2014)
Modeling Results			
Estimated Annual Zinc Load Reduced by Infiltration[1]	17.1	lb Zn/yr	Assumed loading associated with minimum average infiltrated runoff; assumed load sequestered in sediments and/or sorbed to underlying soils
Estimated Annual Zinc Load Reduced by Wetland Functions[1]	535	lb Zn/yr	Reduction associated with treated volume; calculated by subtracting average effluent load associated with minimum treated volume from annual influent loading
Estimated Zinc Load Reduction	30.5%		

Relative to Annual Runoff[1]			
Estimated Zinc Load Reduction Relative to Compliance Target[1]	97.7%		
Estimated Equivalent Annual Volume Reduction[1]	**243.1**	**ac-ft/yr**	Subwatershed 486066
	242.0	**ac-ft/yr**	Subwatershed 486068

[1] Indicated annual volumes are referenced to the critical year

Dominguez Gap Wetlands Project

The Dominguez Gap Wetlands Project consists of two treatment wetlands situated on the east and west banks of the Los Angeles River that features habitat and recreational amenities. The East Basin is a 37-ac facility that is dewatered manually by a pump. The West Basin primarily functions as an infiltration basin and is approximately 15 acres. Table 1-8 and Table 1-10 characterize the site and modeling details of the East and West Basins, respectively.

Table 1-8. Dominguez Gap East Wetlands Project – East Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	Complete		
Compliance Targets for Contributing Subwatersheds[1]	**346.9**	**ac-ft/yr**	Subwatershed 486014
	14.3	**ac-ft/yr**	Subwatershed 446014
Given Details			
Drainage Area	2075	ac	Delineated in GIS using WMMS subwatershed boundaries
Maximum Volume Treated per Storm Event	71	ac-ft	Per Section 3 of the WMP; assumed volume is fully treated by wetland pollutant removal mechanisms prior to discharge
Maximum Annual Volume Treated[1]	526	ac-ft/yr	Based on storm events recorded for critical year; assumed all storm event runoff volume treated up to 71 ac-ft
Annual Runoff Volume Entering Wetland[1]	913	ac-ft/yr	WMMS output
Annual Zinc Load Entering Wetland[1]	934	lb Zn/yr	WMMS output
Wetland Zinc Effluent Concentration	20	µg/L	Upper limit of 95% confidence interval for wetland channels, per RAA Guidelines (LARWQCB 2014)
Modeling Results			
Annual Zinc Load Reduced by Infiltration[1]	unknown	lb Zn/yr	Site soil information or monitored data required
Annual Zinc Load Reduced by Wetland Functions[1]	202	lb Zn/yr	Reduction associated with treated volume; calculated by subtracting average effluent load associated with minimum treated volume from annual influent loading
Zinc Load Reduction Relative to Annual Runoff[1]	22%		
Zinc Load Reduction Relative to Compliance Target[1]	55%		
Equivalent Annual Volume Reduction[1]	**191.7**	**ac-ft/yr**	Subwatershed 486014
	6.4	**ac-ft/yr**	Subwatershed 446014

[1] Indicated annual volumes are referenced to the critical year

Table 1-9. Dominguez Gap Wetlands Project – West Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	Complete		
Compliance Targets for Contributing Subwatersheds[1]	**152.0**	**ac-ft/yr**	Subwatershed 486013 (41% contributes to West Basin)
	7.4	**ac-ft/yr**	Subwatershed 486015
Given Details			
Drainage Area	299	ac	Delineated in GIS using WMMS subwatershed boundaries
Annual Runoff Volume Infiltrated	All	ac-ft/yr	Per Section 3 of the WMP, no connection to Los Angeles River
Modeling Results			
Subwatershed 486013 Annual Runoff Volume Infiltrated[1]	47%		41% of subwatershed area contributes 47% of runoff volume to the basin
Subwatershed 446015Annual Runoff Volume Infiltrated	100%		100% of subwatershed area contributing
Equivalent Annual Volume Reduction[1]	**152.0**	**ac-ft/yr**	Subwatershed 486013 (compliance target is 43% annual reduction, so meets target)
	7.4	**ac-ft/yr**	Subwatershed 446015

[1] Indicated annual volumes are referenced to the critical year

Willow Springs Park

The Willow Springs Park project will convert a public parcel to a 47-acre park. The park will contain bioswales and a water feature integrated into a recreational spaces. Table 1-10 Characterizes the site and modeling details.

Table 1-10. Willow Springs Park details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower Los Angeles River		
Location	City of Long Beach		
Status	In Development		
Compliance Targets for Contributing Subwatersheds[1]	**26.5**	**ac-ft/yr**	Subwatershed 776012
	7.2	**ac-ft/yr**	Subwatershed 486012
Given Details			
Drainage Area	211	ac	Delineated in GIS using WMMS subwatershed boundaries
Total BMP Footprint	11	Ac	Per Section 3 of the WMP; natural channels/bioswales with very high infiltration rates
Underlying soil infiltration rates	0.9	In/hr	WMMS
Subwatershed area contributing	95%		
Modeling Results			
Maximum infiltration rate over footprint of BMP	0.83	ac-ft/hr	Assumed constant infiltration over entire footprint, applied to each time step of model runoff output draining to park – meets compliance target via infiltration
Equivalent Annual Volume Reduction[1]	**26.5**	**ac-ft/yr**	Subwatershed 776012
	7.2	**ac-ft/yr**	Subwatershed 446012

[1] Indicated annual volumes are referenced to the critical year

Discovery Park Infiltration Basin

An existing infiltration basin located at 12400 Columbia Way in the City of Downey treats runoff from approximately 51 acres (5% of the subwatershed in which the site is located). Field observations indicate that the facility has capacity to infiltration runoff at a rate of 2 in/hr (equivalent to approximately 4 ac-ft/day) in addition to detention storage. Table 1-11 reports the simplified modeling assumptions for this BMP – upon further evaluation of as-built conditions, the associated volume reduction can be refined during the adaptive management process.

Table 1-11. Discovery Park Infiltration Basin details

Parameter	Value	Unit	Notes, Assumptions
Site Overview			
WMP Area	Lower San Gabriel River		
Location	City of Downey		
Status	Complete		
Compliance Targets for Treated Subwatersheds[1]	**80.6**	**ac-ft/yr**	Subwatershed 245115
Given Details			
Drainage Area	51	ac	
Observed Infiltration Rate	4	ac-ft/day	Per Gerald Green, personal communication, 2014, February 2
Percentage of Subwatershed Contributing to BMP	5%		
Approximate Runoff Volume Draining to BMP[1]	44	ac-ft/yr	WMMS
Modeling Results			
Equivalent Annual Volume Reduction[1]	**24**	**ac-ft/yr**	Assumed constant infiltration over entire footprint, applied to each time step of model runoff output draining to park

[1] Indicated annual volumes are referenced to the critical year

Parque Dos Rios

Parque Dos Rios is located at the confluence of the Los Angeles River and Rio Hondo River. An approximately 30-ac area between the freeway and the Los Angeles River will be converted to an infiltration basin to treat additional upstream area. Currently, the site is self-retaining open space and is characterized in the baseline model as such. No further runoff volume reductions were calculated for this site; as design details are finalized for the infiltration basin improvements, associated volume reductions can be applied towards upstream jurisdictional compliance targets.

1.4.2. Identified Parcel-Scale Regional and Distributed BMPs

The jurisdictions within the WMP areas compiled detailed lists of BMPs intended to treat areas smaller than 50 acres. As with the preceding regional BMPs, these strategies represent progress towards achieving the compliance target in each respective jurisdiction. The distributed BMPs are listed in Attachment D and can be applied towards meeting the compliance targets in each jurisdiction.

The WMP groups have identified additional potential regional BMPs and these are listed in Section 3 for LCC and Section 4 for LLAR and LSGR of the respective WMP.

1.5. Non-MS4 Facility Runoff

Each jurisdiction is the Group's WMP area is subject to stormwater runoff from non-MS4 facilities. In particular, Caltrans roads and facilities regulated by nontraditional or general industrial permits contribute to the runoff volume for each subwatershed. It will be important for these entities to retain their runoff and/or eliminate their cause/contribution to receiving water exceedances. The runoff from these non-MS4 facilities was therefore estimated and subtracted from the treatment target as described below.

1.5.1. Non-MS4 Permitted Areas

Non-MS4 permitted areas were identified based on the address list of permittees on the State Water Resources Control Board (SWRCB) website. Using the address information, corresponding parcel areas were selected using the LA County Assessor Parcel Viewer and the associated GIS Shapefile. The percentage of permitted land use area relative to the total land use area was calculated and the associated non-MS4 permitted area runoff as extracted from the WMMS runoff response output.

1.5.2. Caltrans

The design storm runoff generated by Caltrans facilities was estimated using WMMS land use data. Areas labeled as Transportation consist of freeways and other extensive transportation facilities that tend to fall under Caltrans jurisdiction (versus areas labeled as Secondary Roads, which are managed by local transportation departments); these areas were assumed to be Caltrans facilities. Runoff from Transportation land uses, less runoff from any overlapping non-MS4 permitted areas identified above, was extracted from the WMMS model output for each subwatershed.

1.6. Institutional BMPs and Minimum Control Measures

It is challenging to accurately quantify most institutional BMP and minimum control measure (MCM) benefits in terms of pollutant load reductions because they generally require extensive survey and monitoring information to quantify. In addition, nonstructural BMPs may target pollutants, land uses, or populations, resulting in different load reductions depending on the implementation technique. A number of MCMs are outlined in each WMP, representing an array of practices to most effectively address pollutants at their source or affect their transport. For the purposes of the RAA, a 10% reduction was assumed to represent the cumulative impact of these practices during both wet and dry conditions. Another explicitly modeled nonstructural BMP was a goal to reduce 25% of irrigation of urban vegetation, a goal that can result from a myriad of practices ranging from public education, enforcement, incentive programs, creative water rate structures, etc. The 25% reduction in irrigation was modeled directly in LSPC and is the primary driver for dry weather flow reductions. Pollutant load reductions from these nonstructural BMPs were subtracted from loads simulated in the baseline model to quantify progress towards meeting the watershed numeric goals. Results of both the 10% reduction for collective MCMs, in addition to irrigation reduction, are presented in Section 7 of the main RAA report for both wet and dry conditions.

Attachment B: Detailed Jurisdictional Compliance Tables

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

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9444 Balboa Ave., Suite 215
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January 15, 2015

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B1. Lower Los Angeles River WMP – MS4 vs Non-MS4

B1.1. City of Downey

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6076	17.1	17.0	0.1
6077	123.0	123.0	-
6079	210.3	176.4	33.9
6082	0.3	0.3	-
6100	11.4	10.7	0.7
6102	143.8	143.8	-
6103	0.0	-	0.0
6104	37.1	37.1	-
6106	100.2	76.4	23.9
6111	82.1	69.5	12.6
6113	0.6	0.6	0.0
Grand Total	726.0	654.7	71.2

B1.2. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6014	14.3	14.3	-
Grand Total	14.3	14.3	-

B1.3. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6001	17.7	0.0	17.7
6002	387.5	378.7	8.8
6003	430.0	429.9	0.1
6004	3.4	2.4	1.0
6005	29.9	6.6	23.3
6006	55.9	35.9	20.0
6007	110.5	67.0	43.5
6008	172.5	144.0	28.5
6009	160.5	159.5	1.1
6010	128.3	100.8	27.5
6011	202.2	184.8	17.4
6012	7.2	0.0	7.2
6013	152.0	12.3	139.6
6014	346.9	346.9	-
6015	7.4	4.3	3.1
6016	3.0	0.0	3.0
6017	1.9	1.1	0.9
6018	49.3	45.8	3.5
6065	89.8	36.7	53.2
6066	248.7	202.6	46.1
6067	83.9	25.3	58.6
6068	247.6	222.5	25.1
6069	102.2	42.6	59.6
6070	83.4	22.2	61.2
6071	276.3	94.4	181.9
6072	0.3	0.3	-
7016	503.6	473.3	30.3
Grand Total	3,901.7	3,039.6	862.1

B1.4. City of Lynwood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6023	40.3	26.3	13.9
6024	16.1	10.6	5.4
6028	11.2	11.2	-
6030	168.8	45.2	123.6
6031	145.5	133.0	12.5
6032	115.7	60.5	55.2
6033	130.0	113.3	16.6
6074	185.2	134.9	50.4
6078	59.8	0.0	59.8
6080	146.6	91.7	54.9
6081	76.8	41.3	35.5
6082	12.2	0.0	12.2
Grand Total	1,108.1	667.9	440.2

B1.5. City of Paramount

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6069	0.0	0.0	-
6071	157.1	120.7	36.4
6072	183.8	172.9	10.9
6073	124.1	61.4	62.6
6075	181.8	163.7	18.1
6076	227.8	65.7	162.1
6078	112.3	21.7	90.6
6080	1.9	0.0	1.9
Grand Total	988.8	606.1	382.7

B1.6. City of Pico Rivera

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6106	86.5	44.3	42.2
6111	0.0	0.0	0.0
6112	5.9	1.4	4.5
6113	272.8	229.5	43.3
6114	0.0	0.0	-
6115	0.0	0.0	-
6116	0.0	0.0	-
6117	0.0	0.0	-
6126	12.0	12.0	-
6129	0.0	0.0	-
Grand Total	377.3	287.2	90.0

B1.7. City of Signal Hill

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6002	106.6	105.8	0.8
6003	43.7	43.7	-
6007	6.4	0.0	6.4
6009	8.3	8.2	0.1
6011	6.3	6.0	0.3
6012	26.6	25.2	1.4
Grand Total	197.9	188.9	9.0

B1.8. City of South Gate

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
6031	148.6	148.6	-
6033	70.0	61.9	8.1
6034	422.9	416.7	6.3
6076	125.9	92.5	33.4
6078	0.0	0.0	-
6079	68.9	54.4	14.6
6080	48.7	48.7	-
6082	137.6	82.8	54.7
6083	36.2	11.5	24.7
6084	159.7	137.8	21.9
6085	67.8	0.0	67.8
6089	35.7	18.3	17.4
6090	43.8	3.4	40.4
6096	0.6	0.6	-
6098	0.1	0.1	-
6100	80.6	51.2	29.4
6101	25.0	25.0	-
6102	6.3	6.3	-
6104	7.4	7.4	-
6350	18.6	0.0	18.6
6351	8.2	7.1	1.0
Grand Total	1,512.6	1,174.3	338.2

B2. Lower Los Angeles River WMP – Compliance Tables

B2.1. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6076	Final	17.0	-	-	1.2	-	1.2
6077	Final	123.0	0.3	11.8	1.2	6.4	19.6
6079	50%	176.4	0.7	1.7	10.1	-	12.5
6082	Final	0.3	-	-	0.0	0.0	0.0
6100	50%	10.7	0.0	0.8	0.0	0.6	1.4
6102	31%	143.8	1.1	12.2	0.7	7.1	21.1
6103	Final	-	0.7	-	-	-	0.7
6104	Final	37.1	0.3	3.2	0.0	0.9	4.5
6106	Final	76.4	0.4	9.1	1.6	-	11.1
6111	Final	69.5	0.3	7.1	0.5	3.3	11.2
6113	Final	0.6	-	0.0	-	0.1	0.1
Grand Total		654.7	3.8	45.9	15.3	18.4	83.4

B2.2. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6014	31%	7.9	-	1.1	0.0	-	1.2
Grand Total		7.9	-	1.1	0.0	-	1.2

B2.3. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6001	Final	-	-	-	-	-	-
6002	50%	378.7	-	23.8	5.2	19.3	48.3
6003	Final	429.9	-	22.4	1.4	32.8	56.5
6004	50%	2.4	-	0.1	-	0.3	0.3
6005	31%	6.6	-	1.0	0.0	-	1.0
6006	Final	35.9	-	0.3	0.1	4.1	4.5
6007	Final	67.0	-	6.4	0.1	4.0	10.6
6008	Final	144.0	-	13.9	2.0	3.5	19.4
6009	Final	159.5	-	11.5	0.7	9.2	21.4
6010	Final	100.8	-	8.2	0.9	4.8	13.9
6011	Final	184.8	-	14.4	0.9	9.6	24.9
6012	31%	-	-	-	-	-	-
6013	50%	-	-	-	-	-	-
6014	Final	155.2	-	15.0	7.9	-	22.9
6015	31%	-	-	-	-	-	-
6016	Final	-	-	-	-	-	-
6017	50%	1.1	-	-	-	0.1	0.1
6018	Final	45.8	-	4.3	-	2.6	6.9
6065	Final	36.7	-	0.4	0.0	4.6	5.0
6066	31%	-	-	-	-	-	-
6067	50%	25.3	-	2.6	0.3	0.5	3.3
6068	31%	-	-	-	-	-	-
6069	50%	42.6	-	0.6	0.0	3.5	4.1
6070	50%	22.2	-	2.7	0.4	-	3.1
6071	50%	94.4	-	10.5	1.6	1.0	13.1
6072	50%	0.3	-	0.0	-	0.0	0.0
7016	Final	473.3	-	16.5	6.9	36.3	59.7
Grand Total		2,406.2	-	154.6	28.3	136.2	319.1

B2.4. City of Lynwood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6023	Final	26.3	-	1.0	0.7	1.6	3.3
6024	Final	10.6	-	0.4	-	1.1	1.4
6028	31%	11.2	-	0.8	-	0.9	1.7
6030	Final	45.2	-	4.0	2.4	-	6.4
6031	31%	133.0	-	9.9	2.0	7.5	19.4
6032	Final	60.5	-	6.0	0.4	3.4	9.8
6033	Final	113.3	-	7.4	0.2	10.7	18.2
6074	50%	134.9	-	12.8	3.8	0.1	16.8
6078	Final	-	-	-	-	-	-
6080	31%	91.7	-	7.7	0.7	4.7	13.2
6081	Final	41.3	-	4.0	0.8	0.5	5.3
6082	Final	-	-	-	-	-	-
Grand Total		667.9	-	53.9	11.1	30.5	95.5

B2.5. City of Paramount

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6069	31%	0.0	-	-	-	-	-
6071	Final	120.7	0.0	4.9	0.9	9.9	15.6
6072	Final	172.9	0.0	7.6	1.1	13.9	22.6
6073	Final	61.4	-	1.9	0.2	4.6	6.6
6075	31%	163.7	-	9.0	1.7	10.2	20.9
6076	50%	65.7	-	7.4	0.8	0.3	8.6
6078	Final	21.7	-	0.5	0.0	1.8	2.3
6080	Final	-	-	-	-	-	-
Grand Total		606.1	0.1	31.2	4.7	40.6	76.6

B2.6. City of Pico Rivera

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6106	31%	44.3	-	5.9	0.5	0.2	6.5
6111	Final	-	-	-	-	-	-
6112	31%	1.4	-	0.0	-	0.1	0.2
6113	31%	229.5	-	5.6	0.0	27.0	32.7
6114	Final	-	-	-	-	-	-
6115	Final	0.0	-	-	-	0.0	0.0
6116	Final	-	-	-	-	-	-
6117	Final	-	-	-	-	-	-
6126	Final	12.0	-	1.3	0.0	0.5	1.8
6129	Final	-	-	-	-	-	-
Grand Total		287.2	-	12.8	0.5	27.9	41.2

B2.7. City of Signal Hill

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6002	50%	105.8	-	7.0	0.9	5.9	13.9
6003	Final	43.7	-	1.9	0.0	4.2	6.0
6007	Final	-	-	-	-	-	-
6009	Final	8.2	0.1	0.3	-	0.7	1.1
6011	31%	6.0	0.1	0.8	-	0.2	1.1
6012	31%	2.5	-	0.0	0.2	-	0.2
Grand Total		166.2	0.2	10.0	1.1	11.0	22.3

B2.8. City of South Gate

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
6031	31%	148.6	-	16.9	0.8	5.3	22.9
6033	Final	61.9	-	4.5	0.3	4.8	9.5
6034	Final	416.7	-	30.0	3.8	25.3	59.0
6076	50%	92.5	-	7.5	0.7	5.1	13.2
6078	Final	-	-	-	-	-	-
6079	50%	54.4	-	4.9	0.1	3.4	8.4
6080	31%	48.7	-	5.8	-	2.5	8.3
6082	Final	82.8	0.0	4.3	0.1	9.4	13.8
6083	Final	11.5	-	0.7	-	0.9	1.6
6084	Final	137.8	4.7	8.3	0.8	5.9	19.8
6085	50%	-	-	-	-	-	-
6089	Final	18.3	-	0.8	0.2	1.8	2.7
6090	Final	3.4	-	0.6	-	-	0.6
6096	31%	0.6	-	0.0	0.0	0.0	0.1
6098	31%	0.1	-	-	0.0	-	0.0
6100	50%	51.2	-	2.6	0.0	4.2	6.8
6101	31%	25.0	-	0.5	0.1	2.6	3.3
6102	31%	6.3	-	-	-	0.8	0.8
6104	Final	7.4	-	0.0	0.0	0.9	1.0
6350	Final	-	-	-	-	-	-
6351	Final	7.1	-	0.0	0.0	1.1	1.1
Grand Total		1,174.3	4.7	87.5	6.8	73.8	173.0

B3. Los Cerritos Channel WMP – MS4 vs Non-MS4

B3.1. City of Bellflower

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5507	305.0	268.1	36.9
5517	154.4	137.7	16.7
5518	235.2	233.5	1.7
5519	289.1	235.8	53.2
5523	138.8	100.4	38.5
5524	14.8	14.8	-
Grand Total	1,137.4	990.4	147.0

B3.2. City of Cerritos

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5506	0.0	0.0	-
5507	12.9	12.9	0.0
Grand Total	12.9	12.9	0.0

B3.3. City of Downey

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5524	112.8	93.0	19.8
Grand Total	112.8	93.0	19.8

B3.4. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5506	226.6	226.5	0.0
5507	176.3	176.3	-
5510	20.7	19.9	0.8
5512	143.1	138.8	4.3
5514	35.3	35.3	-
5515	26.6	26.6	-
5516	31.9	31.9	-
5517	134.4	134.4	-
5519	9.5	9.5	-
5520	164.5	164.5	-
5521	95.2	95.2	-
5522	71.9	71.9	-
5523	21.4	21.4	-
Grand Total	1,157.2	1,152.1	5.1

B3.5. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5501	0.3	0.3	0.0
5502	0.5	0.2	0.2
5503	78.2	77.8	0.4
5504	349.2	300.9	48.2
5505	133.3	130.5	2.8
5506	8.6	8.6	0.0
5508	74.6	65.6	9.0
5509	129.3	25.6	103.7
5510	807.6	152.2	655.3
5511	50.5	48.5	2.0
5512	454.0	329.5	124.5
5513	32.5	30.5	2.0
5514	153.5	152.8	0.7
5515	91.0	91.0	-
5520	7.4	7.4	-
5521	108.7	49.2	59.5
5522	50.8	48.6	2.2
5523	146.4	110.7	35.7
Grand Total	2,676.1	1,629.8	1,046.2

B3.6. City of Paramount

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5519	36.5	35.4	1.2
5523	343.3	332.6	10.7
5524	252.1	157.5	94.6
Grand Total	631.9	525.5	106.4

B3.7. City of Signal Hill

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5510	322.6	284.3	38.3
Grand Total	322.6	284.3	38.3

B4. Los Cerritos Channel WMP - Compliance Tables

B4.1. City of Bellflower

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5507	Final	268.1	-	16.7	1.2	13.2	31.1
5517	Final	137.7	-	9.3	0.8	9.3	19.4
5518	Final	233.5	-	16.8	1.2	10.2	28.2
5519	35%	176.3	-	11.4	0.9	12.1	24.4
	Final	59.5	-	-	-	3.6	3.6
5523	35%	68.0	-	3.7	0.4	4.1	8.2
	Final	32.3	-	-	-	2.0	2.0
5524	Final	14.8	-	0.2	-	1.2	1.4
Grand Total		990.4	-	58.1	4.5	55.6	118.2

B4.2. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5506	Final	0.0	-	-	-	0.0	0.0
5507	35%	9.7	-	1.0	0.0	0.5	1.4
	Final	3.2	-	-	-	0.1	0.1
Grand Total		12.9	-	1.0	0.0	0.6	1.6

B4.3. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5524	35%	57.2	0.1	5.3	0.0	2.7	8.1
	Final	35.8	-	-	-	2.1	2.1
Grand Total		93.0	0.1	5.3	0.0	4.8	10.2

B4.4. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5506	Final	226.5	-	31.4	2.1	5.1	38.5
5507	35%	131.0	-	15.4	2.6	1.5	19.5
	Final	45.2	-	-	-	3.6	3.6
5510	Final	19.9	-	0.4	-	1.5	1.9
5512	Final	138.8	-	7.7	0.2	7.0	14.9
5514	Final	35.3	-	3.7	1.3	0.4	5.4
5515	Final	26.6	-	3.9	0.2	0.5	4.6
5516	Final	31.9	-	4.0	0.4	0.8	5.3
5517	Final	134.4	-	18.6	1.4	2.8	22.9
5519	35%	3.1	-	0.2	-	0.2	0.4
	Final	6.4	-	-	-	0.1	0.1
5520	35%	130.9	-	14.0	2.1	4.4	20.6
	Final	33.5	-	-	-	3.3	3.3
5521	Final	95.2	-	11.6	0.6	2.2	14.3
5522	Final	71.9	-	8.7	0.8	1.6	11.1
5523	35%	17.4	-	1.9	-	0.7	2.6
	Final	4.0	-	-	-	0.3	0.3
Grand Total		1,152.1	-	121.5	11.8	36.2	169.5

B4.5. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5501	35%	0.1	-	0.0	0.0	0.0	0.0
	Final	0.1	-	-	-	0.0	0.0
5502	35%	0.1	-	0.0	0.0	0.0	0.0
	Final	0.2	-	-	-	0.0	0.0
5503	35%	57.7	-	4.2	2.3	2.0	8.5
	Final	20.1	-	-	-	1.7	1.7
5504	35%	196.6	-	10.2	3.3	8.7	22.2
	Final	104.4	-	-	-	5.5	5.5
5505	Final	130.5	-	15.9	1.6	3.2	20.7
5506	Final	8.6	-	0.1	0.2	0.4	0.7
5508	Final	65.6	-	7.7	0.9	1.7	10.3
5509	Final	25.6	-	-	2.2	-	2.2
5510	Final	152.2	-	9.8	0.9	6.1	16.8
5511	Final	48.5	-	6.7	0.2	1.3	8.1
5512	Final	329.5	-	22.2	1.7	16.8	40.7
5513	35%	23.9	-	1.5	0.1	2.1	3.7
	Final	6.6	-	-	-	0.4	0.4
5514	35%	106.0	-	10.9	5.9	-	16.7
	Final	46.8	-	3.7	-	2.8	6.5
5515	Final	91.0	-	10.8	1.7	2.3	14.9
5520	Final	7.4	-	0.8	-	0.3	1.2
5521	Final	49.2	-	6.0	0.1	1.8	7.9
5522	Final	48.6	-	4.2	0.0	3.1	7.3
5523	35%	89.3	-	7.0	0.8	3.5	11.3
	Final	21.4	-	-	-	1.6	1.6
Grand Total		1,629.8	-	121.7	21.8	65.3	208.7

B4.6. City of Paramount

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5519	35%	24.0	-	1.9	0.2	1.4	3.5
	Final	11.4	-	-	-	0.6	0.6
5523	35%	243.0	-	12.4	2.8	15.7	30.9
	Final	89.6	-	-	-	4.1	4.1
5524	Final	157.5	-	8.5	3.5	4.0	16.0
Grand Total		525.5	-	22.8	6.4	25.9	55.1

B4.7. City of Signal Hill

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5510	35%	231.6	0.0	11.2	1.2	14.2	26.6
	Final	52.7	-	-	-	2.0	2.0
Grand Total		284.3	0.0	11.2	1.2	16.2	28.6

B5. Lower San Gabriel River (San Gabriel River) WMP – MS4 vs Non-MS4

B5.1. City of Artesia

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5109	1.1	1.1	-
Grand Total	1.1	1.1	-

B5.2. City of Bellflower

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5110	0.0	0.0	-
5112	0.7	0.6	0.2
5113	56.8	51.5	5.3
5114	0.0	0.0	-
5115	1.3	1.3	-
5116	0.1	0.1	-
5118	3.9	3.9	-
Grand Total	62.8	57.4	5.4

B5.3. City of Cerritos

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5107	0.0	0.0	-
5108	0.0	0.0	-
5109	40.7	0.0	40.7
5110	2.9	2.9	-
5111	6.8	0.0	6.8
5112	2.3	1.2	1.2
5113	0.0	0.0	-
5516	6.6	0.0	6.6
Grand Total	59.4	4.1	55.3

B5.4. City of Diamond Bar

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5197	0.0	0.0	-
5198	0.0	0.0	-
5203	12.6	0.0	12.6
5204	3.8	0.0	3.8
5205	1.0	1.0	-
5212	15.3	0.0	15.3
5213	0.3	0.0	0.3
Grand Total	33.0	1.1	32.0

B5.5. City of Downey

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5113	0.0	0.0	-
5114	78.3	22.4	55.9
5115	80.6	0.0	80.6
5118	0.0	0.0	0.0
5119	52.5	52.5	-
5122	4.3	0.0	4.3
5124	0.0	0.0	0.0
5125	38.4	2.5	35.8
5126	9.8	9.8	-
5127	0.0	0.0	-
5128	0.0	0.0	-
Grand Total	263.9	87.3	176.7

B5.6. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5105	0.8	0.8	-
5106	7.4	0.0	7.4
5107	0.0	0.0	-
5108	1.4	1.4	-
5110	0.0	0.0	-
Grand Total	9.6	2.2	7.4

B5.7. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5102	0.0	0.0	-
5103	26.9	26.9	-
5104	2.3	2.3	-
5105	0.0	0.0	-
5106	0.0	0.0	-
Grand Total	29.2	29.2	-

B5.8. City of Norwalk

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5109	0.8	0.8	-
5116	0.5	0.0	0.5
5117	14.5	0.0	14.5
5118	3.7	0.1	3.5
5120	39.1	0.0	39.1
5121	41.5	3.9	37.6
5122	34.7	0.0	34.7
5124	2.2	0.0	2.2
Grand Total	136.9	4.8	132.1

B5.9. City of Pico Rivera

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5127	0.0	0.0	-
5128	10.9	6.4	4.5
5130	6.2	6.1	0.1
5131	17.2	11.7	5.5
5132	0.0	0.0	-
5135	4.3	4.3	-
5136	7.2	7.2	-
5137	0.2	0.2	-
5139	7.8	7.8	-
5140	0.0	0.0	-
5141	4.9	4.9	-
5142	0.0	0.0	-
5143	8.9	8.9	-
5144	3.8	0.0	3.8
5145	1.7	1.7	-
5147	0.0	0.0	-
5148	0.2	0.2	0.0
5149	0.0	0.0	-
5150	0.3	0.0	0.3
5151	0.3	0.0	0.3
5153	1.0	1.0	-
5154	0.0	0.0	-
Grand Total	75.1	60.4	14.7

B5.10. City of Santa Fe Springs

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5120	3.1	3.1	0.0
5122	11.0	0.0	11.0
5123	80.0	23.9	56.2
5127	0.0	0.0	0.0
5129	4.5	0.0	4.5
5130	1.7	0.0	1.7
5132	0.0	0.0	-
5133	0.1	0.0	0.1
5134	5.6	3.3	2.3
5135	0.0	0.0	-
Grand Total	106.0	30.3	75.8

B5.11. City of Whittier

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5138	7.1	7.1	-
5142	0.0	0.0	0.0
5146	0.4	0.0	0.4
5147	0.0	0.0	-
5148	0.0	0.0	-
5153	0.0	0.0	-
5173	0.0	0.0	-
Grand Total	7.5	7.1	0.4

B6. Lower San Gabriel River (San Gabriel River) WMP – Compliance Tables

B6.1. City of Artesia

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5109	35%	1.1	-	-	0.1	-	0.1
Grand Total		1.1	-	-	0.1	-	0.1

B6.2. City of Bellflower

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5110	Final	0.0	-	-	-	0.0	0.0
5112	Final	0.6	-	0.1	0.0	-	0.1
5113	Final	51.5	-	0.9	3.4	-	4.3
5114	Final	-	-	-	-	-	-
5115	35%	1.3	-	0.2	0.0	-	0.2
5116	Final	0.1	-	-	-	0.0	0.0
5118	Final	3.9	-	0.6	0.3	-	0.9
Grand Total		57.4	-	1.8	3.7	0.0	5.5

B6.3. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5107	Final	-	-	-	-	-	-
5108	Final	-	-	-	-	-	-
5109	Final	-	-	-	-	-	-
5110	Final	2.9	-	0.4	0.0	-	0.4
5111	Final	-	-	-	-	-	-
5112	Final	1.2	-	0.2	0.0	-	0.2
5113	Final	-	-	-	-	-	-
5116	35%	-	-	-	-	-	-
Grand Total		4.1	-	0.6	0.0	-	0.6

B6.4. City of Diamond Bar

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5197	Final	0.0	-	0.0	-	-	0.0
5198	Final	-	-	-	-	-	-
5203	Final	-	-	-	-	-	-
5204	Final	-	-	-	-	-	-
5205	Final	1.0	-	0.2	-	-	0.2
5212	Final	-	-	-	-	-	-
5213	35%	-	-	-	-	-	-
Grand Total		1.1	-	0.2	-	-	0.2

B6.5. City of Downey

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5113	Final	-	1.0	-	-	-	1.0
5114	Final	22.4	0.8	2.1	0.4	-	3.3
5115	Final	-	0.6	-	-	-	0.6
5118	Final	-	0.6	-	-	-	0.6
5119	Final	52.5	3.3	6.4	-	-	9.7
5122	35%	-	0.0	-	-	-	0.0
5124	Final	-	0.0	-	-	-	0.0
5125	Final	2.5	0.4	0.1	-	-	0.5
5126	Final	9.8	0.3	1.4	-	-	1.7
5127	Final	-	0.1	-	-	-	0.1
5128	Final	-	0.0	-	-	-	0.0
Grand Total		87.3	7.1	10.0	0.4	-	17.5

B6.6. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5105	Final	0.8	-	-	0.0	0.1	0.1
5106	35%	-	-	-	-	-	-
5107	Final	-	-	-	-	-	-
5108	Final	1.4	-	0.2	0.0	-	0.2
5110	Final	-	-	-	-	-	-
Grand Total		2.2	-	0.2	0.0	0.1	0.4

B6.7. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5102	Final	-	-	-	-	-	-
5103	35%	26.9	-	1.1	1.3	-	2.4
5104	Final	2.3	-	0.3	-	-	0.3
5105	Final	-	-	-	-	-	-
5106	Final	0.0	-	-	-	0.0	0.0
Grand Total		29.2	-	1.4	1.3	0.0	2.7

B6.8. City of Norwalk

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5109	35%	0.8	-	-	0.1	-	0.1
5116	Final	-	-	-	-	-	-
5117	Final	-	-	-	-	-	-
5118	Final	0.1	-	-	0.0	-	0.0
5120	Final	-	-	-	-	-	-
5121	Final	3.9	-	-	0.3	-	0.3
5122	Final	-	-	-	-	-	-
5124	Final	-	-	-	-	-	-
Grand Total		4.8	-	-	0.3	-	0.3

B6.9. City of Pico Rivera

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5127	Final	0.0	-	-	-	0.0	0.0
5128	Final	6.4	-	1.2	-	-	1.2
5130	Final	6.1	-	1.1	-	-	1.1
5131	Final	11.7	-	2.0	-	-	2.0
5132	Final	0.0	-	-	-	0.0	0.0
5135	Final	4.3	-	0.8	-	-	0.8
5136	Final	7.2	-	1.3	-	-	1.3
5137	35%	0.2	-	0.0	-	-	0.0
5139	Final	7.8	-	1.4	-	-	1.4
5140	Final	-	-	-	-	-	-
5141	Final	4.9	-	0.8	-	-	0.8
5142	Final	-	-	-	-	-	-
5143	Final	8.9	-	1.6	-	-	1.6
5144	Final	-	-	-	-	-	-
5145	Final	1.7	-	0.3	-	-	0.3
5147	Final	-	-	-	-	-	-
5148	Final	0.2	-	0.0	-	-	0.0
5149	Final	0.0	-	-	-	-	-
5150	Final	-	-	-	-	-	-
5151	Final	-	-	-	-	-	-
5153	Final	1.0	-	0.2	-	-	0.2
5154	Final	-	-	-	-	-	-
Grand Total		60.4	-	10.8	-	0.0	10.8

B6.10. City of Santa Fe Springs

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5120	Final	3.1	-	0.2	-	0.3	0.5
5122	Final	-	-	-	-	-	-
5123	Final	23.9	-	3.8	-	-	3.8
5127	35%	-	-	-	-	-	-
5129	Final	-	-	-	-	-	-
5130	Final	-	-	-	-	-	-
5132	Final	-	-	-	-	-	-
5133	Final	-	-	-	-	-	-
5134	Final	3.3	-	0.6	-	-	0.6
5135	Final	0.0	-	0.0	-	0.0	0.0
Grand Total		30.3	-	4.6	-	0.3	4.9

B6.11. City of Whittier

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5138	Final	7.1	-	1.4	-	-	1.4
5142	Final	-	-	-	-	-	-
5146	Final	-	-	-	-	-	-
5147	Final	-	-	-	-	-	-
5148	Final	-	-	-	-	-	-
5153	35%	0.0	-	-	-	0.0	0.0
5173	Final	-	-	-	-	-	-
Grand Total		7.1	-	1.4	-	0.0	1.4

B7. Lower San Gabriel River WMP (Coyote Creek) – MS4 vs Non-MS4

B7.1. City of Artesia

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5008	0.0	0.0	-
5018	47.9	15.9	32.0
Grand Total	47.9	15.9	32.0

B7.2. City of Cerritos

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5008	41.7	7.7	34.0
5016	0.0	0.0	-
5017	4.3	4.3	-
5018	49.7	14.9	34.8
5023	0.0	0.0	-
5024	48.7	0.0	48.7
5026	5.8	5.8	0.1
5028	12.2	0.0	12.2
5029	4.9	4.9	-
5030	0.1	0.1	0.0
5035	3.8	0.0	3.8
5036	2.2	1.2	1.0
5038	0.0	0.0	-
5059	16.0	15.1	0.8
5060	0.0	0.0	-
5061	4.9	2.6	2.3
Grand Total	194.3	56.7	137.6

B7.3. City of Diamond Bar

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5053	0.0	0.0	-
5054	1.0	1.0	-
5055	8.4	8.4	-
5056	10.6	0.0	10.6
5057	26.8	0.0	26.8
5058	27.2	27.2	-
Grand Total	74.0	36.7	37.4

B7.4. City of Hawaiian Gardens

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5004	0.0	0.0	-
5007	27.0	23.6	3.4
5009	0.1	0.1	-
5013	1.3	1.3	-
5014	2.1	2.1	-
Grand Total	30.4	27.1	3.4

B7.5. City of La Mirada

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5037	0.0	0.0	-
5038	1.1	0.0	1.1
5039	7.5	0.0	7.5
5040	2.1	0.0	2.1
5041	2.0	0.0	2.0
5042	0.0	0.0	0.0
5043	34.8	19.1	15.7
5044	0.8	0.0	0.8
5045	0.8	0.0	0.8
5059	1.4	1.4	-
5060	0.9	0.0	0.9
5062	40.4	20.5	19.9
5063	37.0	37.0	-
5064	0.0	0.0	-
5067	0.0	0.0	-
5069	40.3	40.3	-
5070	0.0	0.0	-
5073	5.7	5.7	-
5074	0.8	0.8	-
5080	0.0	0.0	-
Grand Total	175.7	124.9	50.8

B7.6. City of Lakewood

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5004	0.0	0.0	-
5007	17.5	17.5	0.0
5008	8.2	2.3	5.9
5014	0.0	0.0	-
5015	0.0	0.0	-
5016	0.0	0.0	-
5017	0.0	0.0	-
Grand Total	25.7	19.7	6.0

B7.7. City of Long Beach

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5003	0.0	0.0	0.0
5004	37.5	0.0	37.5
5005	0.0	0.0	-
5007	0.0	0.0	-
5009	0.0	0.0	-
5013	0.0	0.0	-
Grand Total	37.5	0.0	37.5

B7.8. City of Norwalk

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5008	3.0	1.6	1.3
5018	36.0	2.0	34.0
5019	41.5	24.3	17.2
5020	0.0	0.0	-
5021	43.4	16.9	26.5
5022	28.7	7.7	21.0
5024	0.0	0.0	-
5025	0.0	0.0	-
5060	0.0	0.0	-
5068	0.0	0.0	-
5071	0.0	0.0	-
5073	0.0	0.0	-
Grand Total	152.5	52.5	99.9

B7.9. City of Santa Fe Springs

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5019	0.0	0.0	-
5020	27.7	0.0	27.7
5022	13.5	0.0	13.5
5024	0.0	0.0	-
5025	31.2	0.0	31.2
5060	28.9	0.0	28.9
5061	0.0	0.0	-
5062	2.6	0.0	2.6
5067	19.4	0.0	19.4
5068	6.1	0.0	6.1
5069	2.3	0.0	2.3
5071	50.5	0.0	50.5
5072	2.6	2.6	-
5073	23.5	0.0	23.5
5084	1.4	1.4	-
5089	19.8	0.0	19.8
5092	1.1	1.1	-
5093	22.1	0.0	22.1
5094	7.4	7.4	-
5095	0.4	0.0	0.4
Grand Total	260.7	12.6	248.1

B7.10. City of Whittier

Subwatershed	COMPLIANCE TARGET – FINAL MILESTONE		
	Total Critical Year Storm Volume Target (acre-ft/year)	MS4 Responsible Critical Year Storm Volume Runoff (acre-ft/year)	Non-MS4 Runoff – Industrial Permitted & Caltrans (acre-ft/year)
5045	0.0	0.0	-
5064	0.0	0.0	-
5065	3.7	3.7	-
5070	0.0	0.0	-
5079	18.5	11.7	6.8
5080	52.6	26.0	26.5
5081	2.1	0.0	2.1
5082	6.8	0.2	6.6
5083	0.0	0.0	-
5086	1.7	0.0	1.7
5087	21.0	20.8	0.2
5088	25.0	24.7	0.3
5089	0.6	0.5	0.1
5090	0.8	0.8	-
5091	6.6	5.7	0.9
5092	13.8	8.9	4.9
5093	0.0	0.0	-
5094	0.6	0.6	-
5095	24.2	21.1	3.1
5096	3.8	3.8	-
5097	5.2	5.2	-
5098	48.7	47.9	0.7
5099	11.3	10.6	0.7
5100	7.3	7.3	-
5101	0.6	0.6	-
Grand Total	254.7	200.1	54.6

B8. Lower San Gabriel River WMP (Coyote Creek) – Compliance Tables

B8.1. City of Artesia

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	Final	-	-	-	-	-	-
5018	35%	15.9	-	-	1.1	-	1.1
Grand Total		15.9	-	-	1.1	-	1.1

B8.2. City of Cerritos

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	Final	7.7	-	-	0.9	-	0.9
5016	Final	-	-	-	-	-	-
5017	Final	4.3	-	-	0.5	-	0.5
5018	Final	14.9	-	-	1.1	-	1.1
5023	Final	-	-	-	-	-	-
5024	Final	-	-	-	-	-	-
5026	Final	5.8	-	1.0	0.0	-	1.0
5028	Final	-	-	-	-	-	-
5029	Final	4.9	-	0.3	0.2	-	0.6
5030	35%	0.1	-	0.0	-	-	0.0
5035	Final	-	-	-	-	-	-
5036	Final	1.2	-	0.2	0.0	-	0.2
5038	Final	-	-	-	-	-	-
5059	Final	15.1	-	1.6	0.5	-	2.0
5060	Final	-	-	-	-	-	-
5061	Final	2.6	-	-	0.2	-	0.2
Grand Total		56.7	-	3.1	3.4	-	6.4

B8.3. City of Diamond Bar

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5053	Final	-	-	-	-	-	-
5054	35%	1.0	-	0.3	-	-	0.3
5055	Final	8.4	-	1.2	-	0.7	1.9
5056	Final	-	-	-	-	-	-
5057	Final	-	-	-	-	-	-
5058	Final	27.2	-	6.7	-	-	6.7
Grand Total		36.7	-	8.2	-	0.7	8.9

B8.4. City of Hawaiian Gardens

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5004	Final	-	-	-	-	-	-
5007	35%	23.6	-	0.3	1.5	-	1.8
5009	Final	0.1	-	-	-	0.0	0.0
5013	Final	1.3	-	-	0.1	-	0.1
5014	Final	2.1	-	0.2	0.0	-	0.3
Grand Total		27.1	-	0.6	1.6	0.0	2.2

B8.5. City of La Mirada

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5037	Final	-	-	-	-	-	-
5038	Final	-	-	-	-	-	-
5039	Final	-	-	-	-	-	-
5040	Final	-	-	-	-	-	-
5041	Final	-	-	-	-	-	-
5042	Final	-	-	-	-	-	-
5043	Final	19.1	-	1.9	0.6	-	2.5
5044	Final	-	-	-	-	-	-
5045	35%	-	-	-	-	-	-
5059	Final	1.4	-	0.3	-	-	0.3
5060	Final	-	-	-	-	-	-
5062	Final	20.5	-	1.0	1.1	-	2.1
5063	Final	37.0	-	-	3.0	-	3.0
5064	Final	-	-	-	-	-	-
5067	Final	-	-	-	-	-	-
5069	Final	40.3	-	5.3	0.9	-	6.2
5070	Final	-	-	-	-	-	-
5073	Final	5.7	-	1.0	-	-	1.0
5074	Final	0.8	-	0.1	-	-	0.1
5080	Final	-	-	-	-	-	-
Grand Total		124.9	-	9.6	5.6	-	15.2

B8.6. City of Lakewood

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5004	Final	-	-	-	-	-	-
5007	35%	17.5	-	0.9	0.7	-	1.6
5008	Final	2.3	-	-	0.3	-	0.3
5014	Final	-	-	-	-	-	-
5015	Final	-	-	-	-	-	-
5016	Final	-	-	-	-	-	-
5017	Final	-	-	-	-	-	-
Grand Total		19.7	-	0.9	0.9	-	1.9

B8.7. City of Long Beach

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5003	Final	-	-	-	-	-	-
5004	35%	-	-	-	-	-	-
5005	Final	-	-	-	-	-	-
5007	Final	-	-	-	-	-	-
5009	Final	-	-	-	-	-	-
5013	Final	0.0	-	-	0.0	-	0.0
Grand Total		0.0	-	-	0.0	-	0.0

B8.8. City of Norwalk

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5008	35%	1.6	-	-	0.2	-	0.2
5018	Final	2.0	-	-	0.2	-	0.2
5019	Final	24.3	-	-	1.8	-	1.8
5020	Final	-	-	-	-	-	-
5021	Final	16.9	-	-	1.3	-	1.3
5022	Final	7.7	-	1.4	-	-	1.4
5024	Final	-	-	-	-	-	-
5025	Final	-	-	-	-	-	-
5060	Final	-	-	-	-	-	-
5068	Final	-	-	-	-	-	-
5071	Final	-	-	-	-	-	-
5073	Final	-	-	-	-	-	-
Grand Total		52.5	-	1.4	3.4	-	4.7

B8.9. City of Santa Fe Springs

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5019	Final	0.0	-	-	-	0.0	0.0
5020	Final	-	-	-	-	-	-
5022	Final	-	-	-	-	-	-
5024	Final	-	-	-	-	-	-
5025	Final	-	-	-	-	-	-
5060	Final	-	-	-	-	-	-
5061	Final	-	-	-	-	-	-
5062	Final	-	-	-	-	-	-
5067	Final	-	-	-	-	-	-
5068	Final	-	-	-	-	-	-
5069	Final	-	-	-	-	-	-
5071	Final	-	-	-	-	-	-
5072	Final	2.6	-	0.3	-	0.1	0.4
5073	Final	-	-	-	-	-	-
5084	Final	1.4	-	0.2	-	-	0.2
5089	Final	-	-	-	-	-	-
5092	Final	1.1	-	0.1	-	0.2	0.2
5093	Final	-	-	-	-	-	-
5094	Final	7.4	-	0.4	-	0.9	1.2
5095	35%	-	-	-	-	-	-
Grand Total		12.6	-	1.0	-	1.1	2.1

B8.10. City of Whittier

Subwatershed	Milestone	COMPLIANCE TARGET	POLLUTANT REDUCTION PLAN				
		Remaining MS4 Responsible Critical Year Volume (acre-ft/year)	Existing Distributed BMP Volume (acre-ft)	Total Estimated Right-of-Way BMP Volume (acre-ft)	Estimated Potential LID on Public Parcels Volume (acre-ft)	Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	Total BMP Volume to Achieve Compliance (acre-ft)
5045	Final	0.0	-	-	-	0.0	0.0
5064	Final	-	-	-	-	-	-
5065	Final	3.7	-	0.8	-	-	0.8
5070	Final	0.0	-	-	-	0.0	0.0
5079	Final	11.7	-	2.5	-	-	2.5
5080	Final	26.0	-	5.5	-	-	5.5
5081	35%	-	-	-	-	-	-
5082	Final	0.2	-	0.0	-	-	0.0
5083	Final	-	-	-	-	-	-
5086	Final	-	-	-	-	-	-
5087	Final	20.8	-	4.1	-	-	4.1
5088	Final	24.7	-	5.4	-	-	5.4
5089	Final	0.5	-	0.1	-	-	0.1
5090	Final	0.8	-	0.2	-	-	0.2
5091	Final	5.7	-	1.1	-	-	1.1
5092	Final	8.9	-	1.7	-	-	1.7
5093	Final	0.0	-	-	-	0.0	0.0
5094	Final	0.6	-	0.1	-	0.0	0.1
5095	Final	21.1	-	3.9	-	-	3.9
5096	Final	3.8	-	0.7	-	-	0.7
5097	Final	5.2	-	1.0	-	-	1.0
5098	Final	47.9	-	8.7	-	-	8.7
5099	Final	10.6	-	1.9	-	-	1.9
5100	Final	7.3	-	1.4	-	-	1.4
5101	Final	0.6	-	0.1	-	-	0.1
Grand Total		200.1	-	39.0	-	0.0	39.1

Attachment C: Supporting Figures for Watershed Control Measures

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

Tetra Tech
9444 Balboa Ave., Suite 215
San Diego, CA 92123

June 6, 2014

Figure 1. LLAR Downey Subwatershed IDs

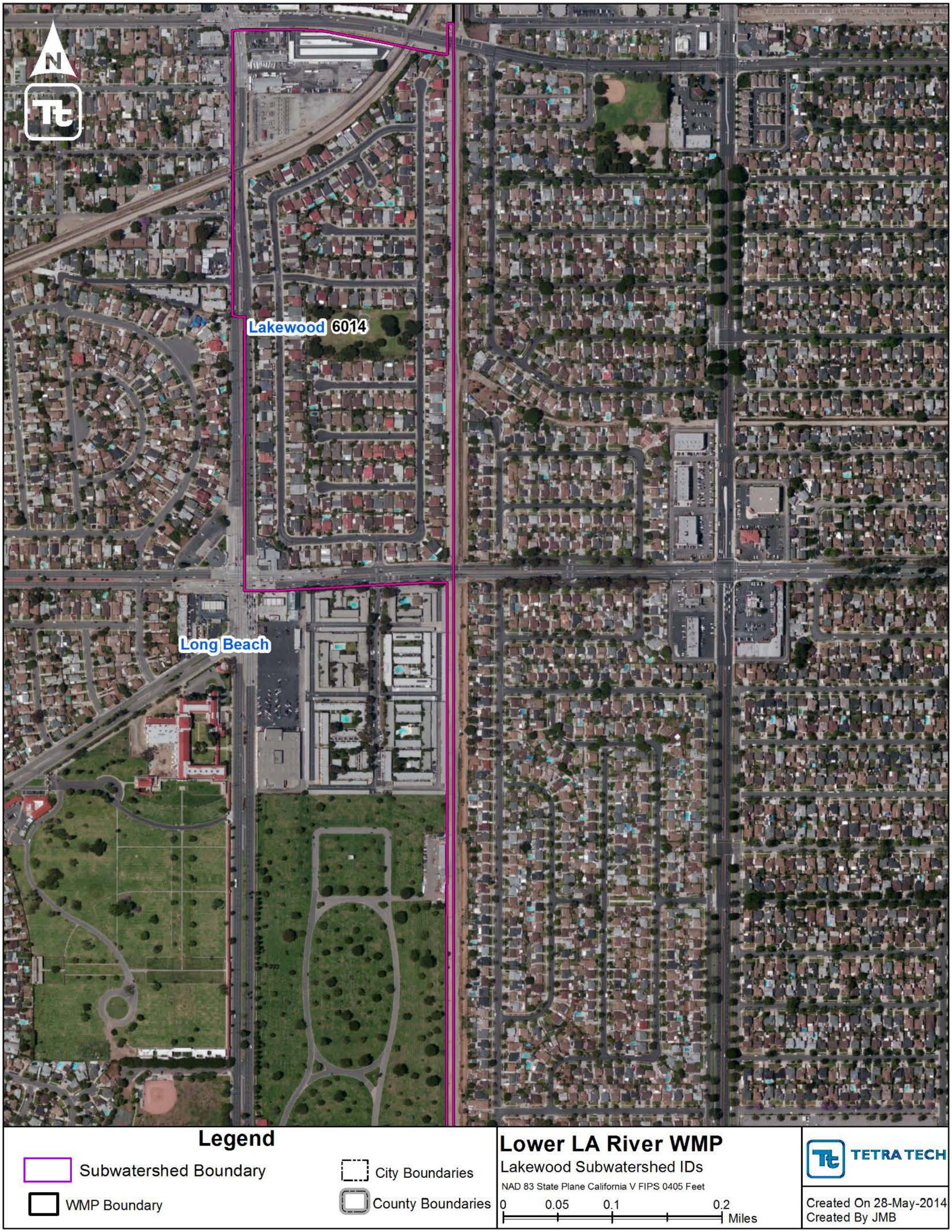

Figure 2. LLAR Lakewood Subwatershed IDs

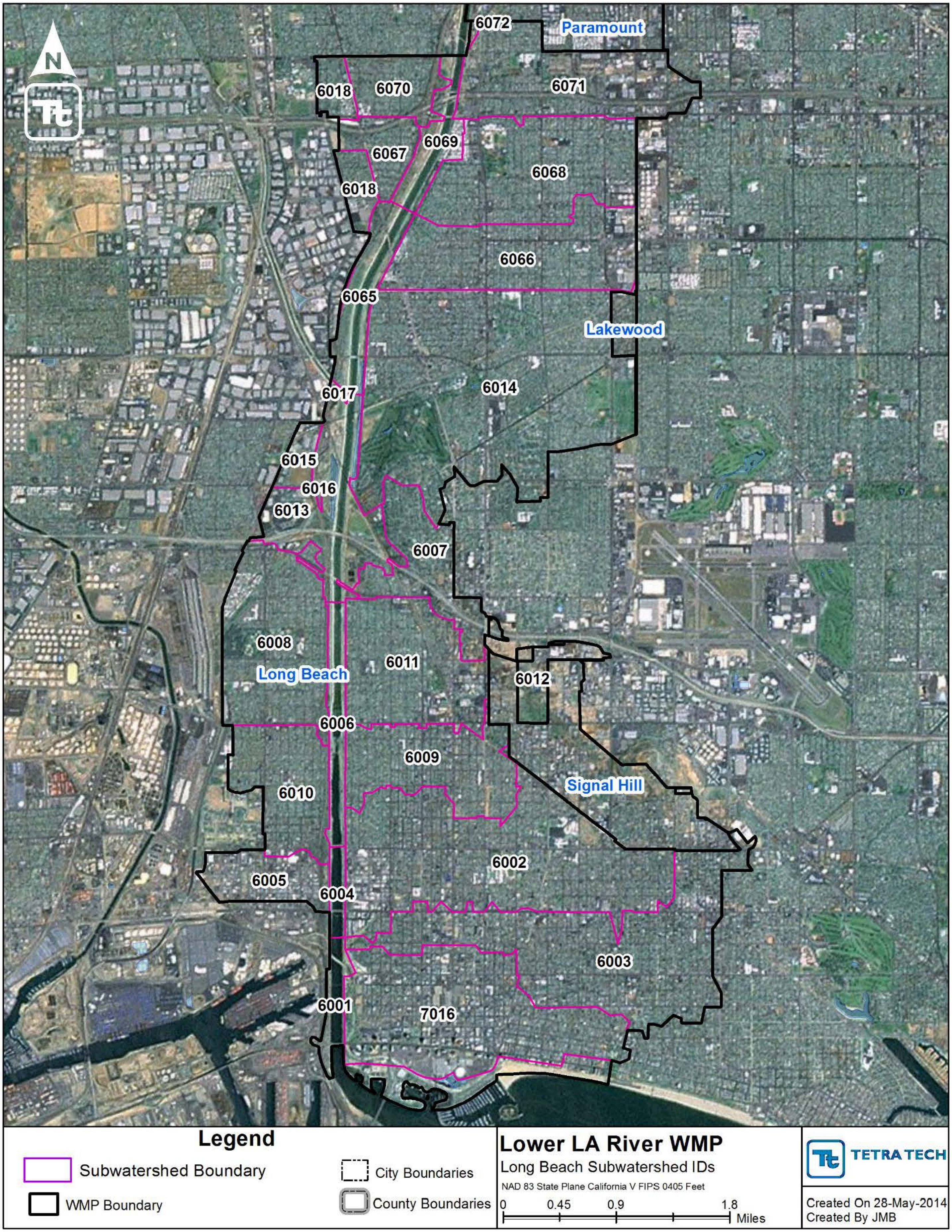

Figure 3. LLAR Long Beach Subwatershed IDs

Figure 4. LLAR Lynwood Subwatershed IDs

Figure 5. LLAR Paramount Subwatershed IDs

Figure 6. LLAR Pico Rivera Subwatershed IDs

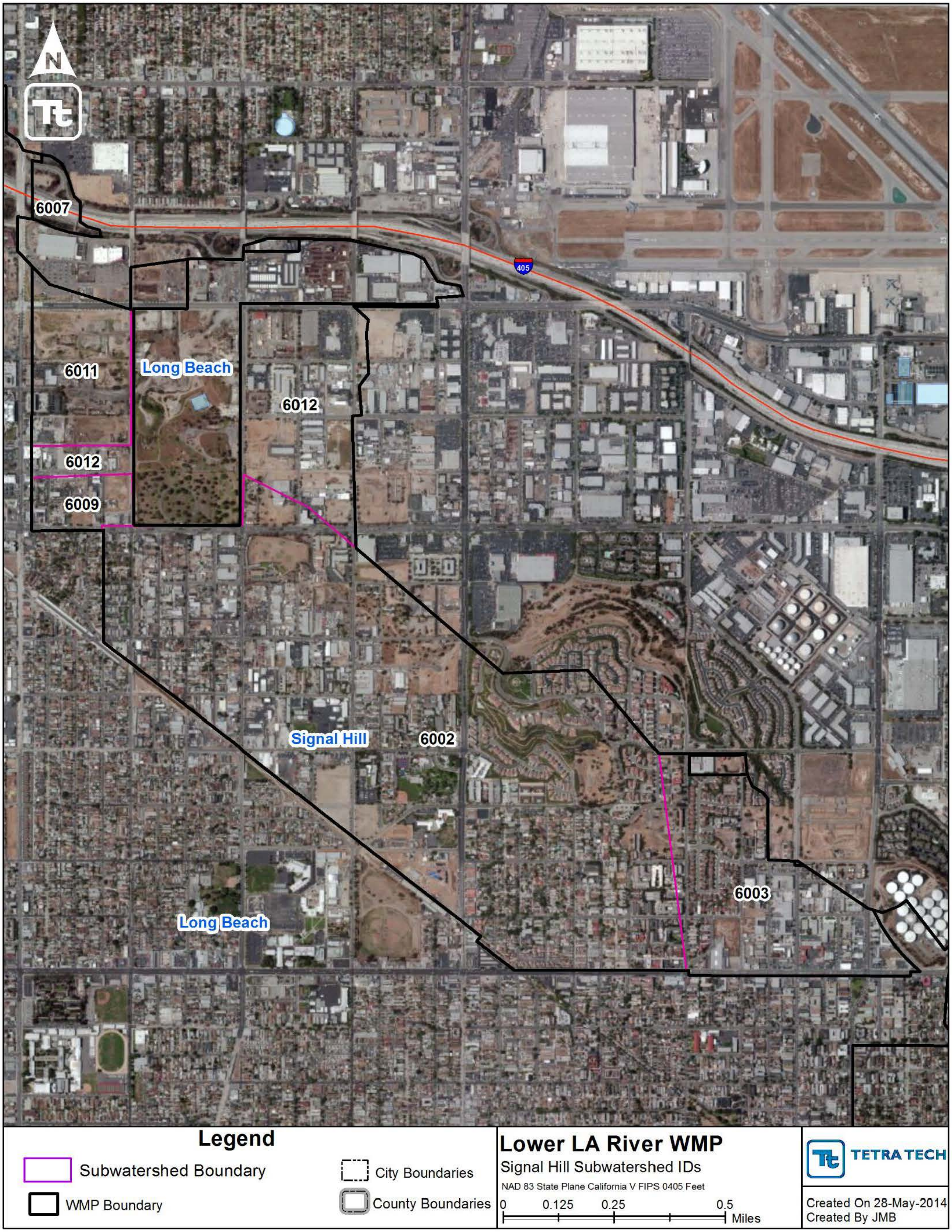

Figure 7. LLAR Signal Hill Subwatershed IDs

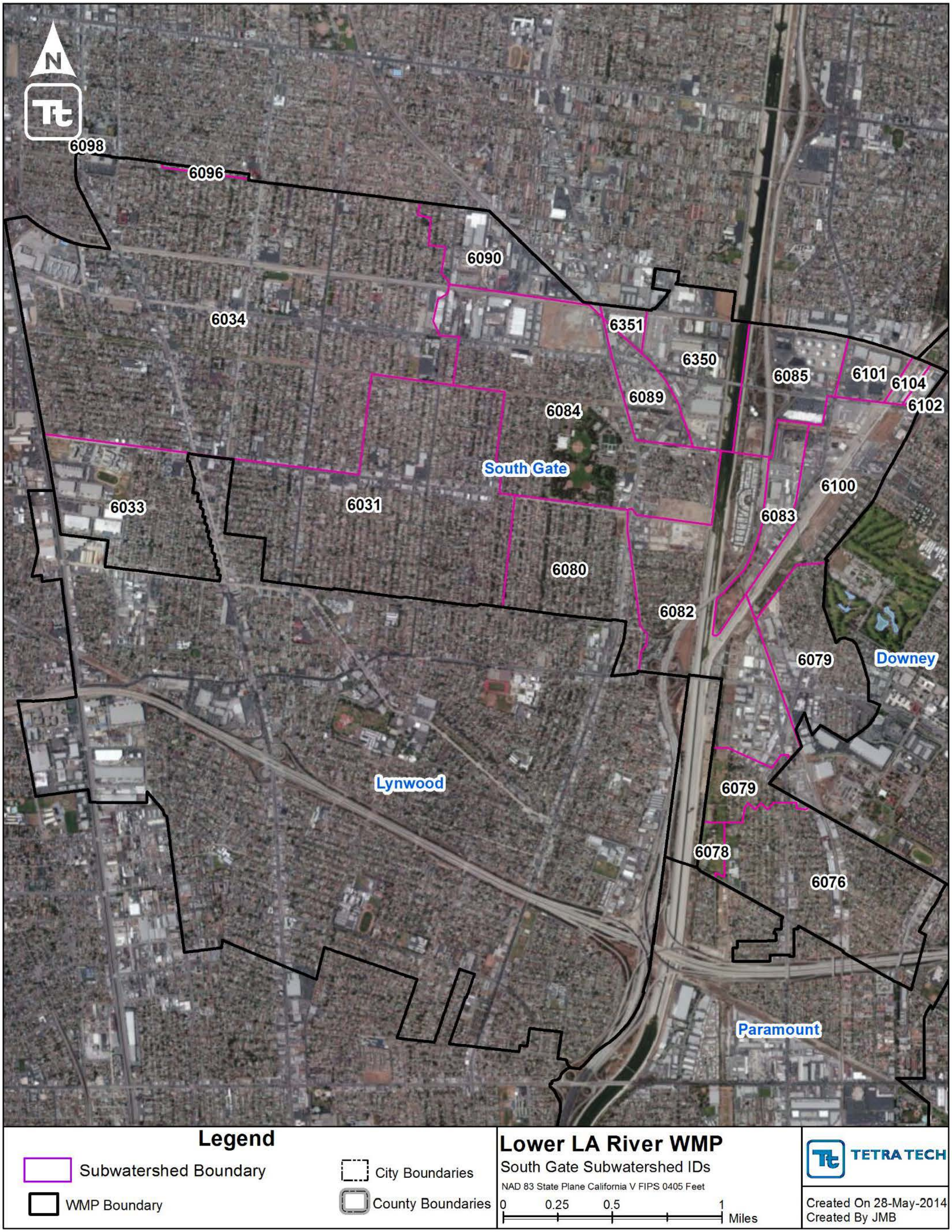

Figure 8. LLAR South Gate Subwatershed IDs

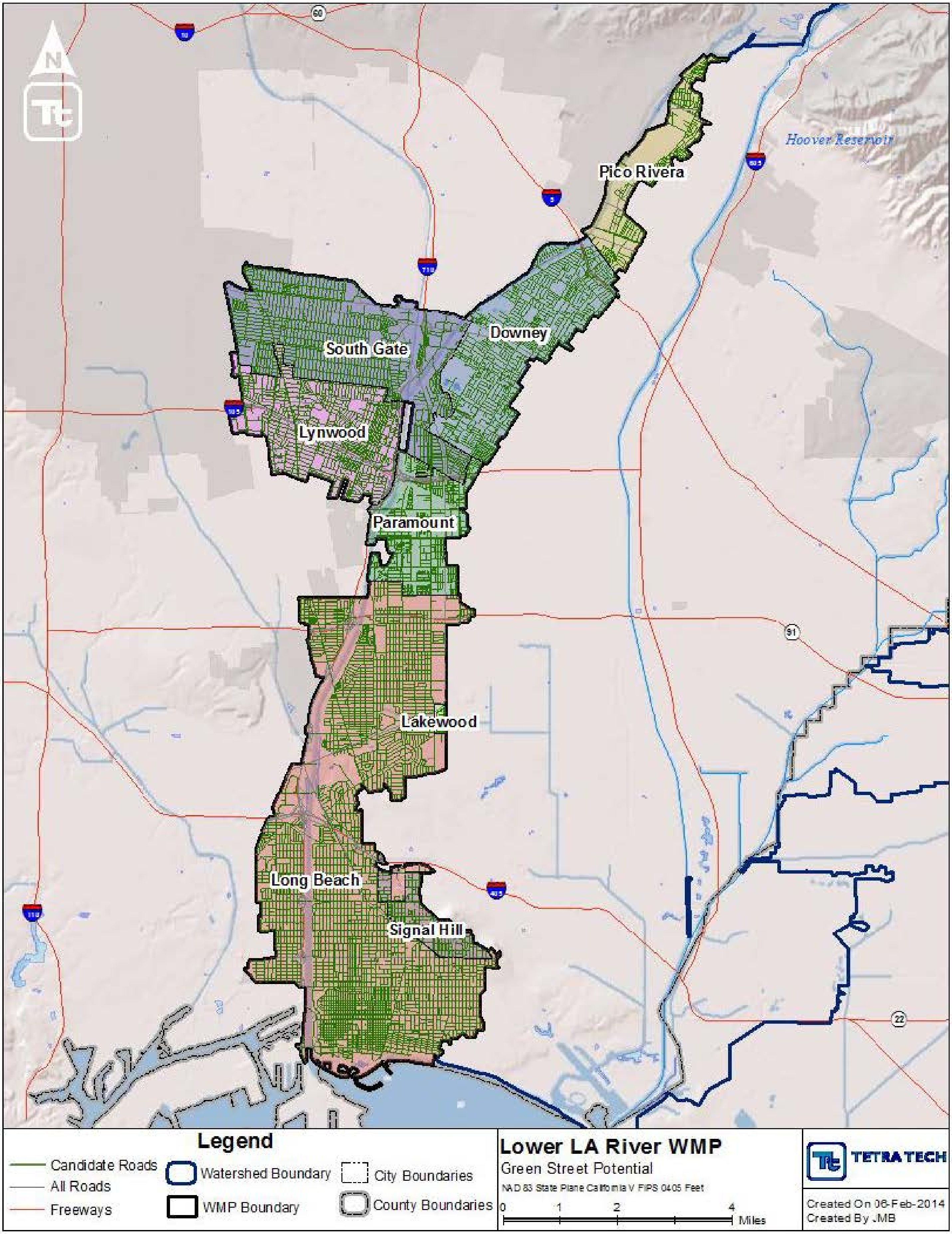

Figure 9. LLAR ROW BMP Potential Opportunities

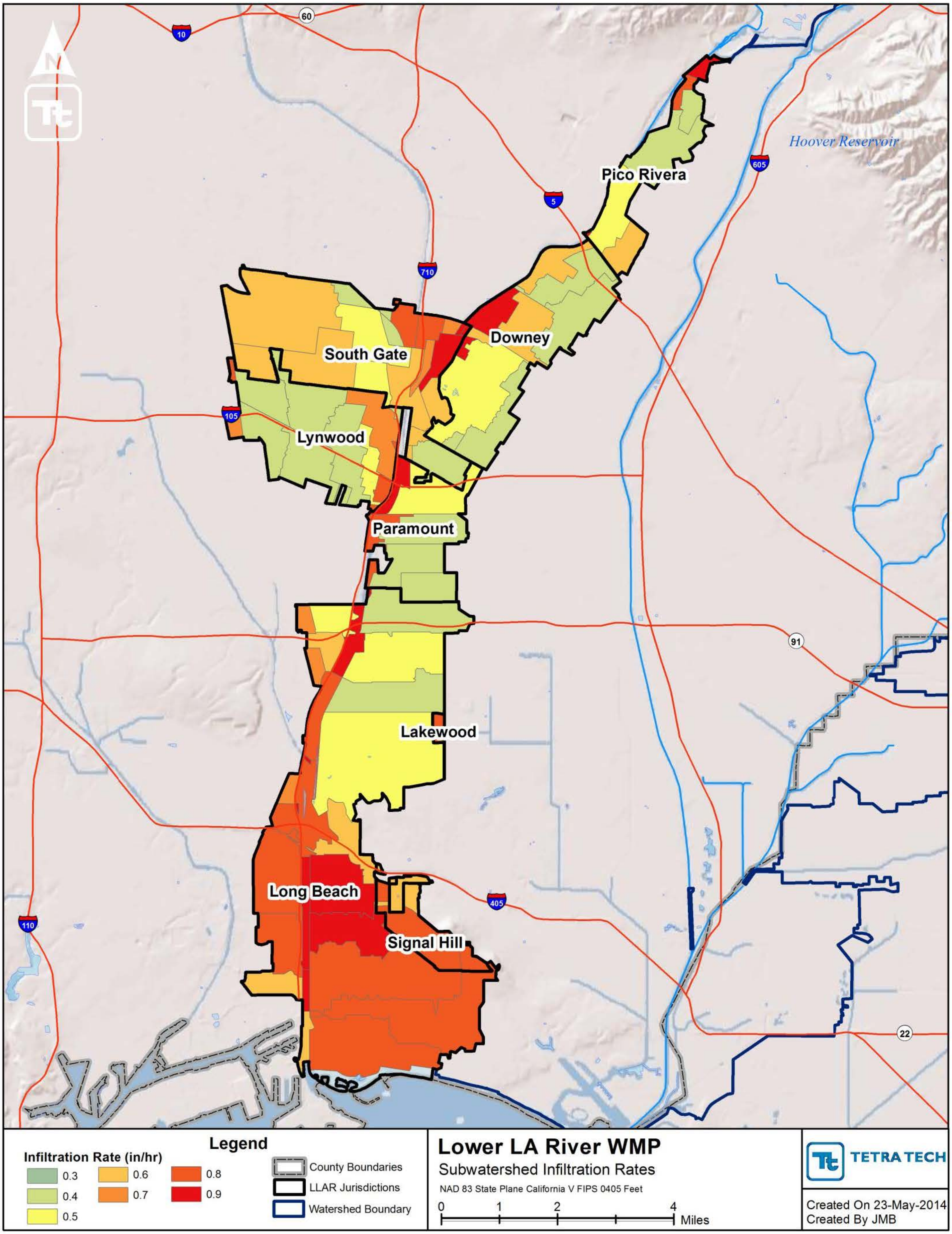

Figure 10. LLAR Subwatershed Infiltration Rates

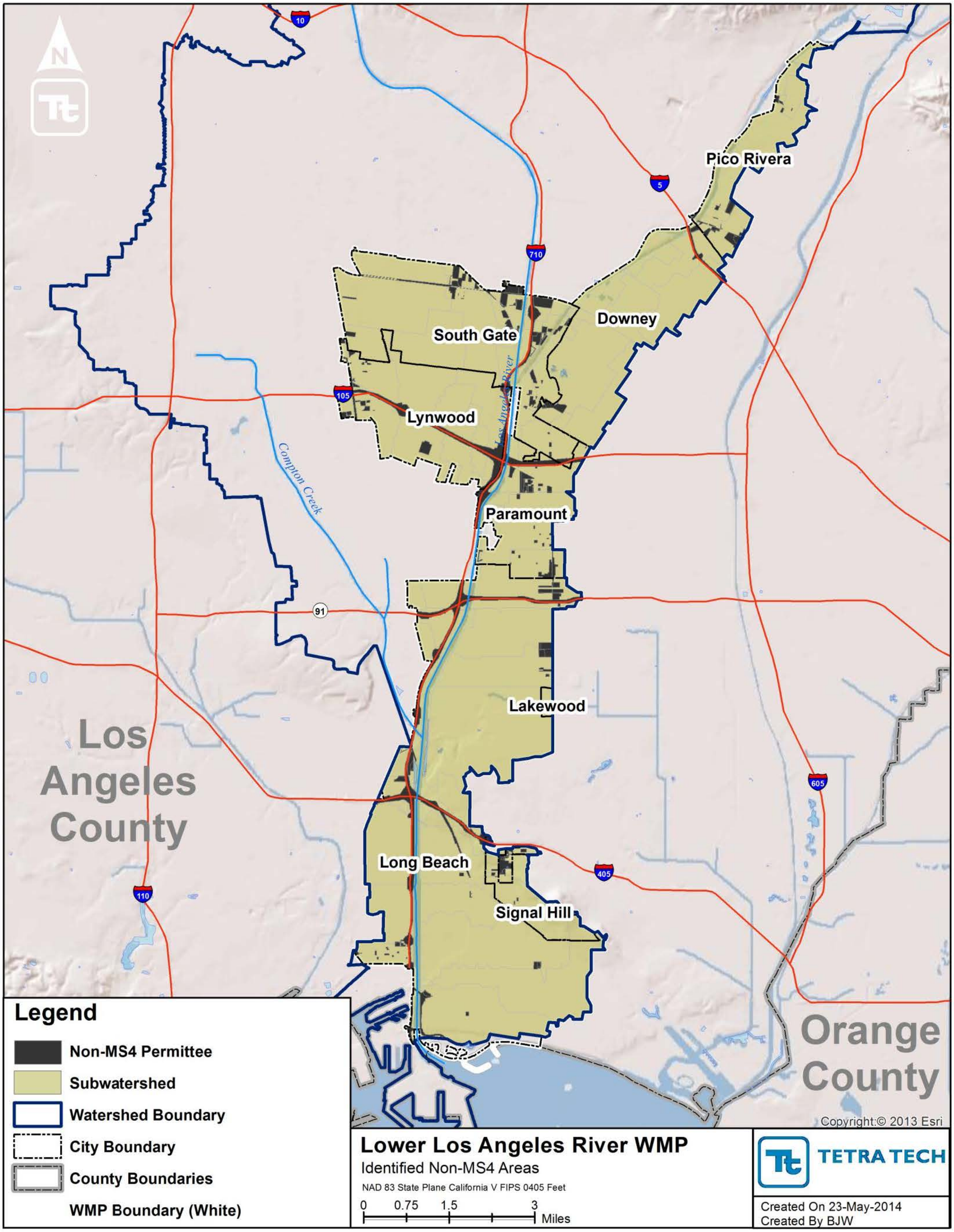

Figure 11. LLAR Non-MS4 Permittees

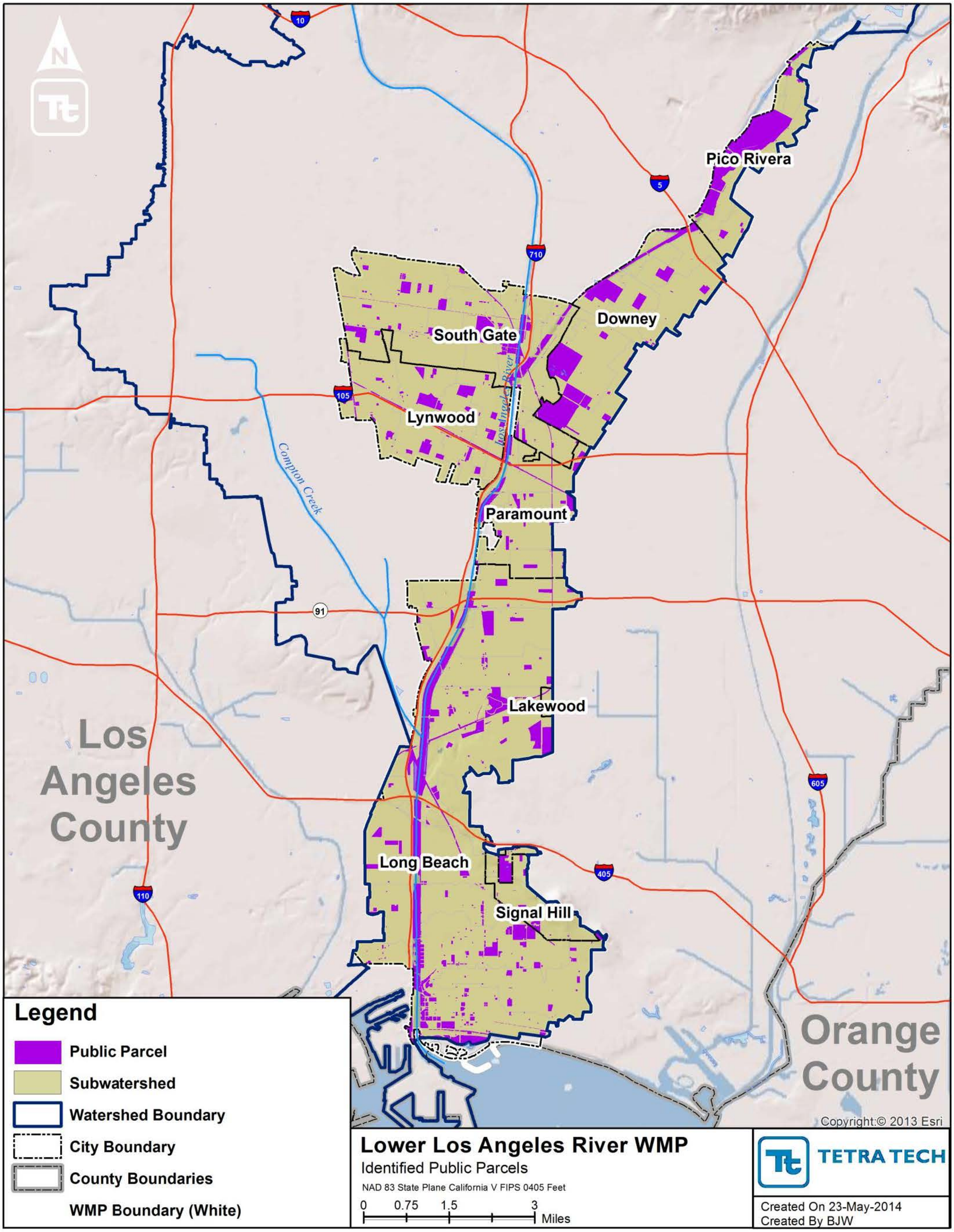

Figure 12. LLAR identified public parcels

RB-AR16126

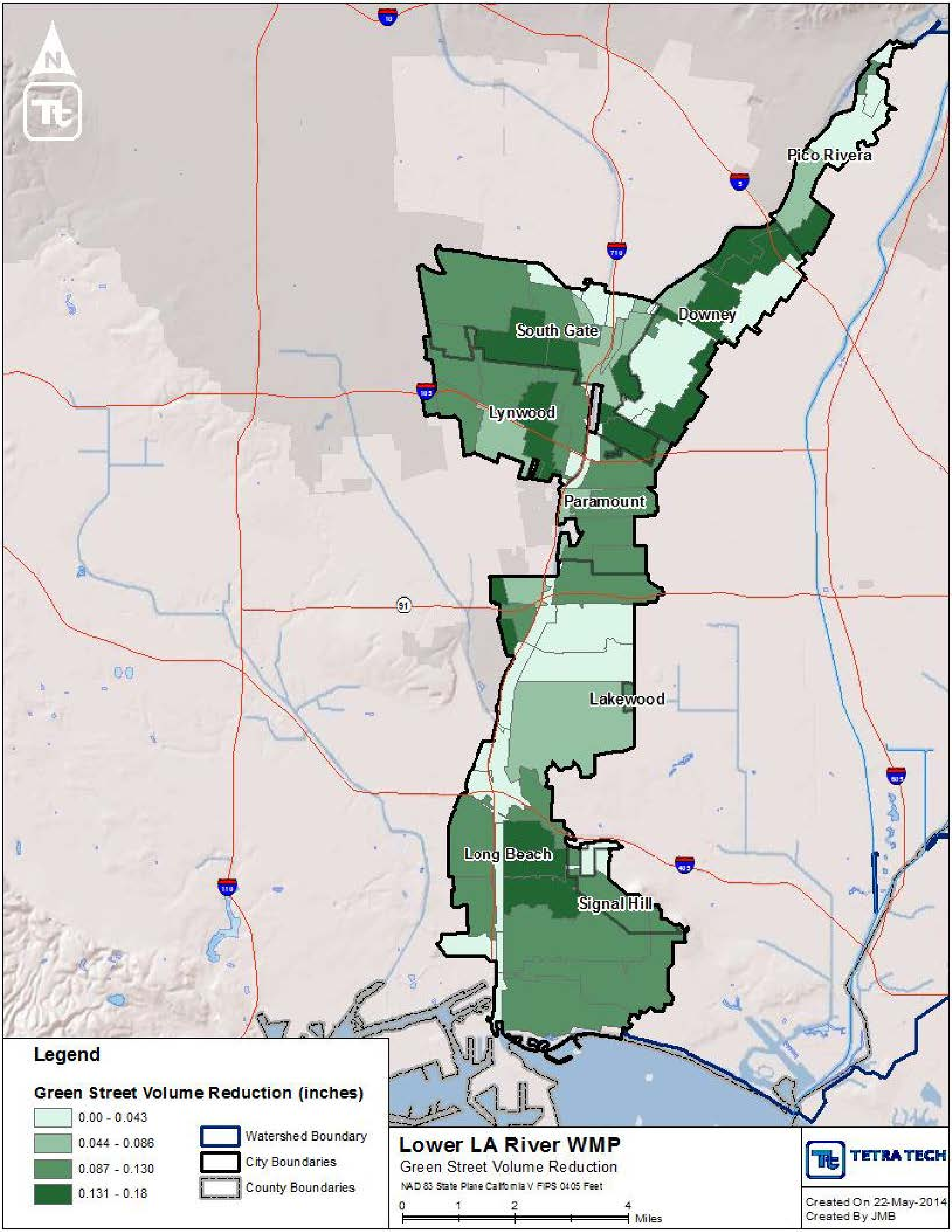

Figure 13. LLAR ROW BMP Volume Reduction

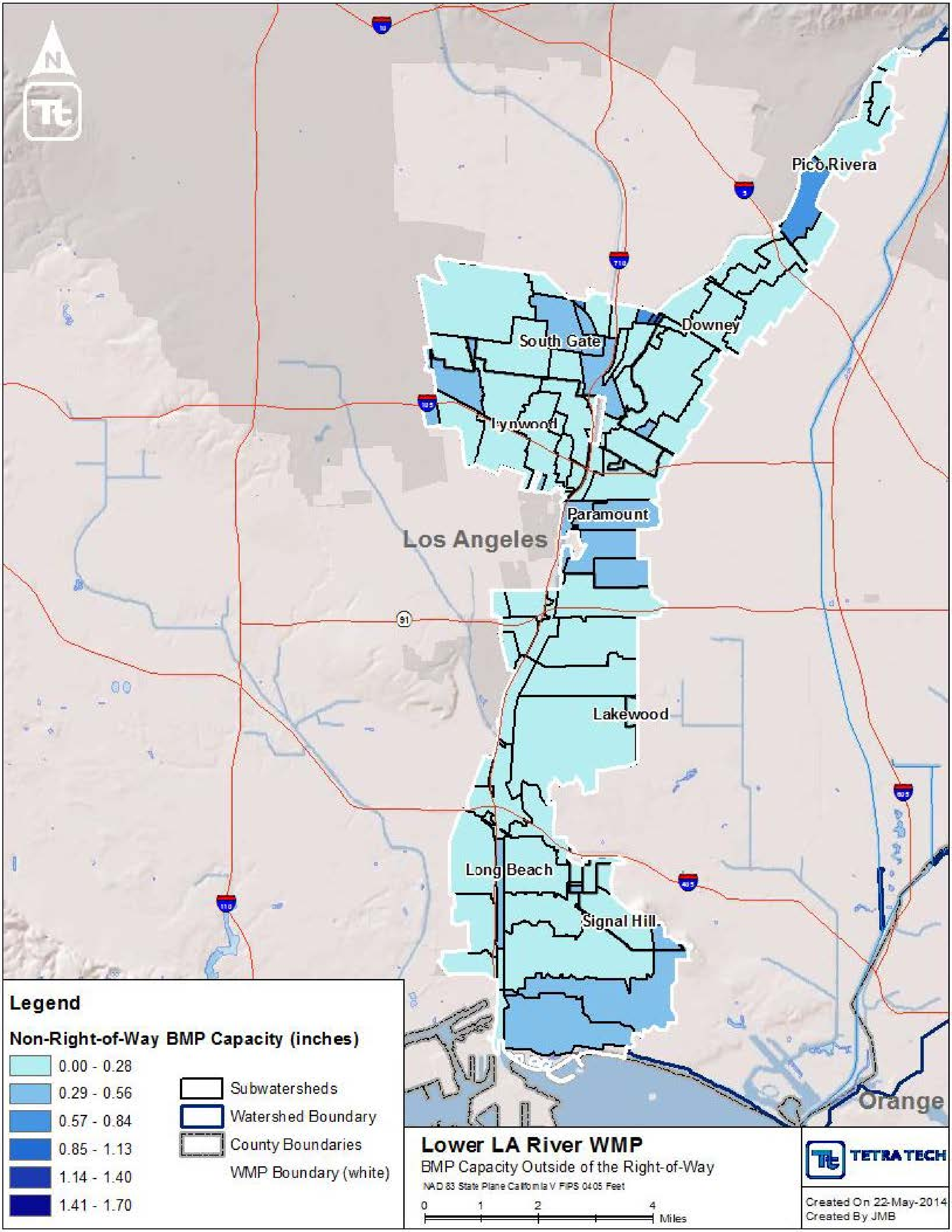

Figure 14. LLAR BMP capacity outside of the right-of-way

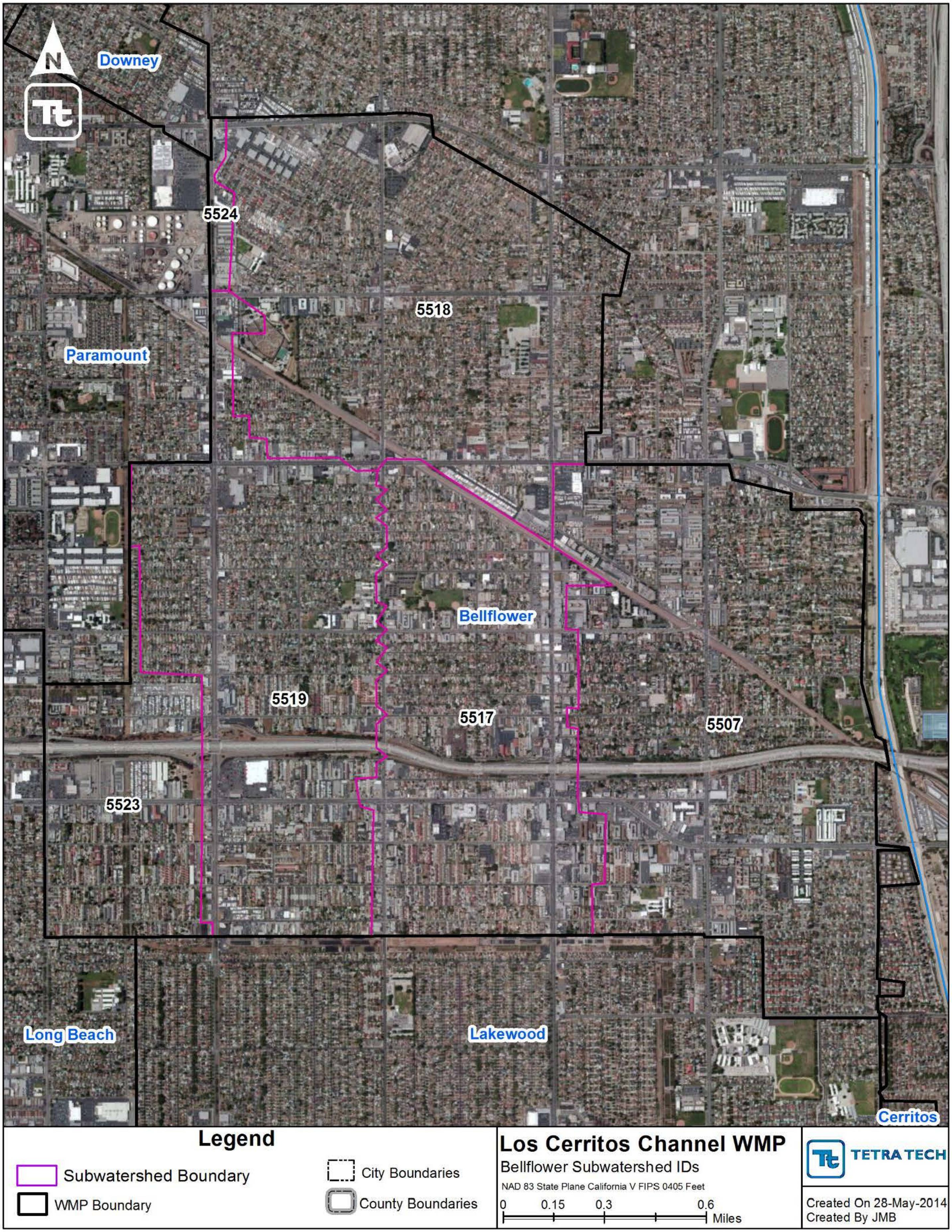

Figure 15. LCC Bellflower Subwatershed IDs

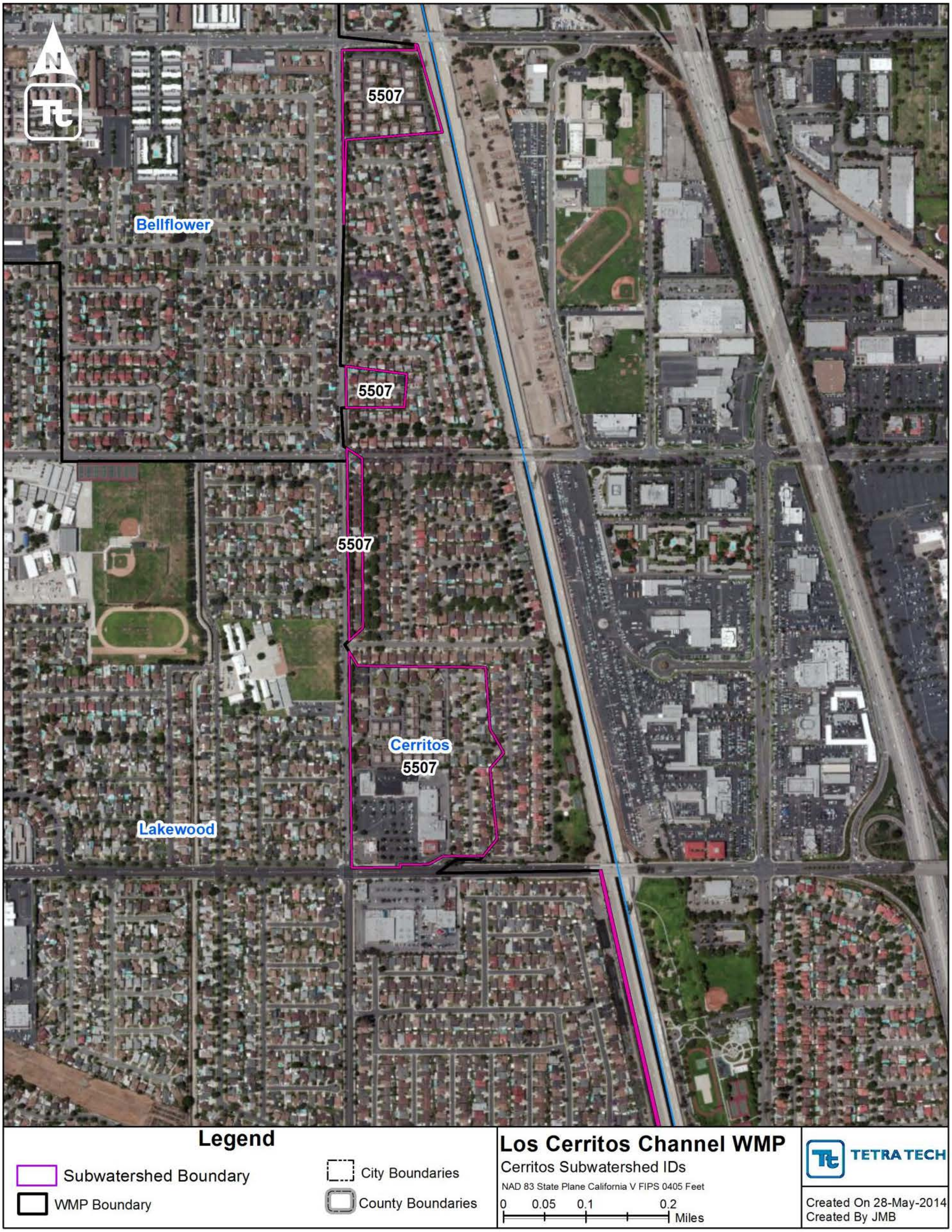

Figure 16. LCC Cerritos Subwatershed IDs

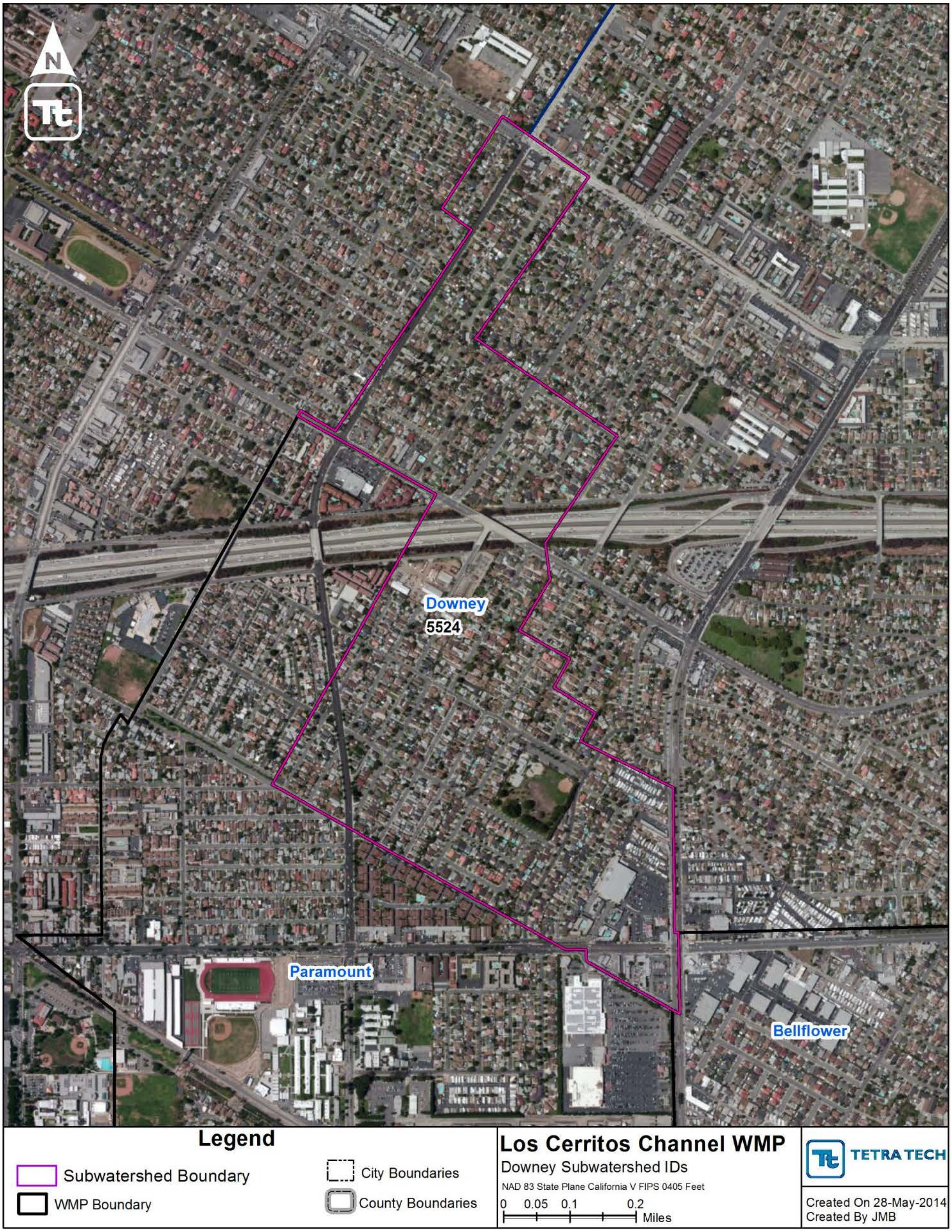

Figure 17. LCC Downey Subwatershed IDs

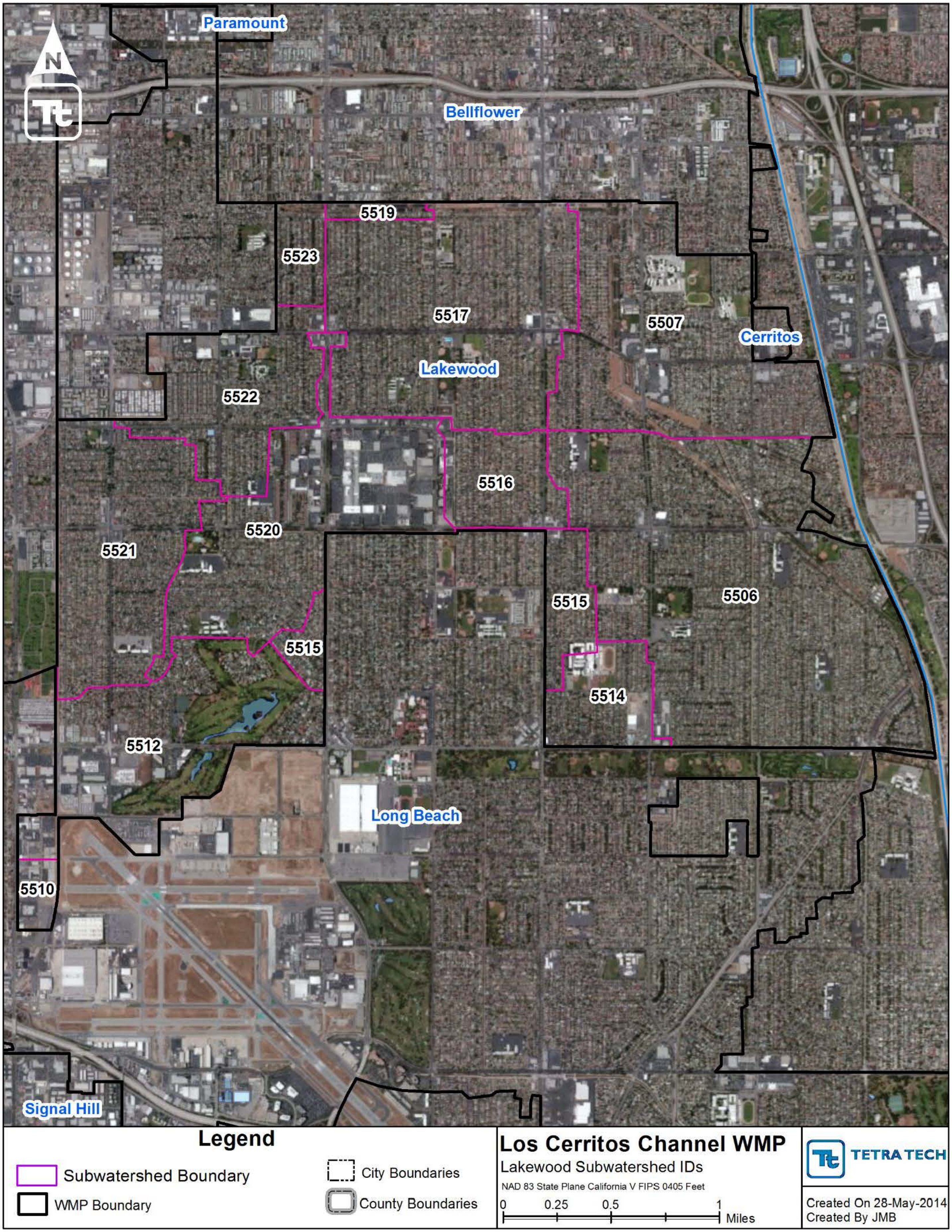

Figure 18. LCC Lakewood Subwatershed IDs

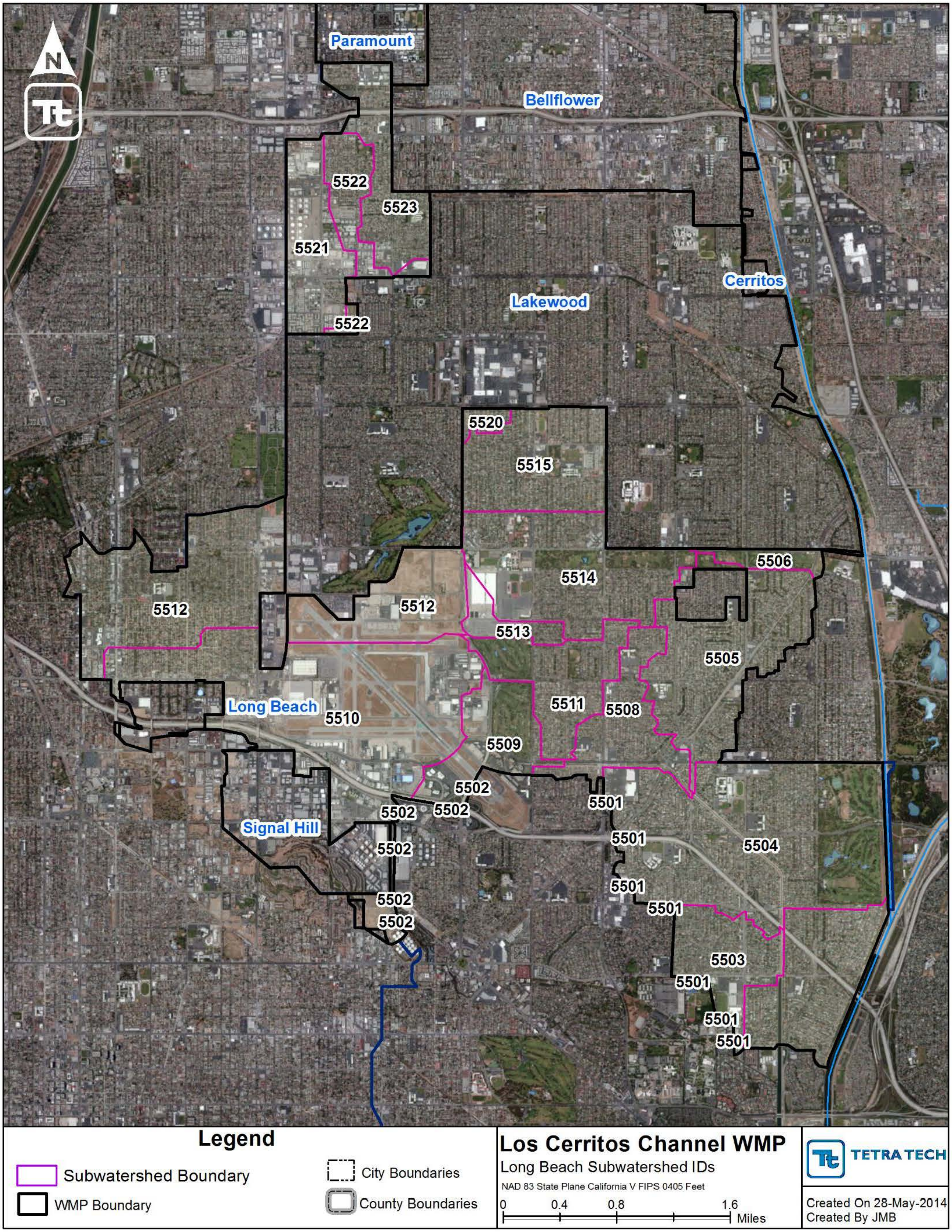

Figure 19. LCC Long Beach Subwatershed IDs

Figure 20. LCC Paramount Subwatershed IDs

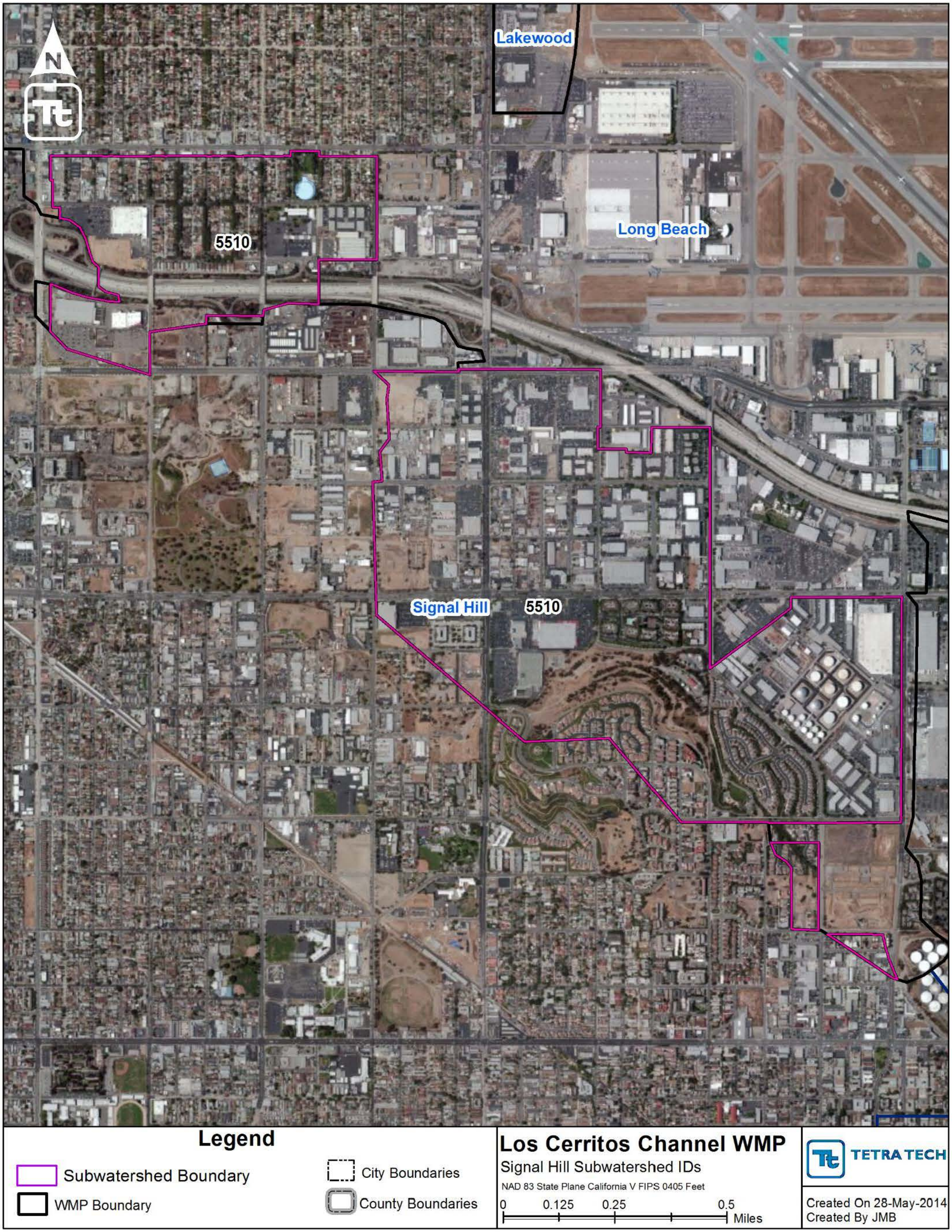

Figure 21. LCC Signal Hill Subwatershed IDs

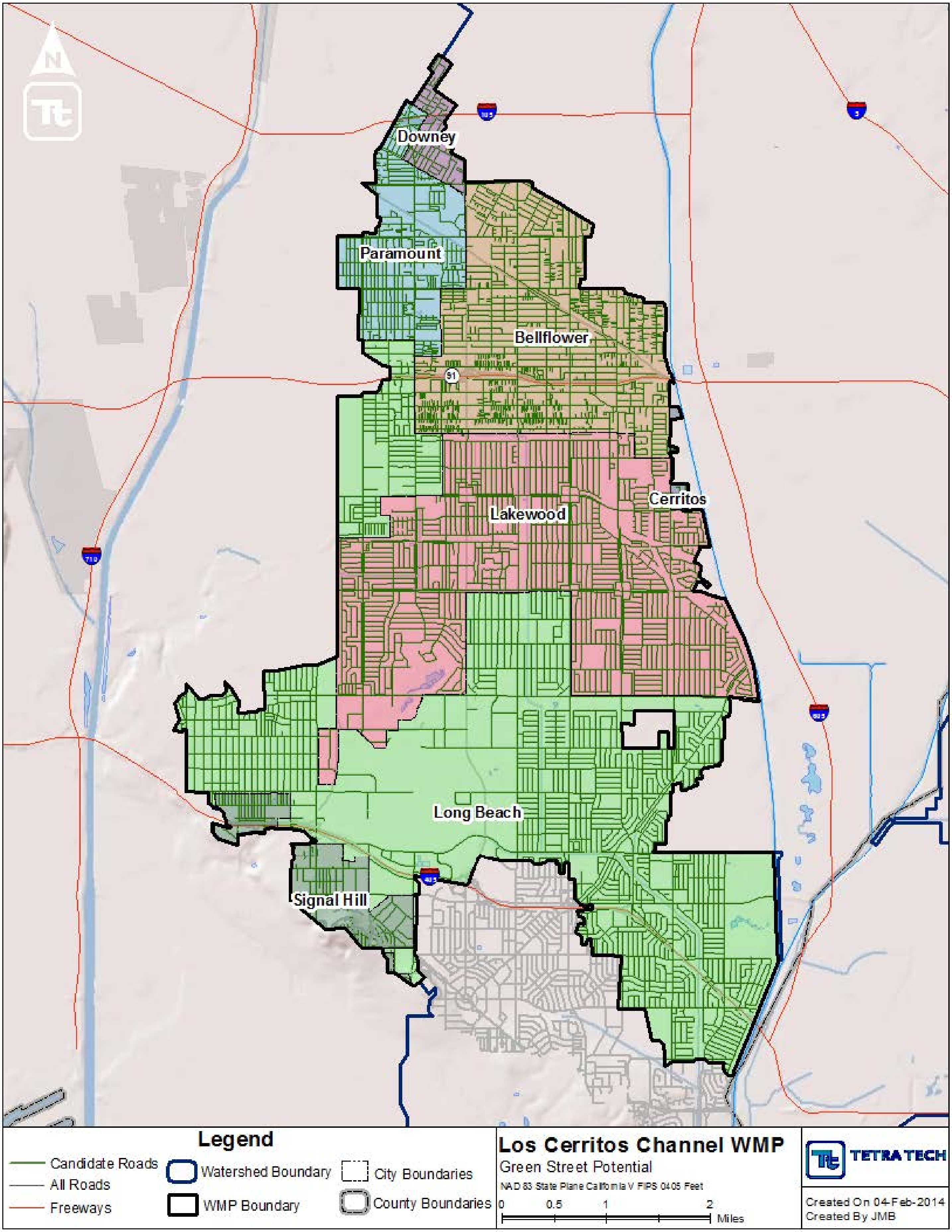

Figure 22. LCC ROW BMP Potential Opportunities

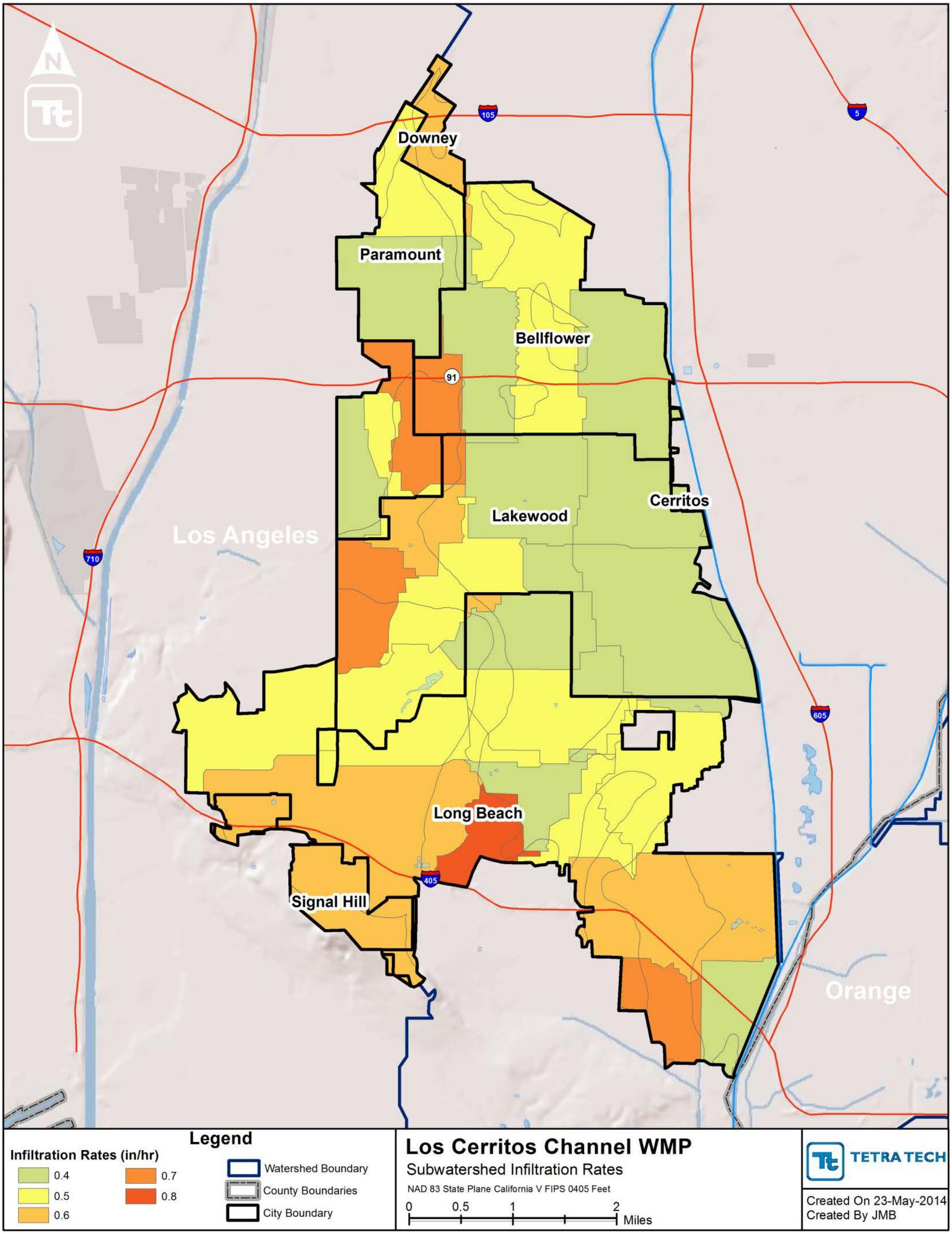

Figure 23. LCC Subwatershed Infiltration Rates

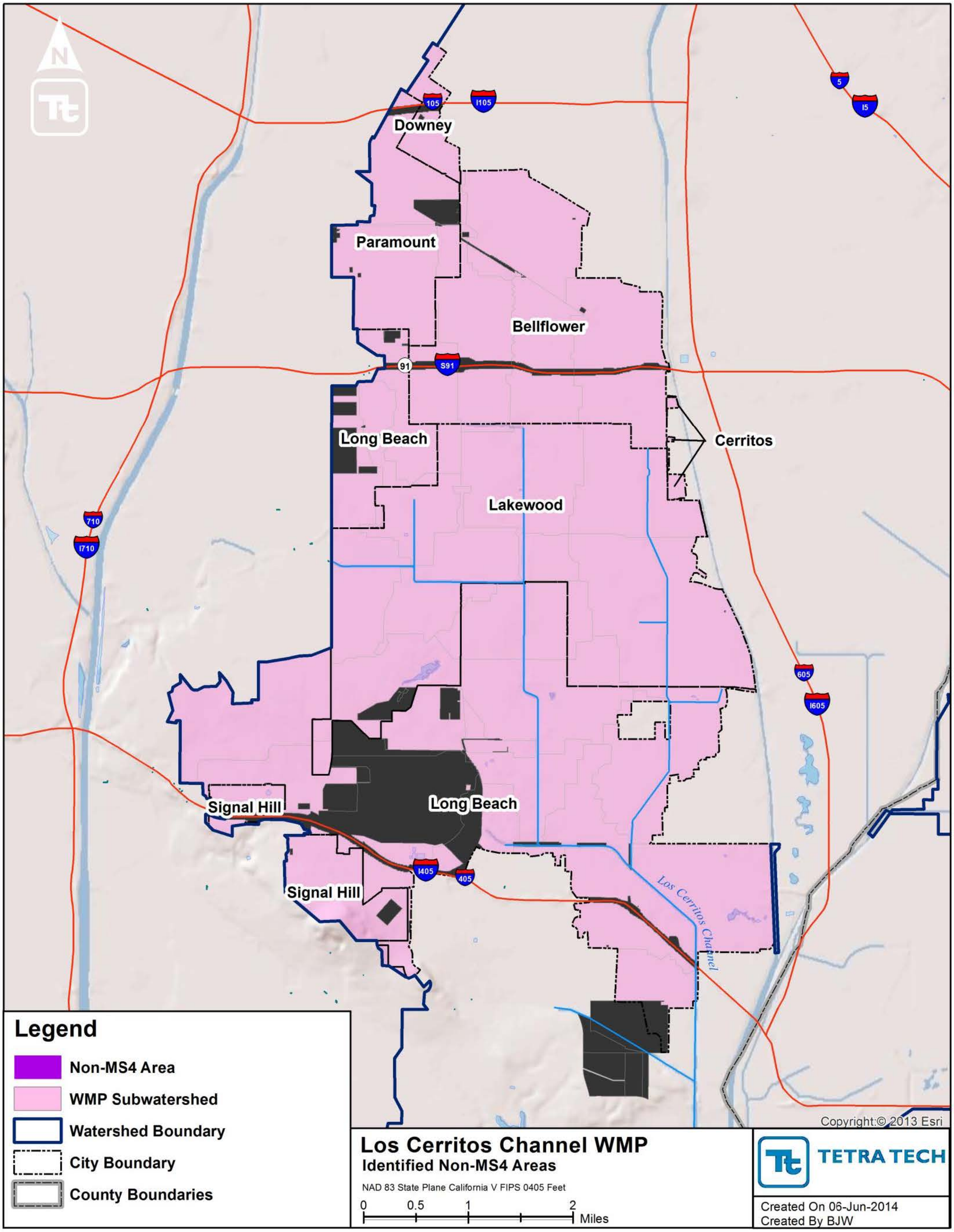

Figure 24. LCC Non-MS4 Permittees

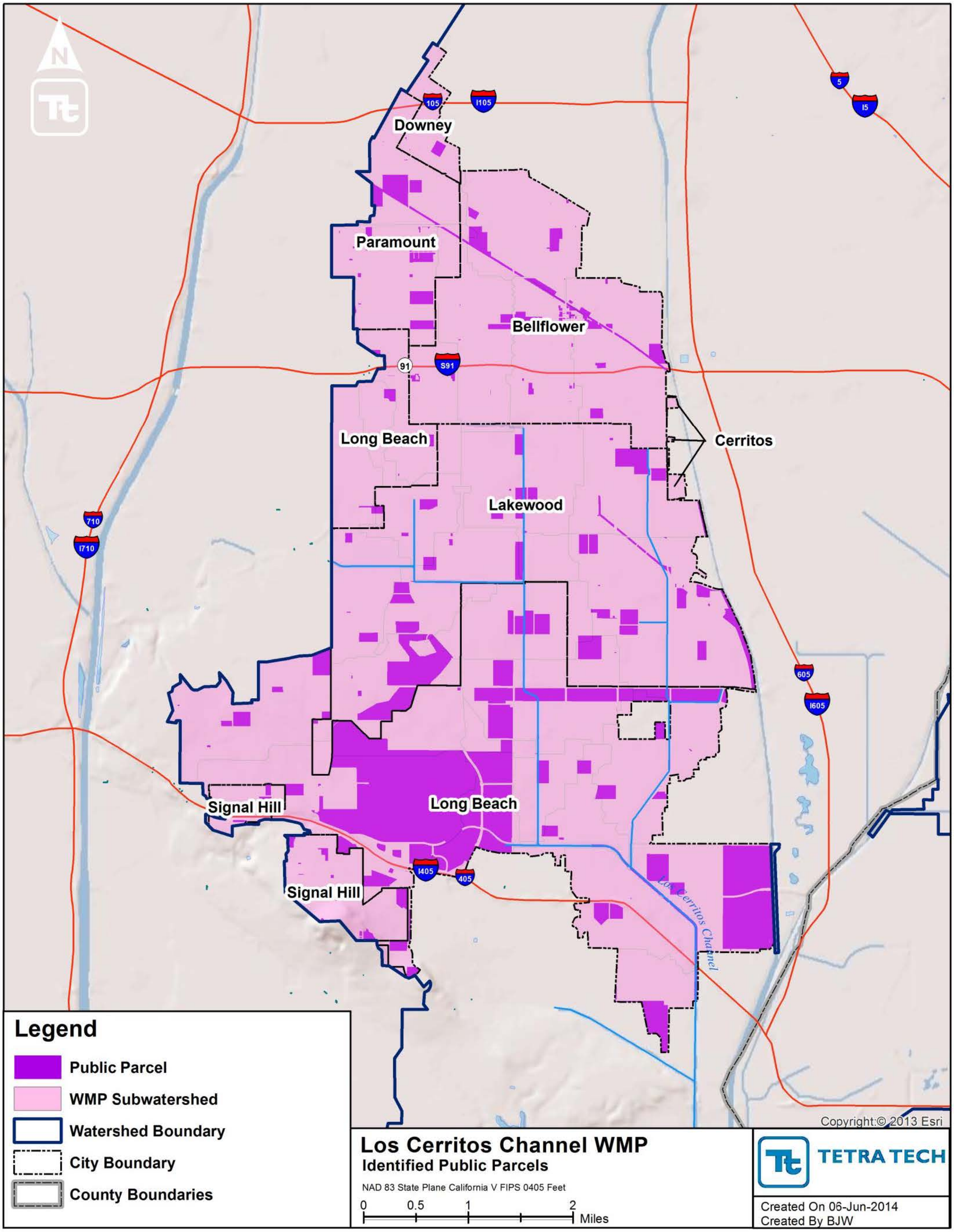

Figure 25. LCC identified public parcels

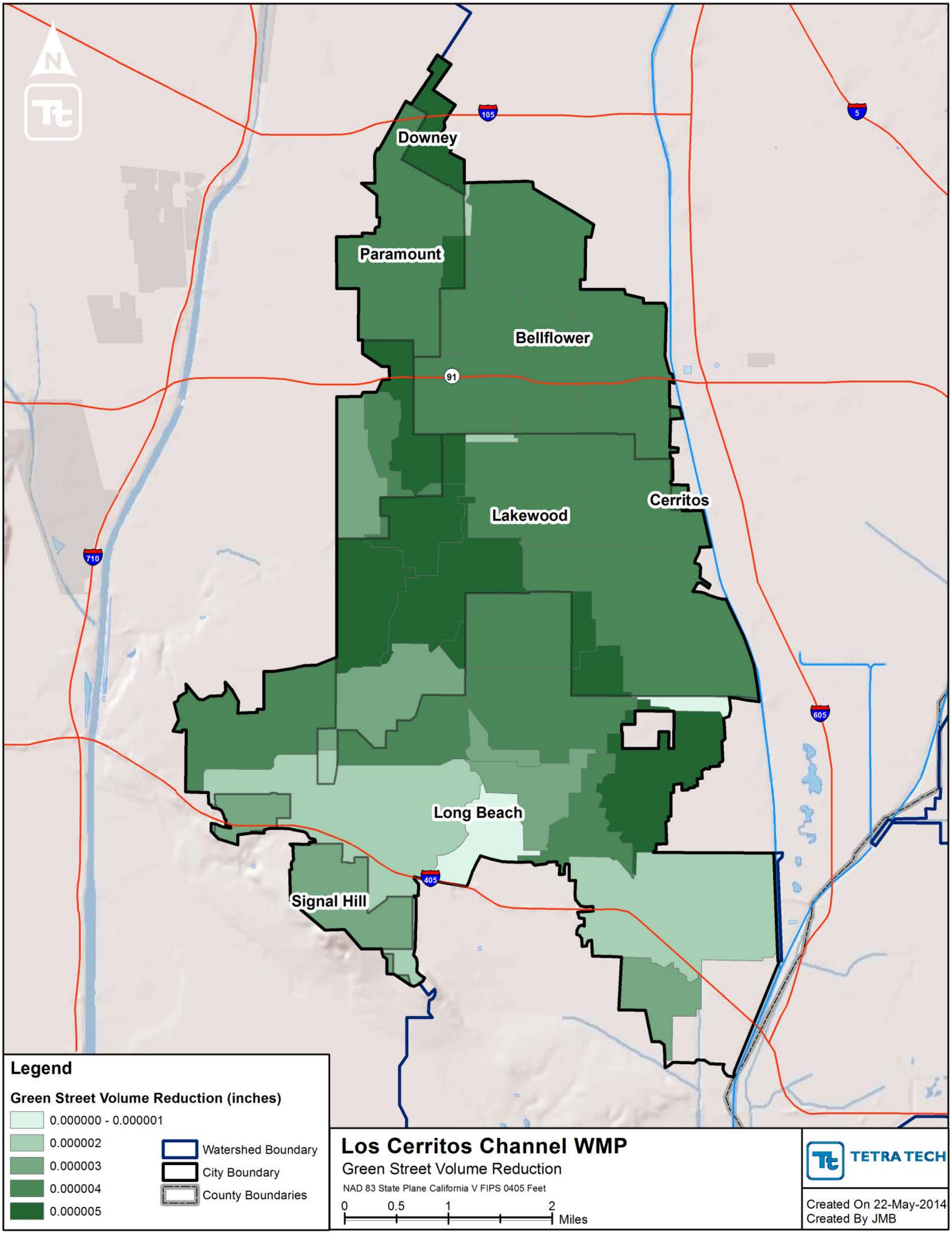

Figure 26. LCC ROW BMP Volume Reduction

RB-AR16140

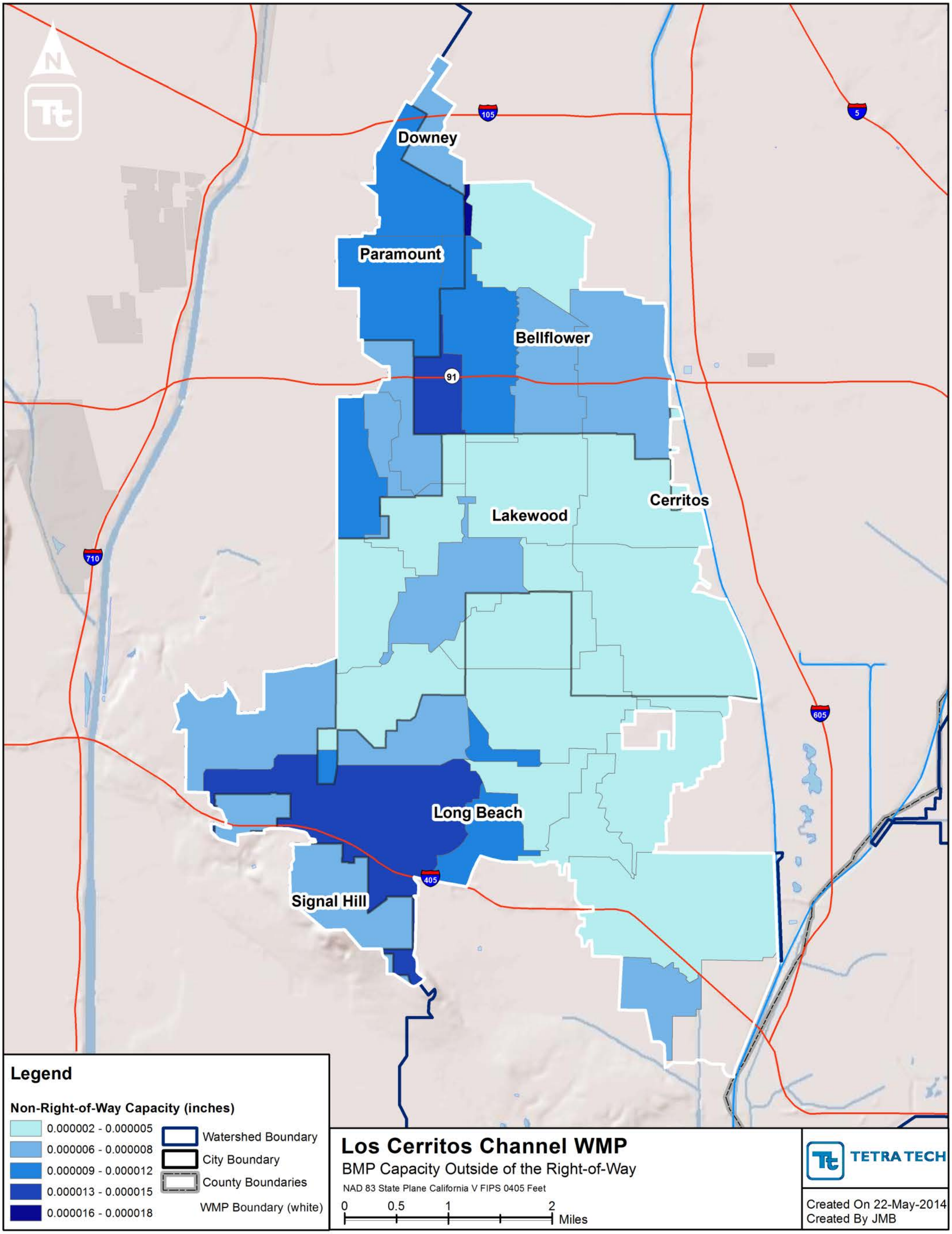

Figure 27. LCC BMP capacity outside of the right-of-way

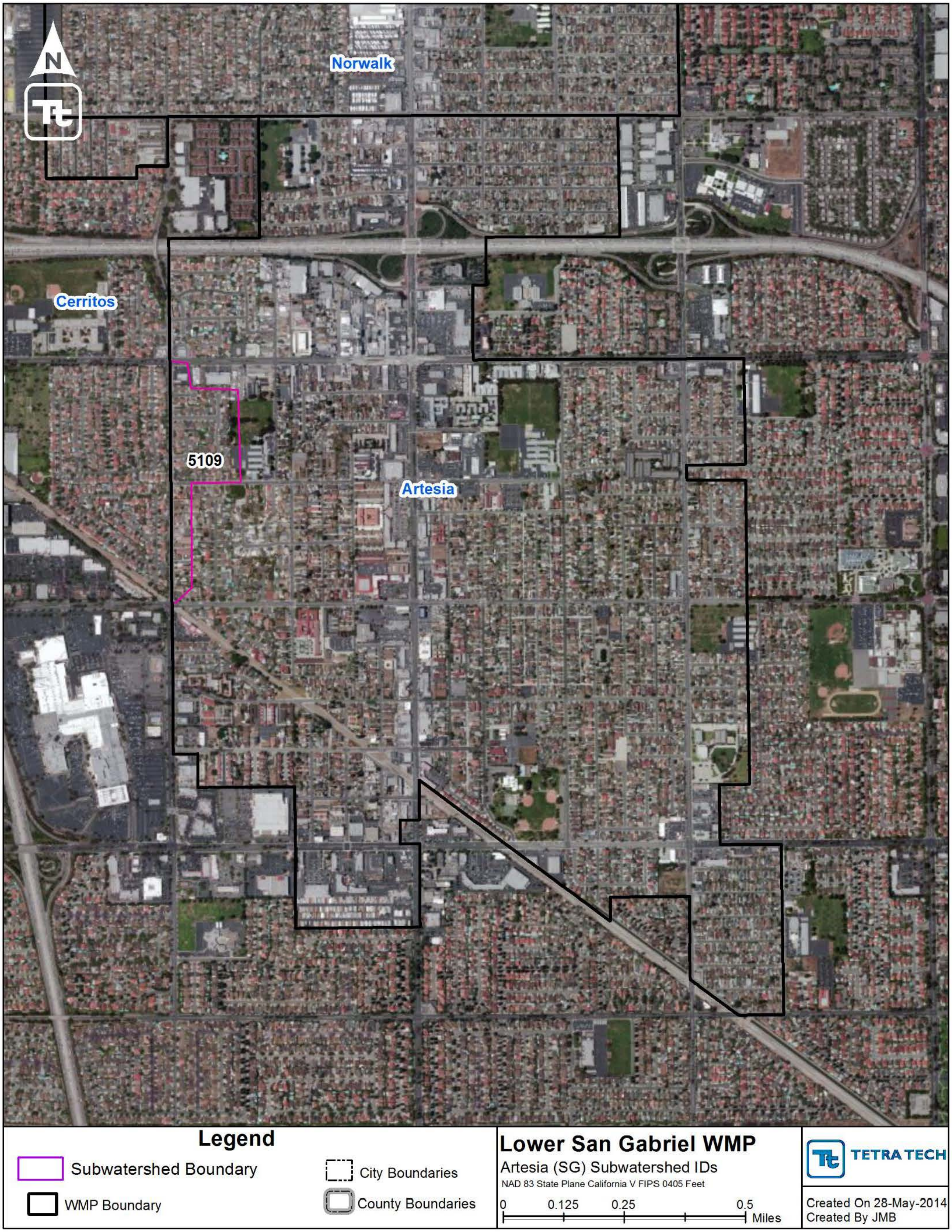

Figure 28. LSGR (SGR) Artesia Subwatershed IDs

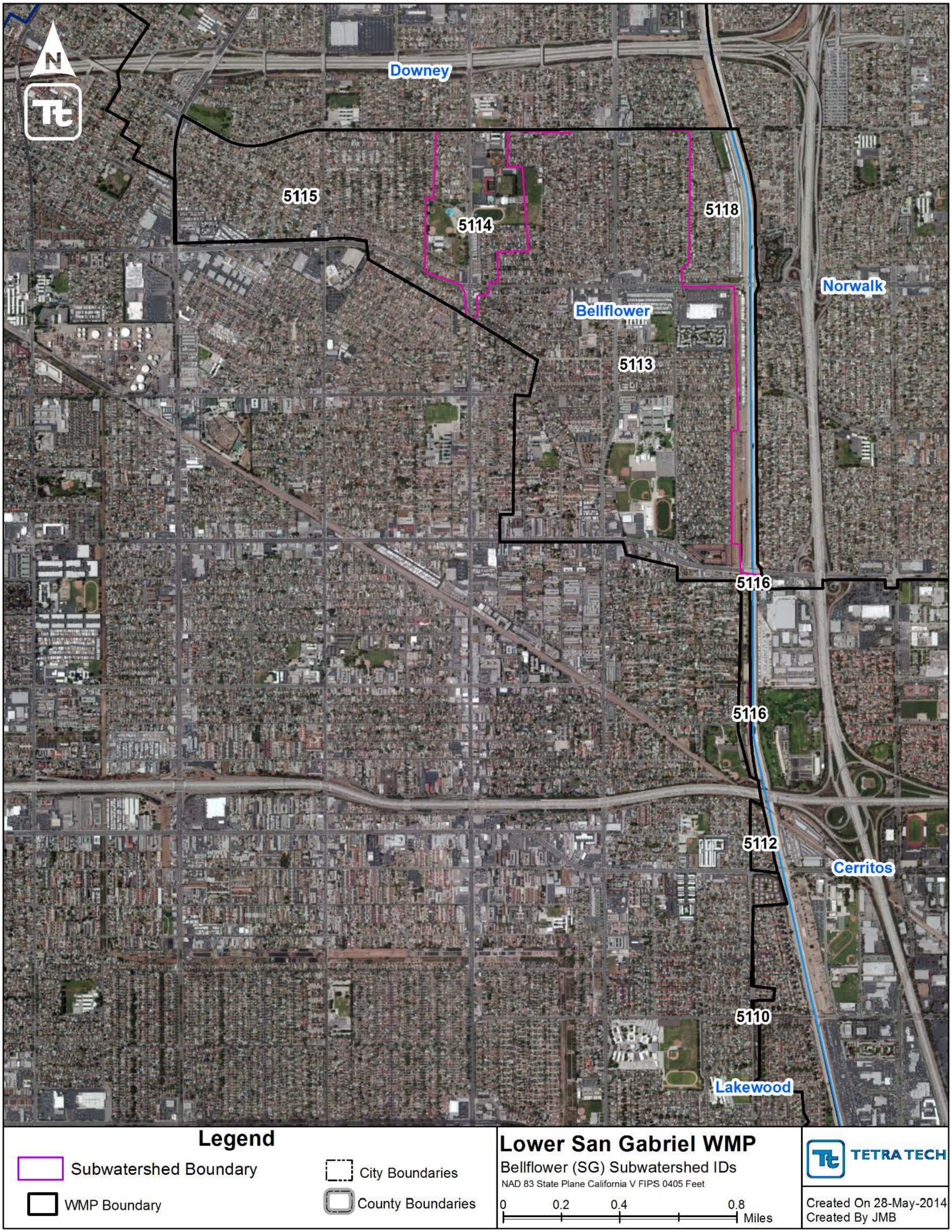

Figure 29. LSGR (SGR) Bellflower Subwatershed IDs

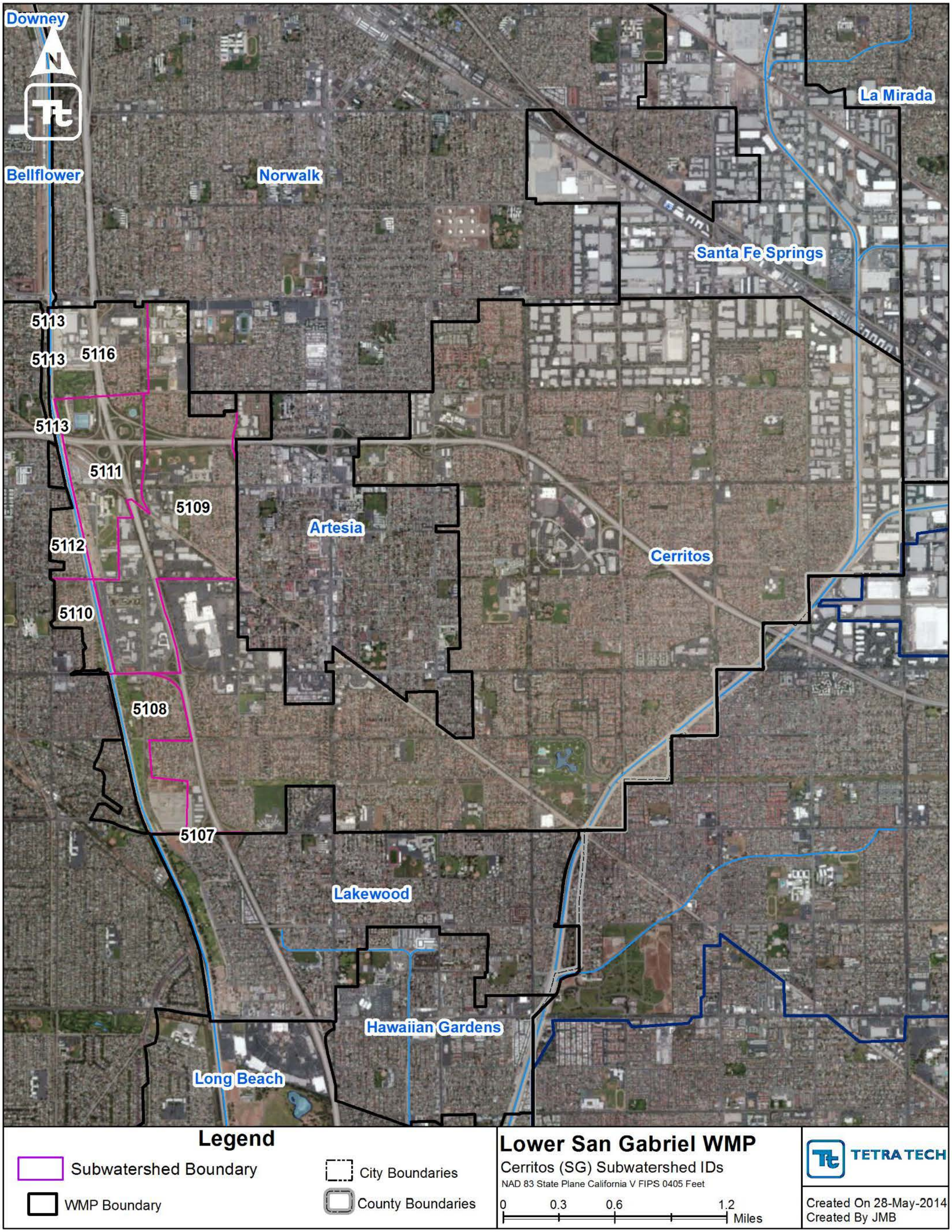

Figure 30. LSGR (SGR) Cerritos Subwatershed IDs

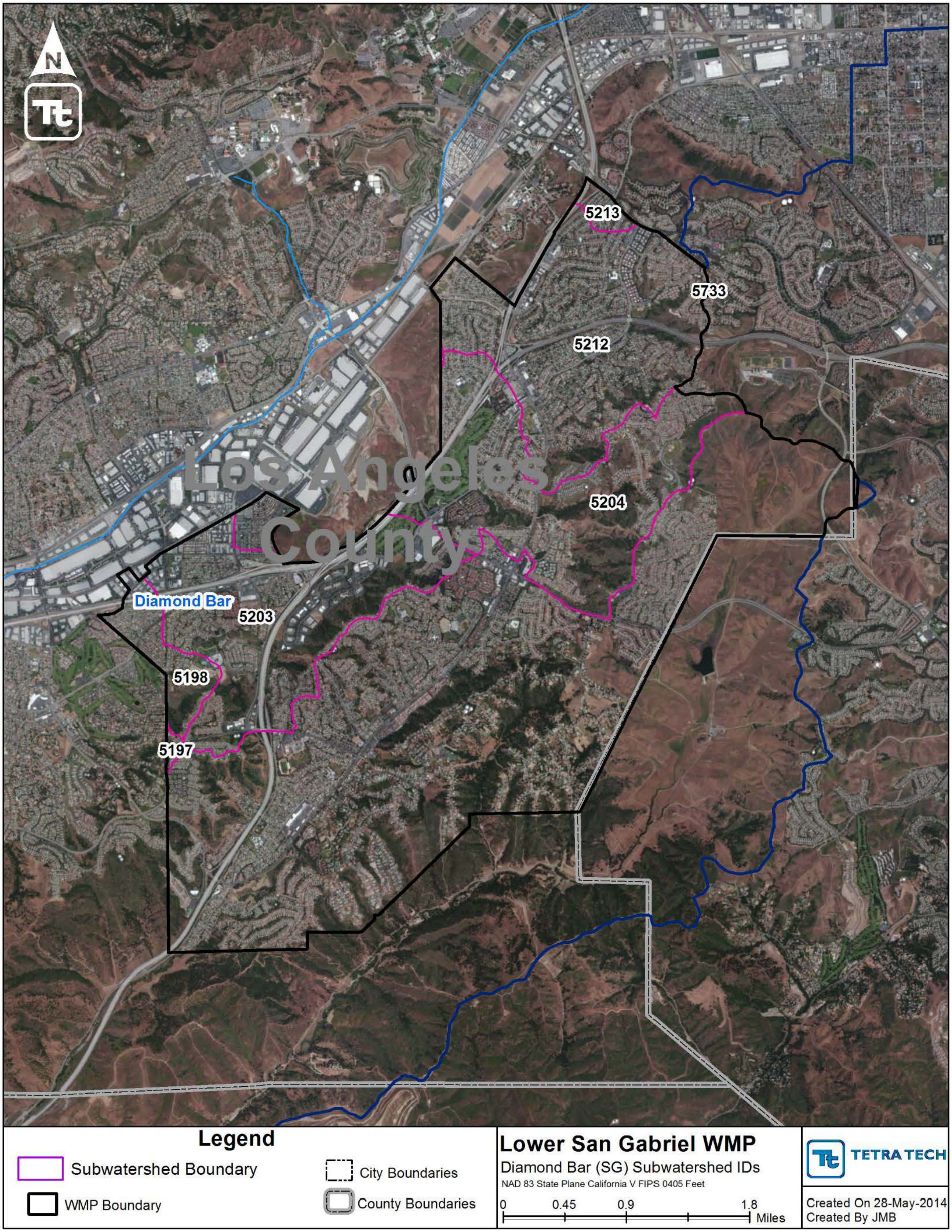

Figure 31. LSGR (SGR) Diamond Bar Subwatershed IDs

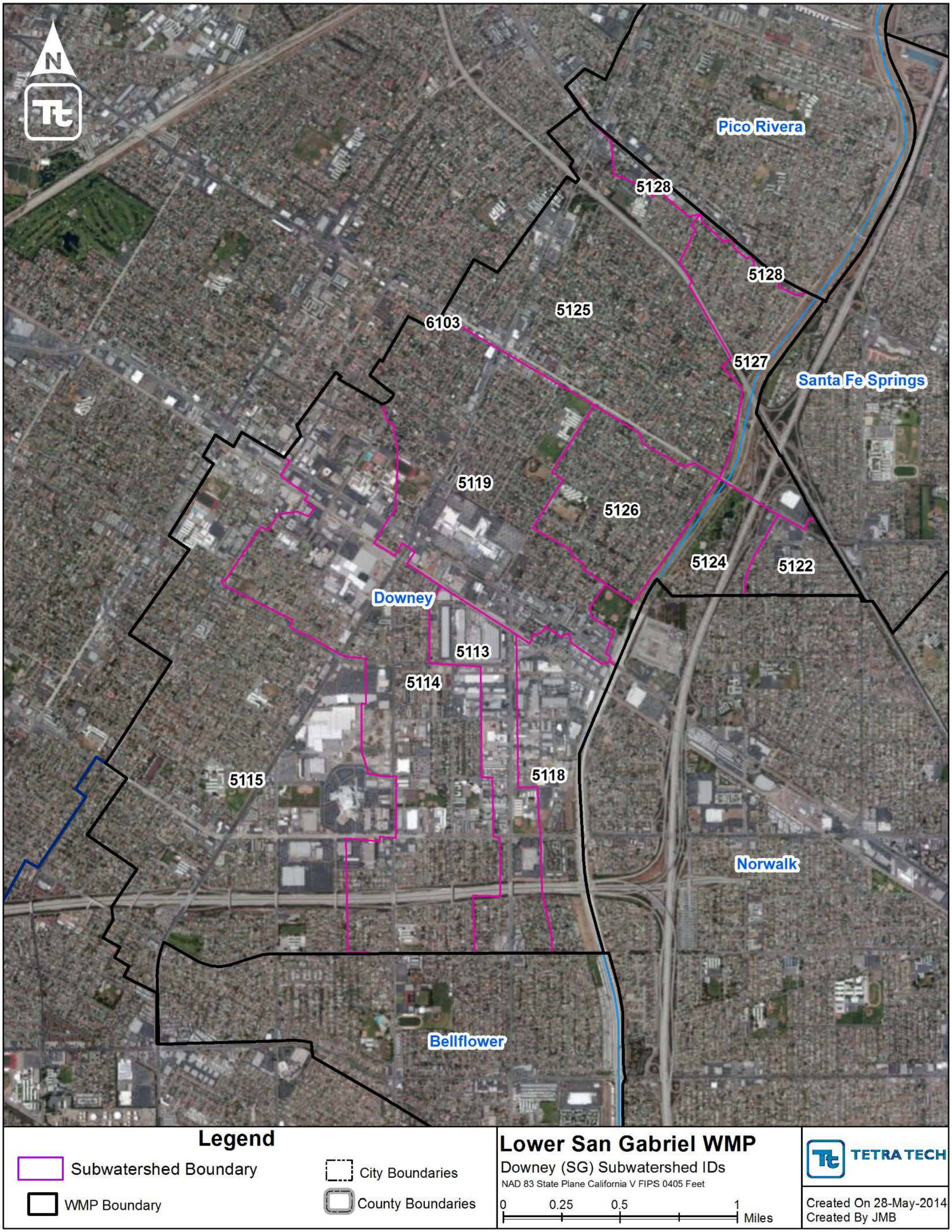

Figure 32. LSGR (SGR) Downey Subwatershed IDs

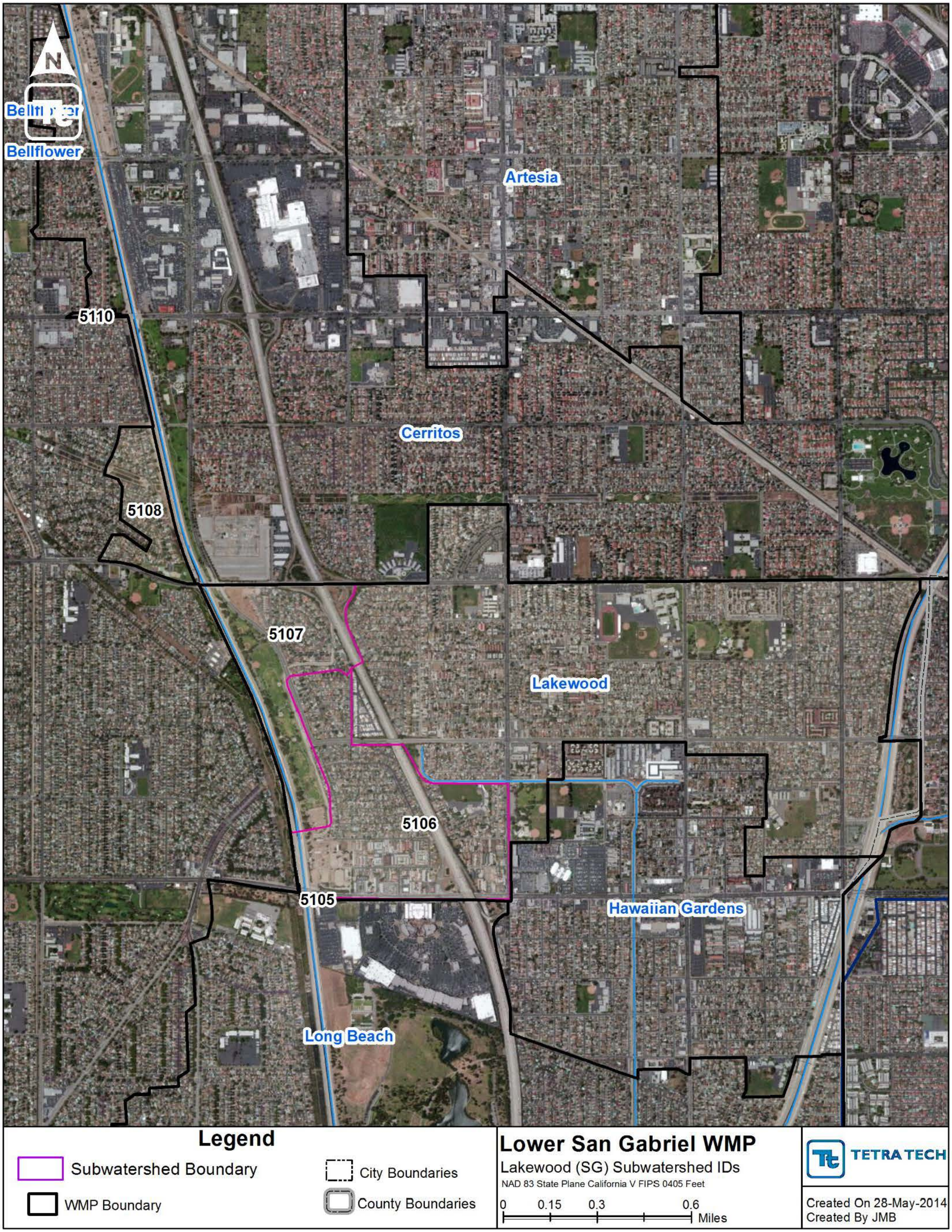

Figure 33. LSGR (SGR) Lakewood Subwatershed IDs

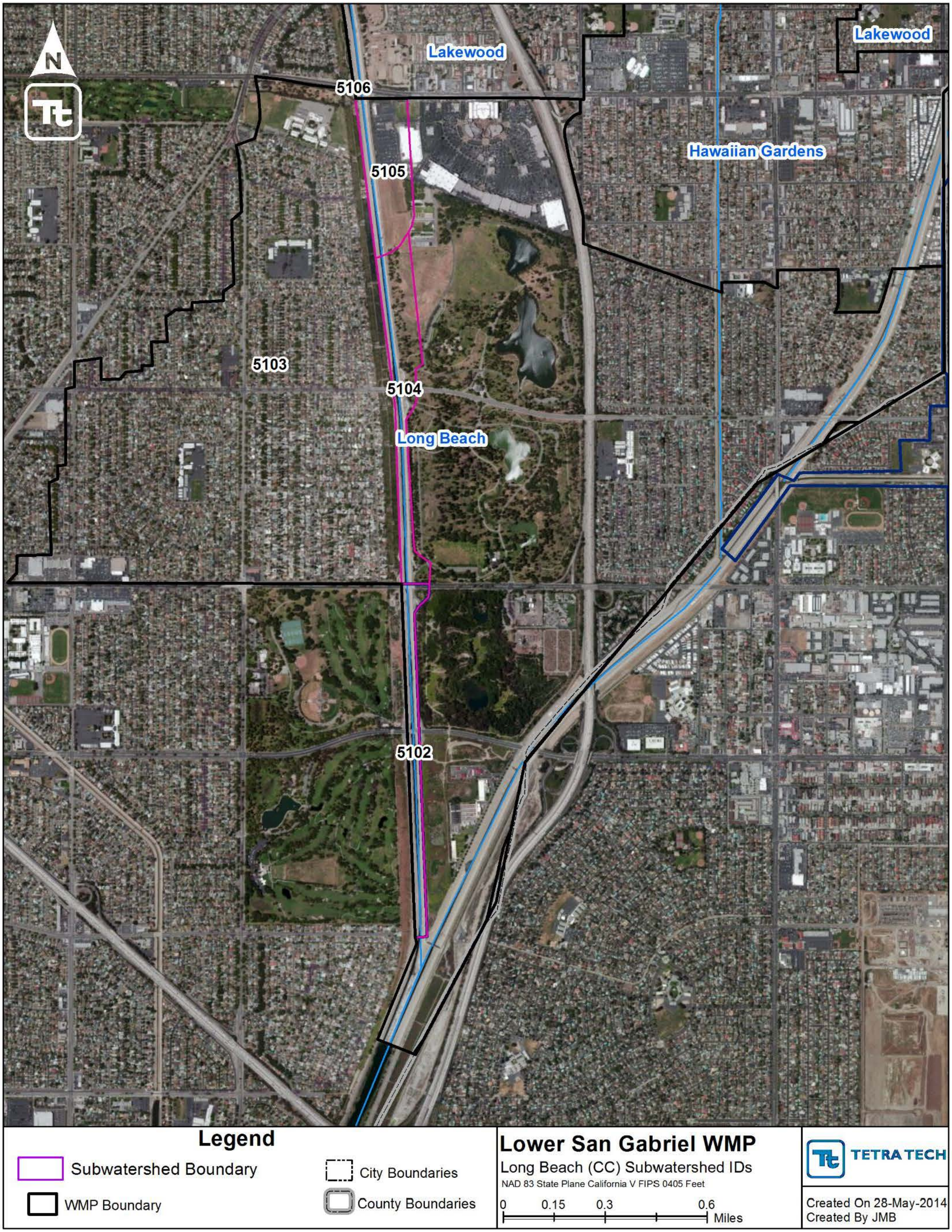

Figure 34. LSGR (SGR) Long Beach Subwatershed IDs

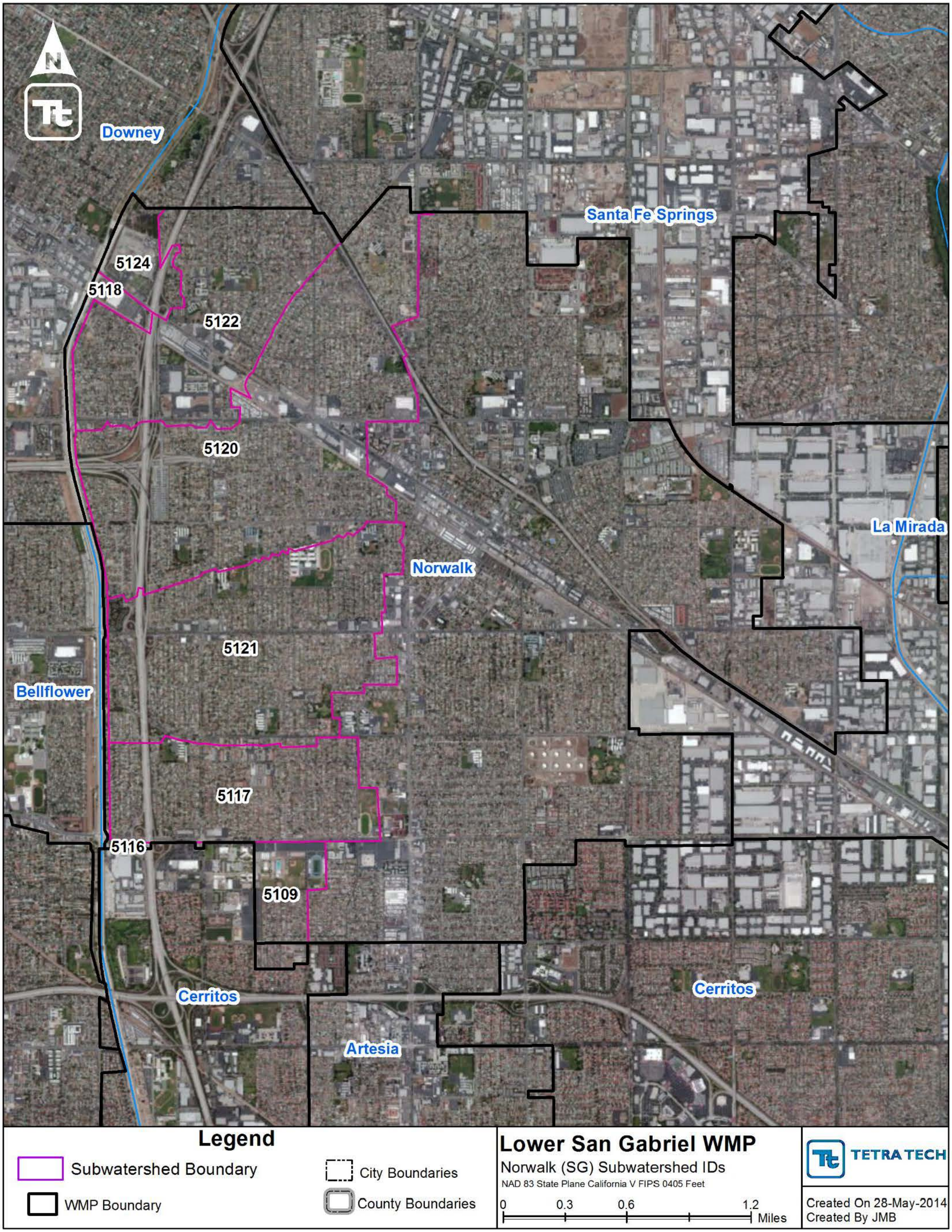

Figure 35. LSGR (SGR) Norwalk Subwatershed IDs

RB-AR16149

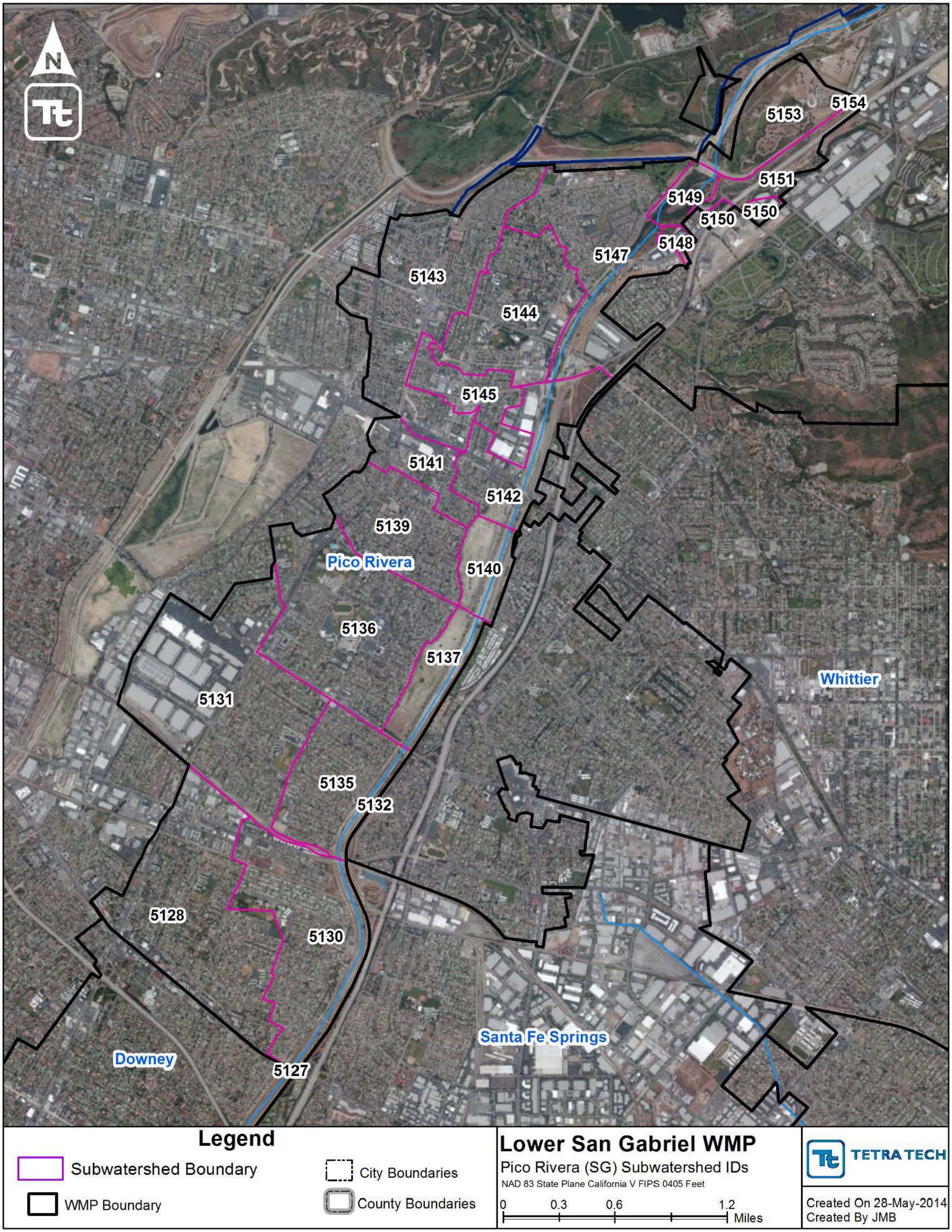

Figure 36. LSGR (SGR) Pico Rivera Subwatershed IDs

RB-AR16150

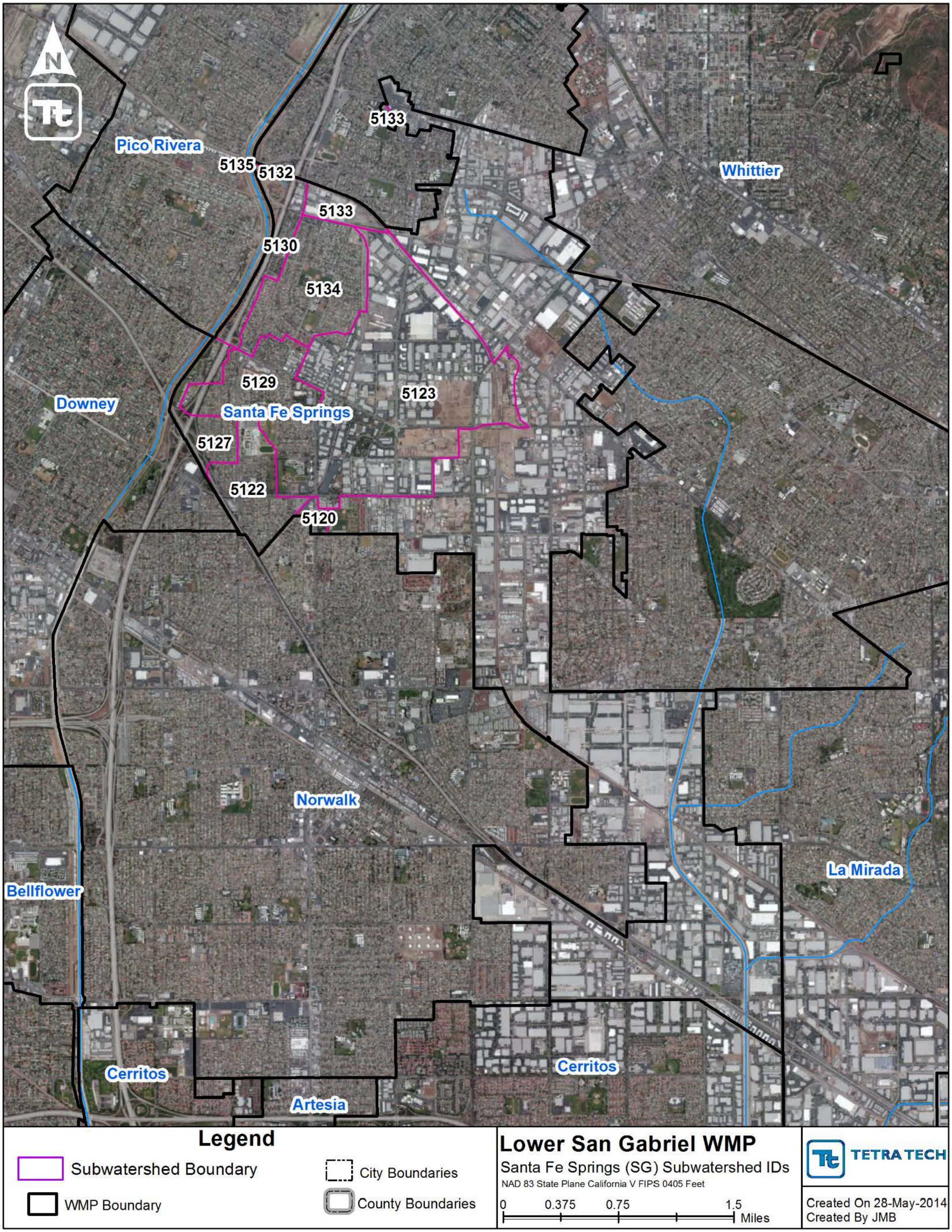

Figure 37. LSGR (SGR) Santa Fe Springs Subwatershed IDs

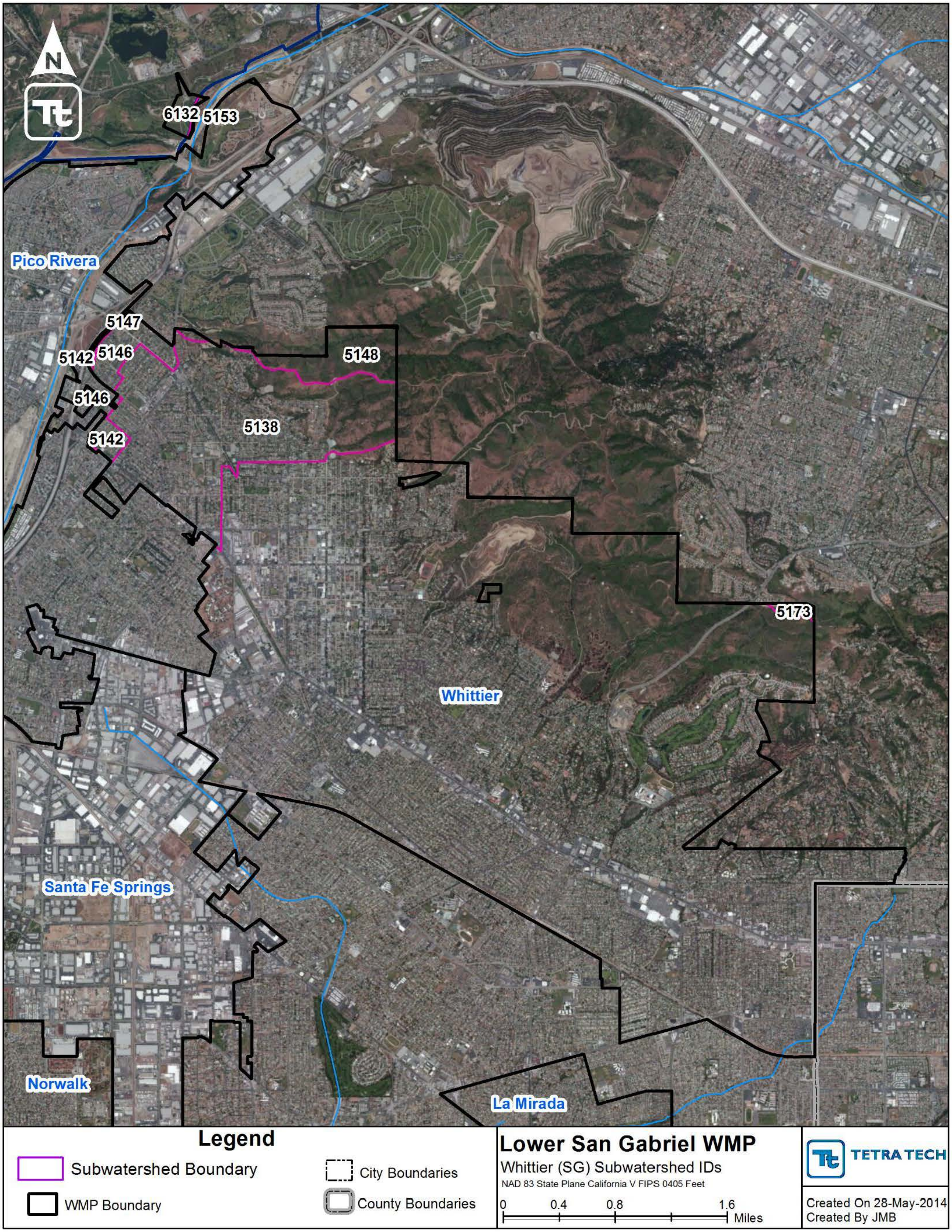

Figure 38. LSGR (SGR) Whittier Subwatershed IDs

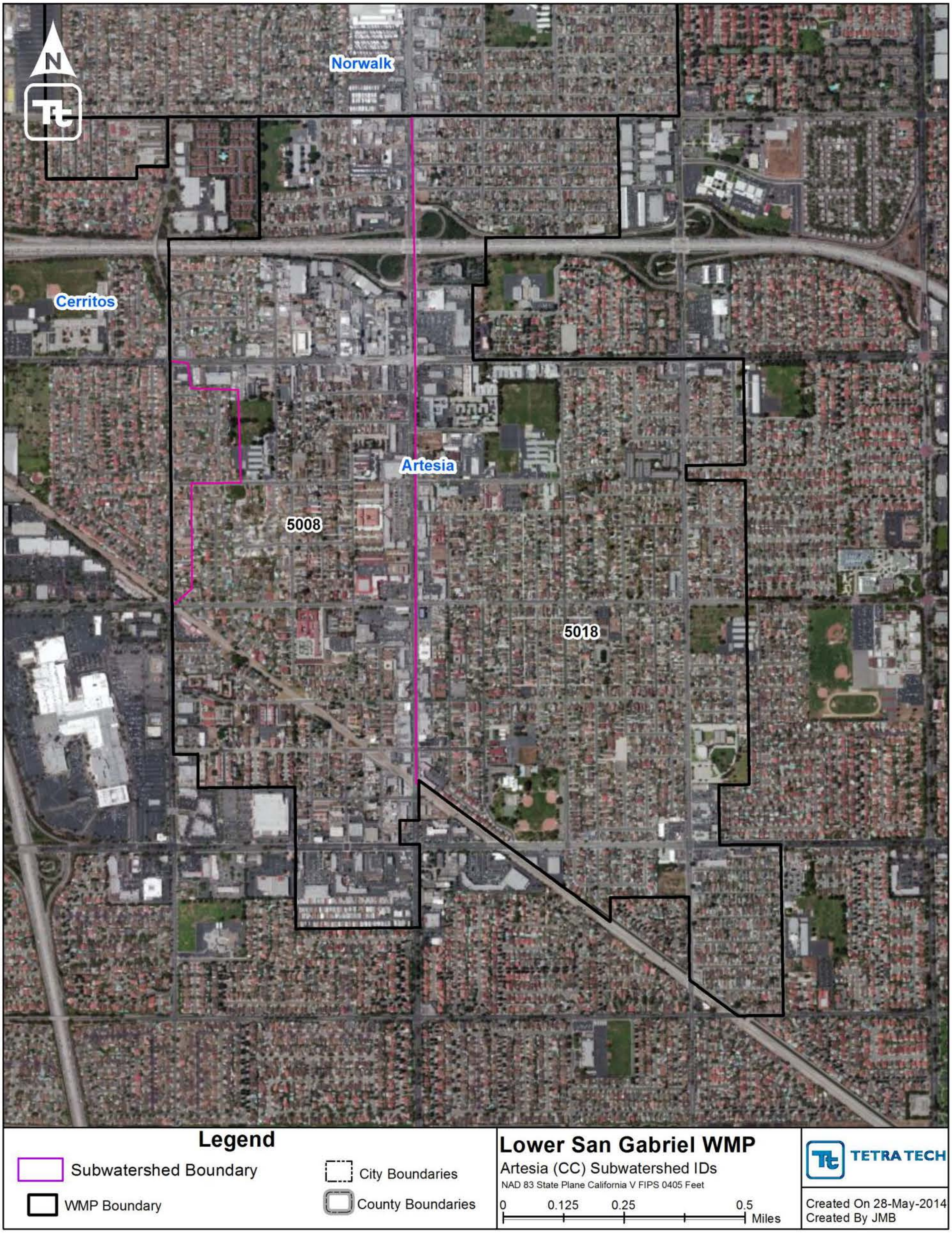

Figure 39. LSGR (CC) Artesia Subwatershed IDs

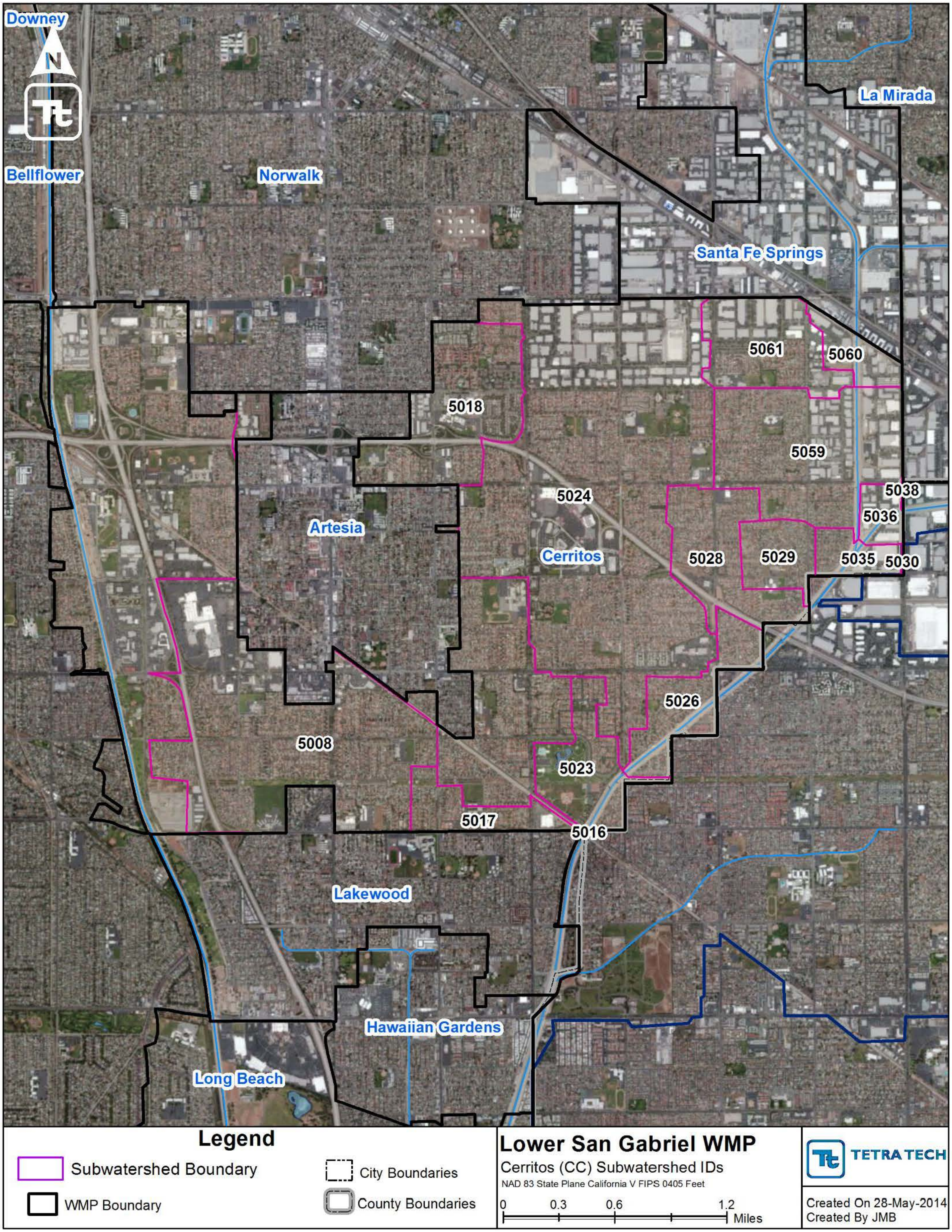

Figure 40. LSGR (CC) Cerritos Subwatershed IDs

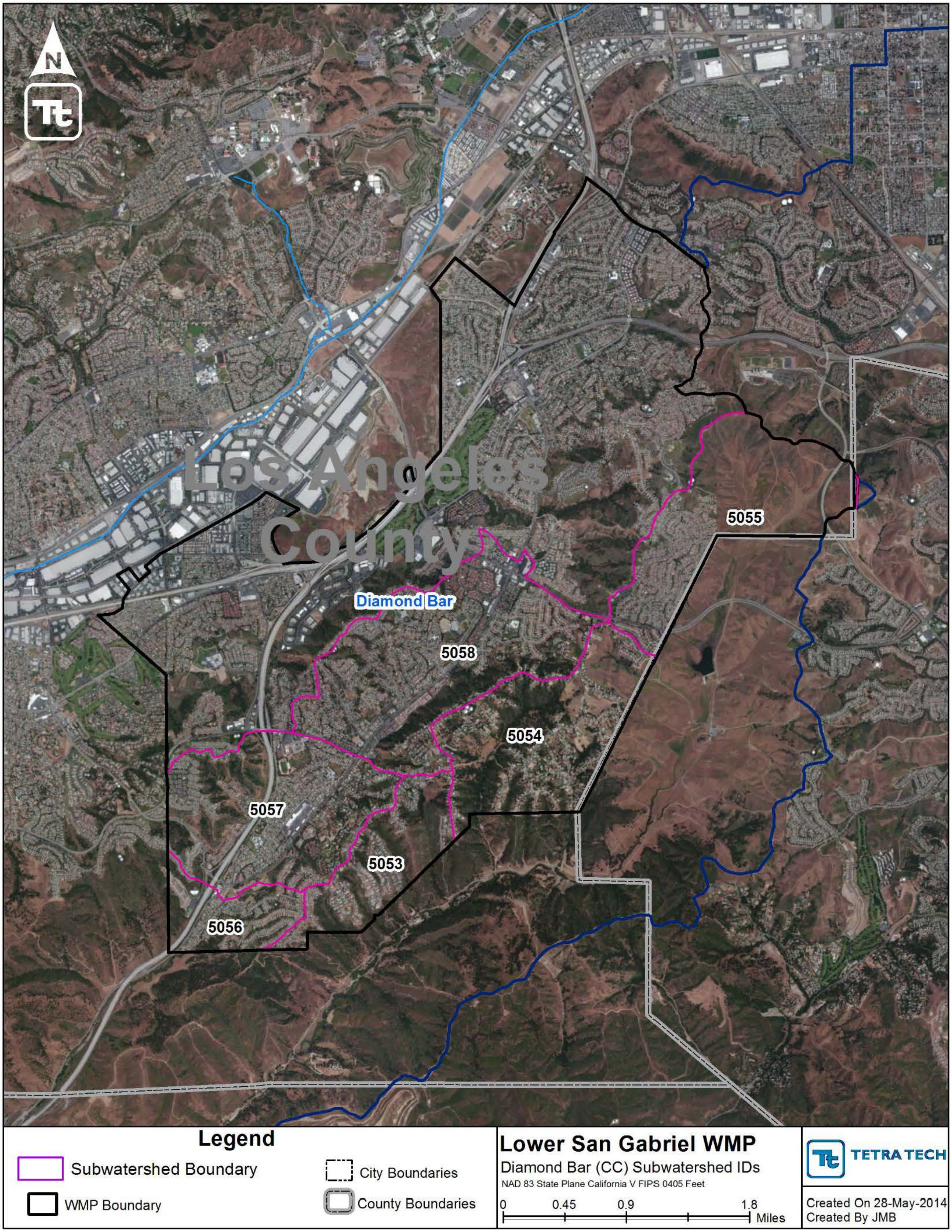

Figure 41. LSGR (CC) Diamond Bar Subwatershed IDs

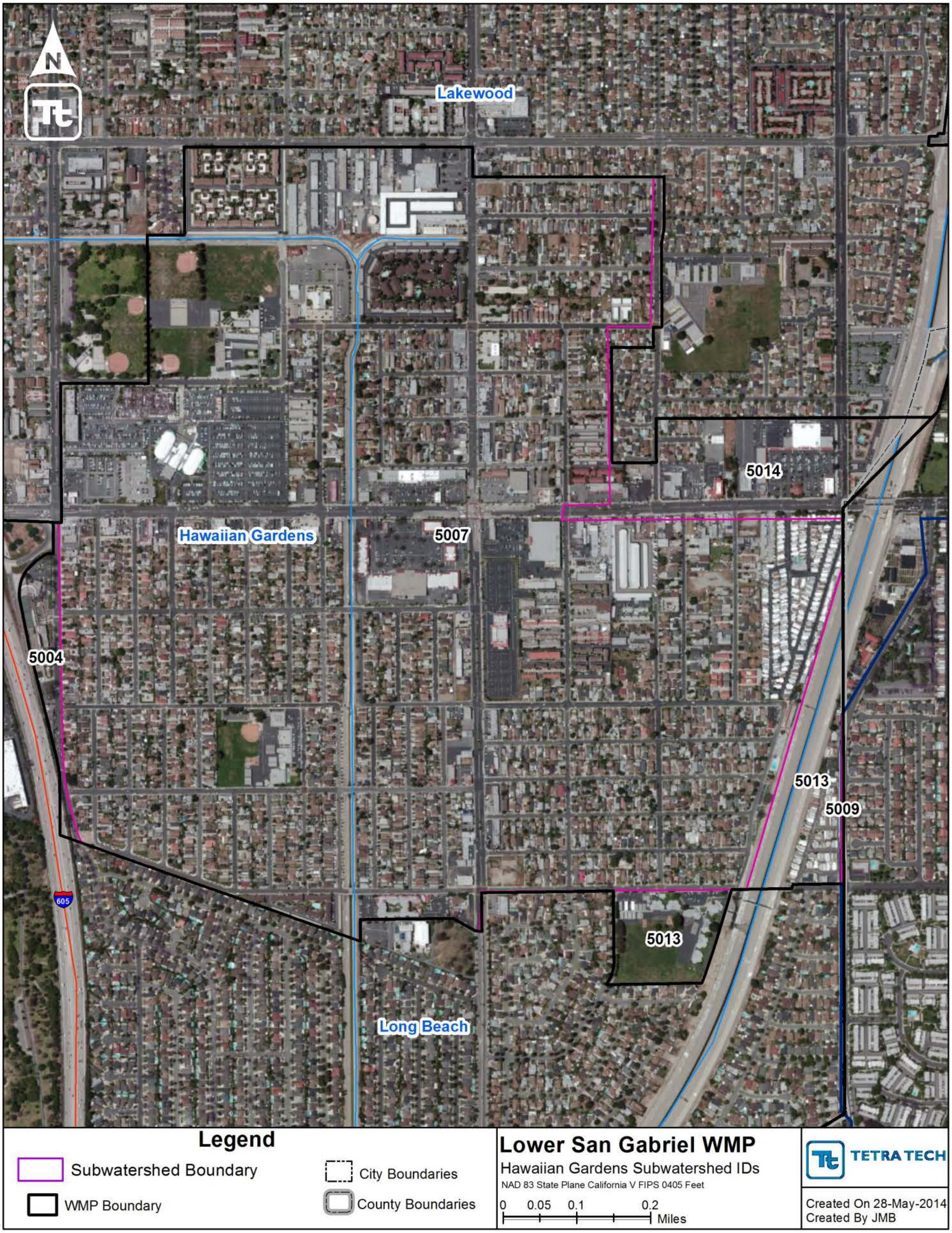

Figure 42. LSGR (CC) Hawaiian Gardens Subwatershed IDs

RB-AR16156

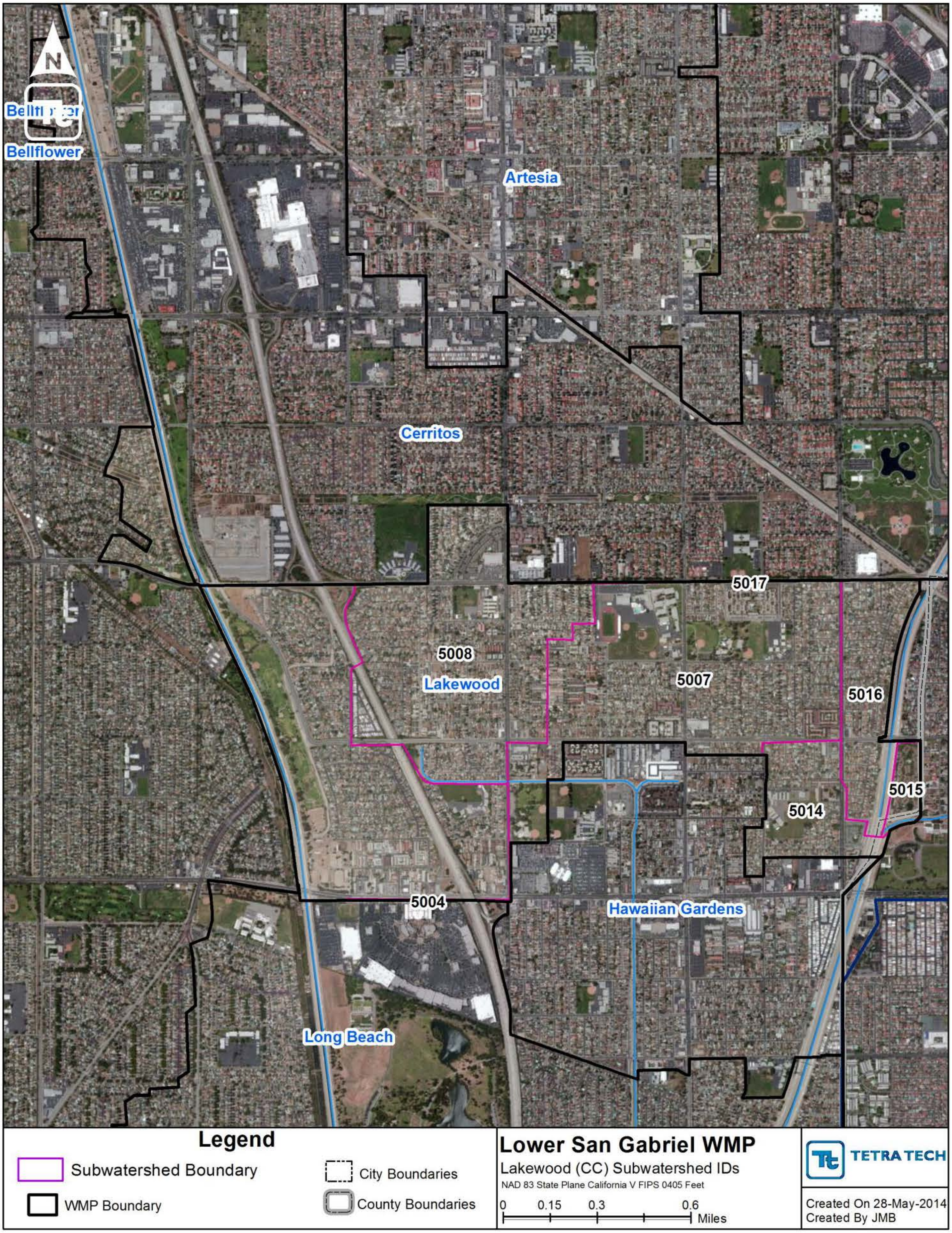

Figure 43. LSGR (CC) Lakewood Subwatershed IDs

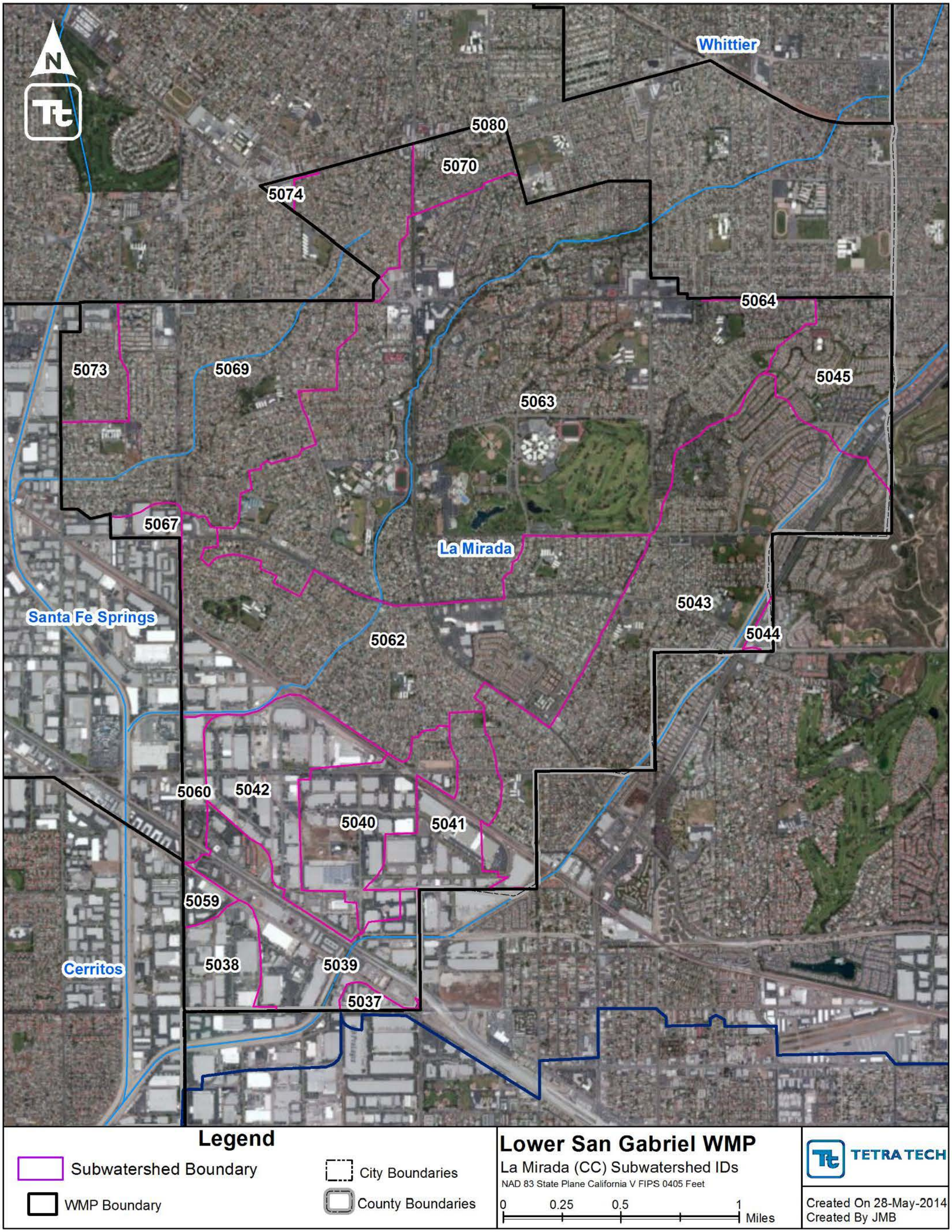

Figure 44. LSGR (CC) La Mirada Subwatershed IDs

RB-AR16158

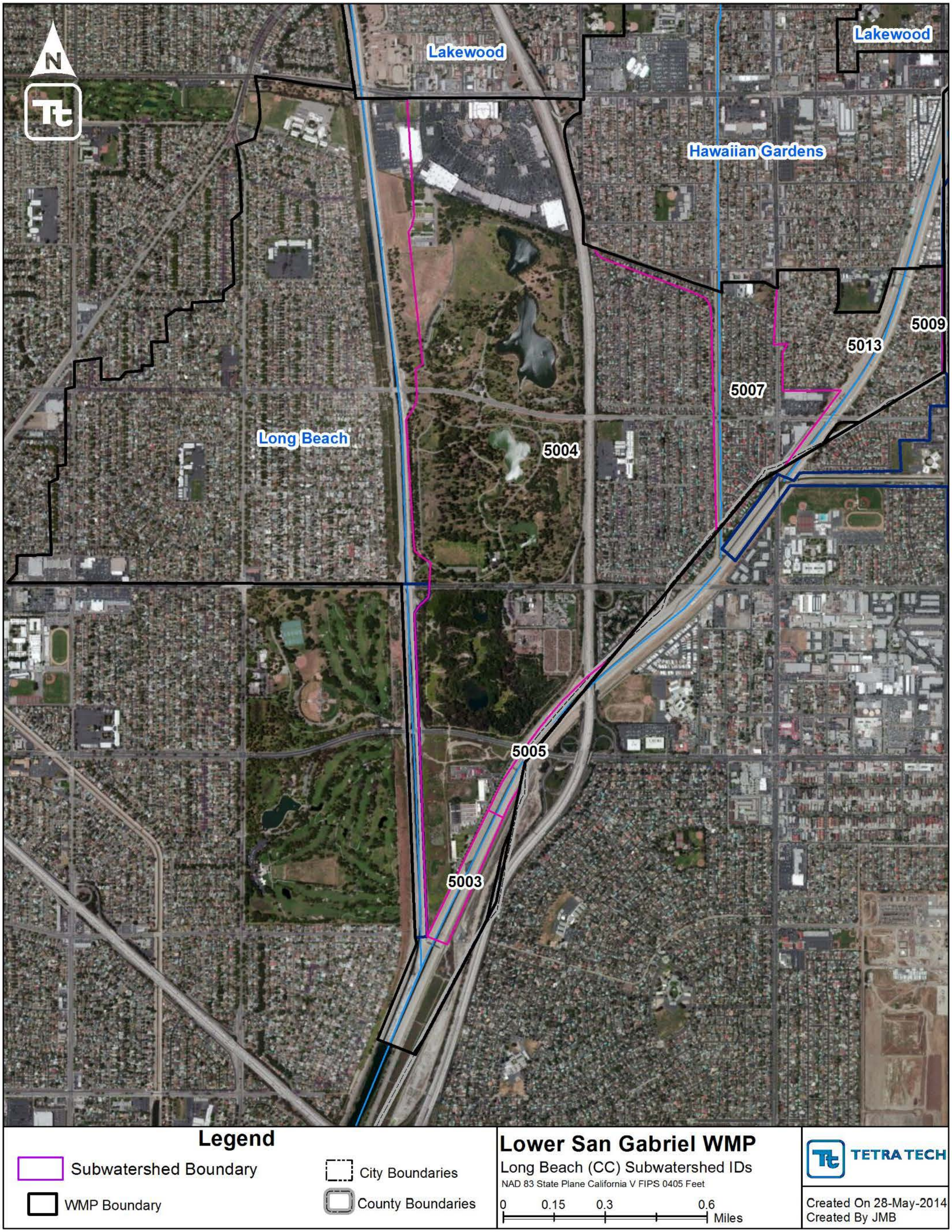

Figure 45. LSGR (CC) Long Beach Subwatershed IDs

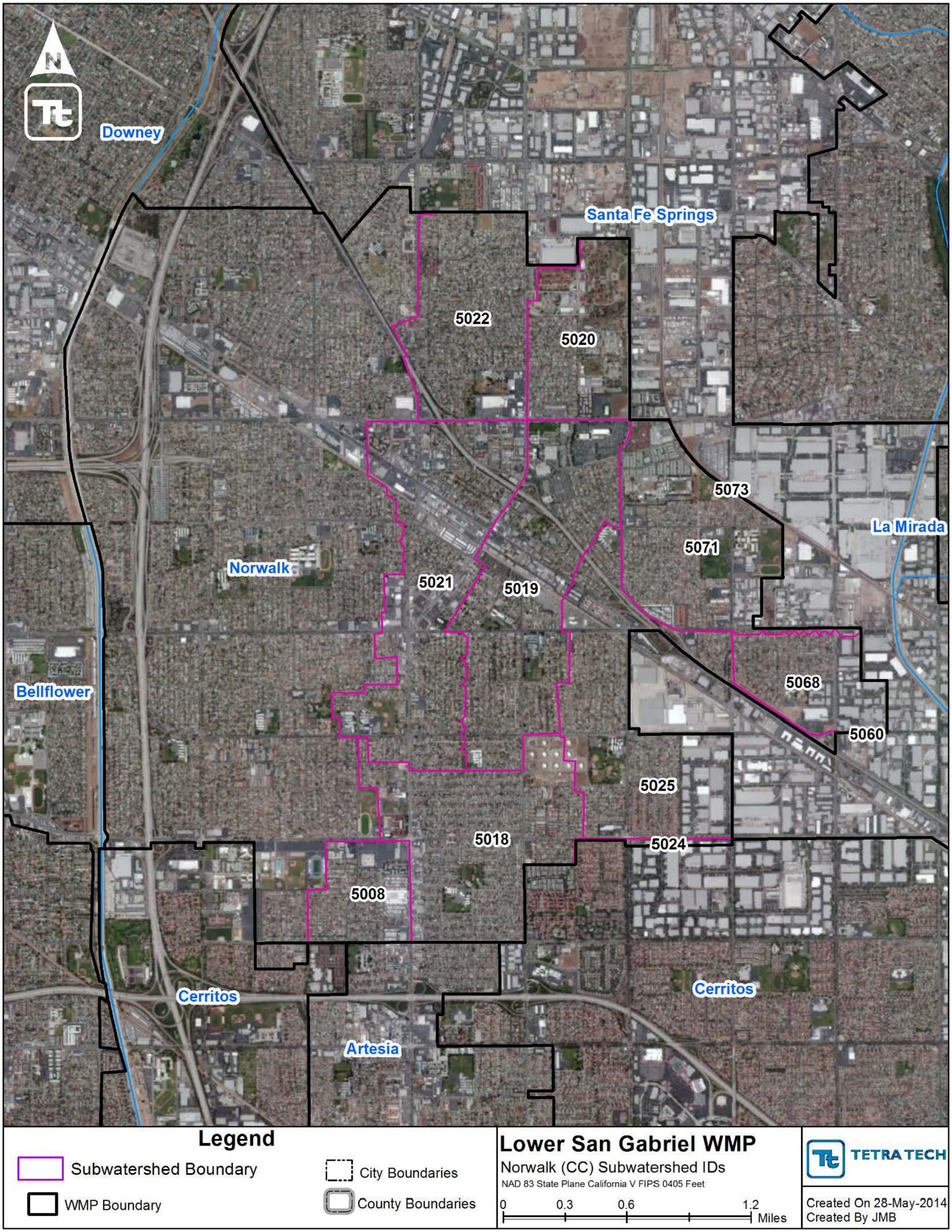

Figure 46. LSGR (CC) Norwalk Subwatershed IDs

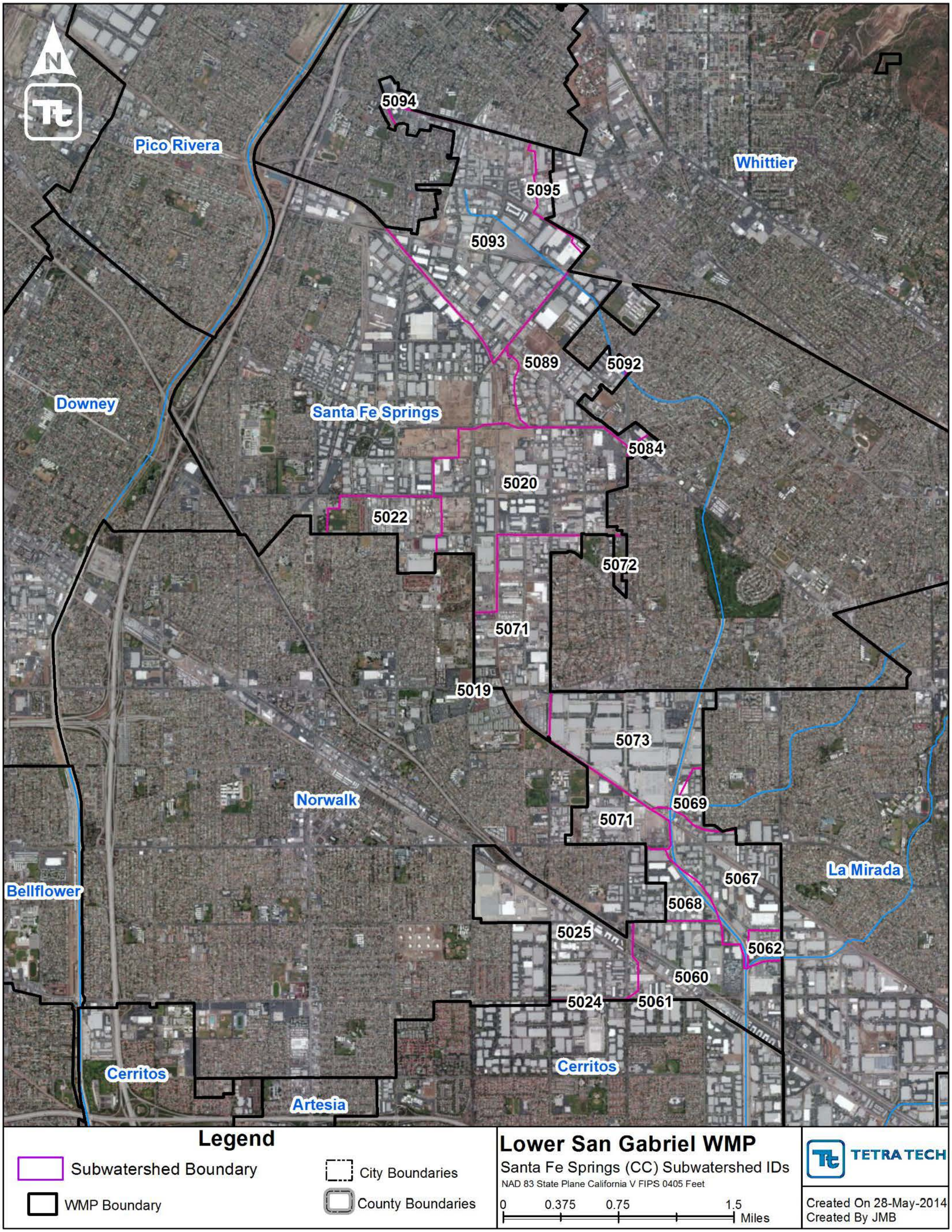

Figure 47. LSGR (CC) Santa Fe Springs Subwatershed IDs

RB-AR16161

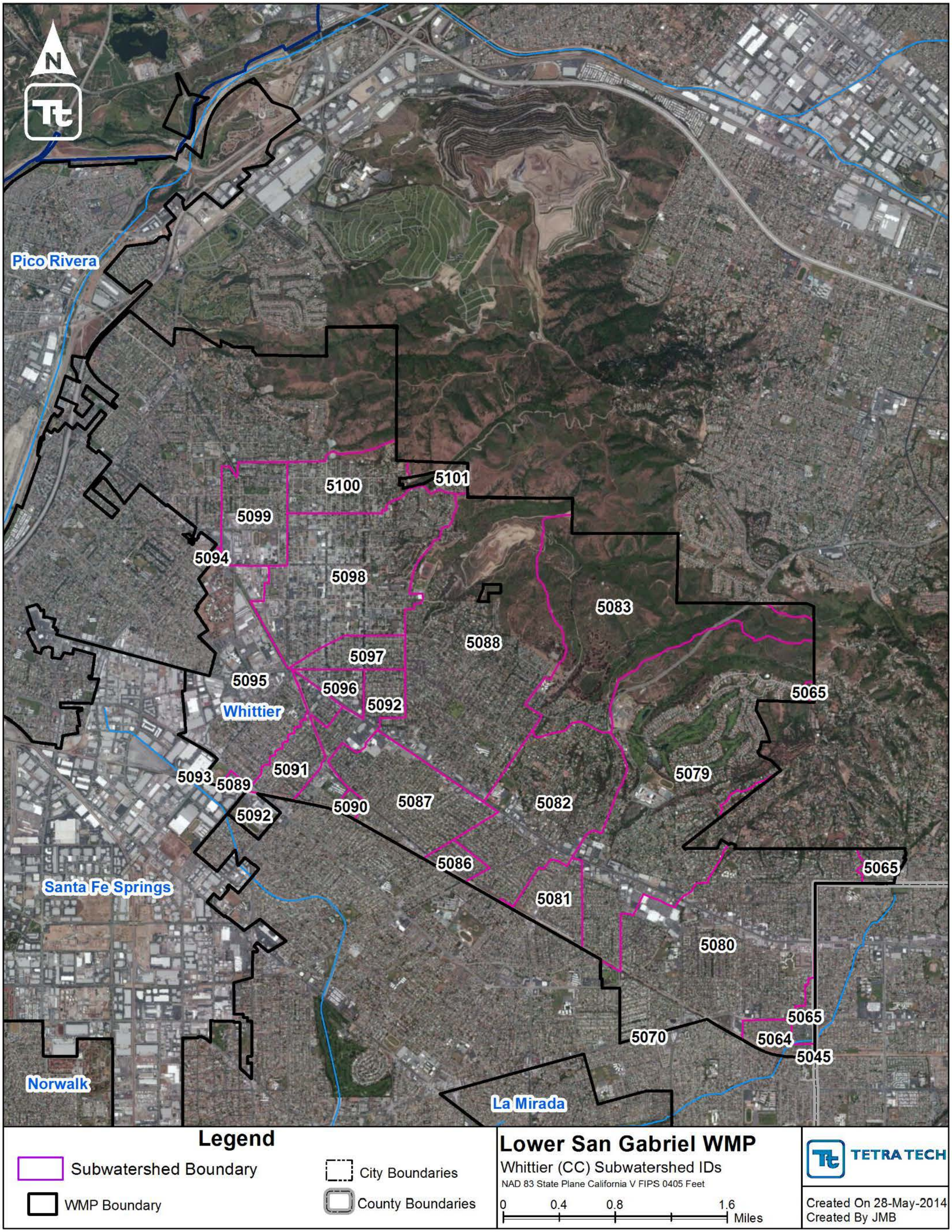

Figure 48. LSGR (CC) Whittier Subwatershed IDs

RB-AR16162

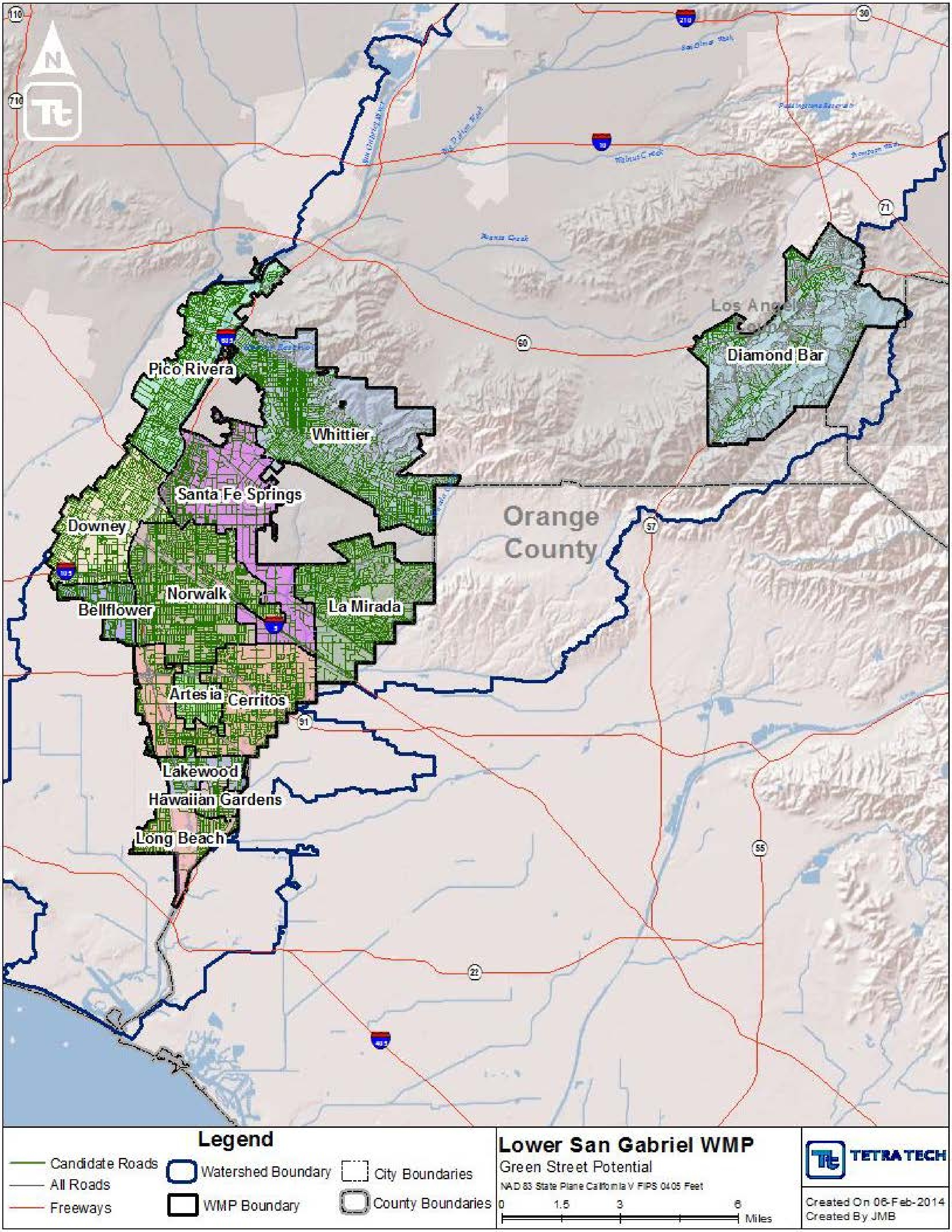

Figure 49. LSGR ROW BMP Potential Opportunities

RB-AR16163

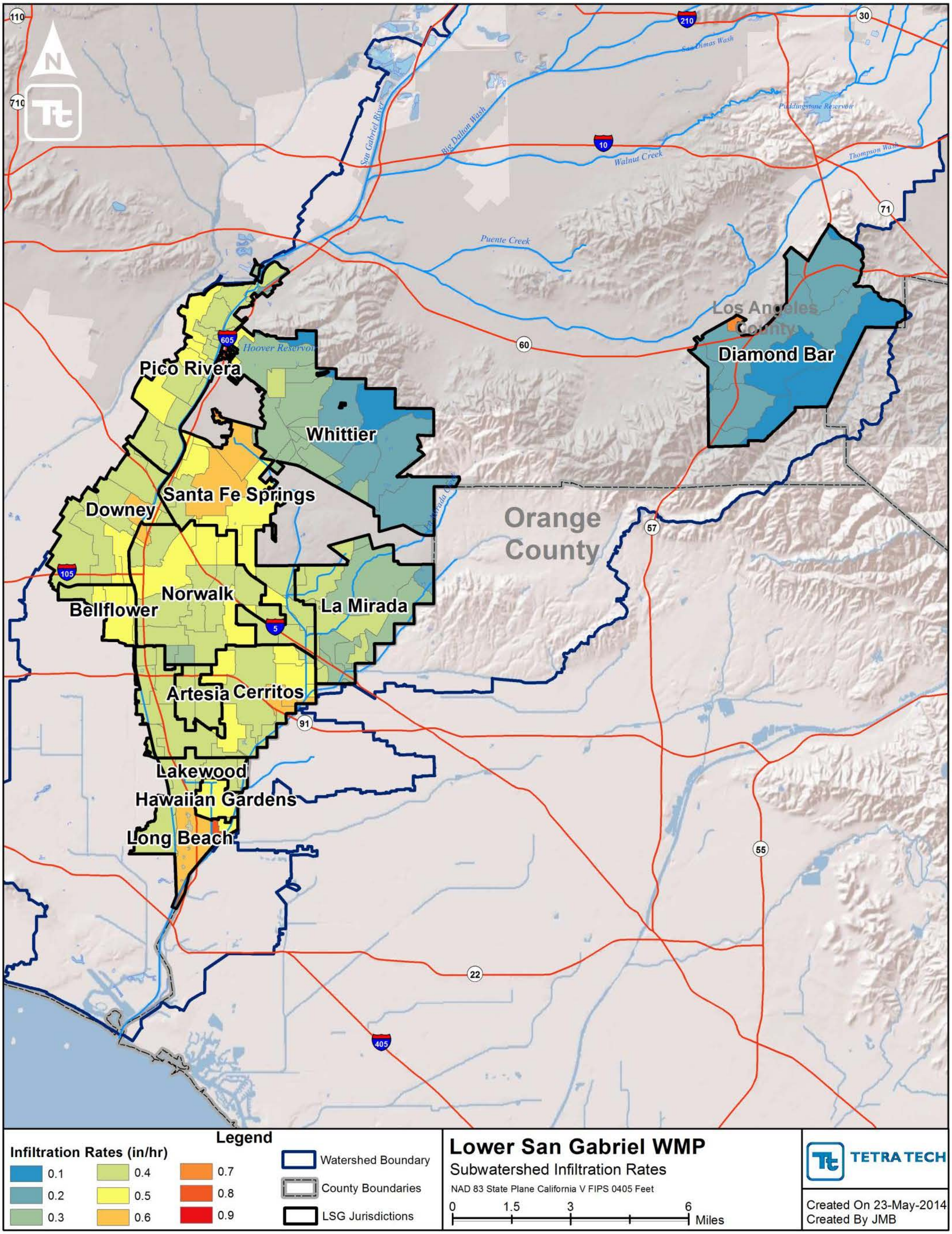

Figure 50. LSGR Subwatershed Infiltration Rates

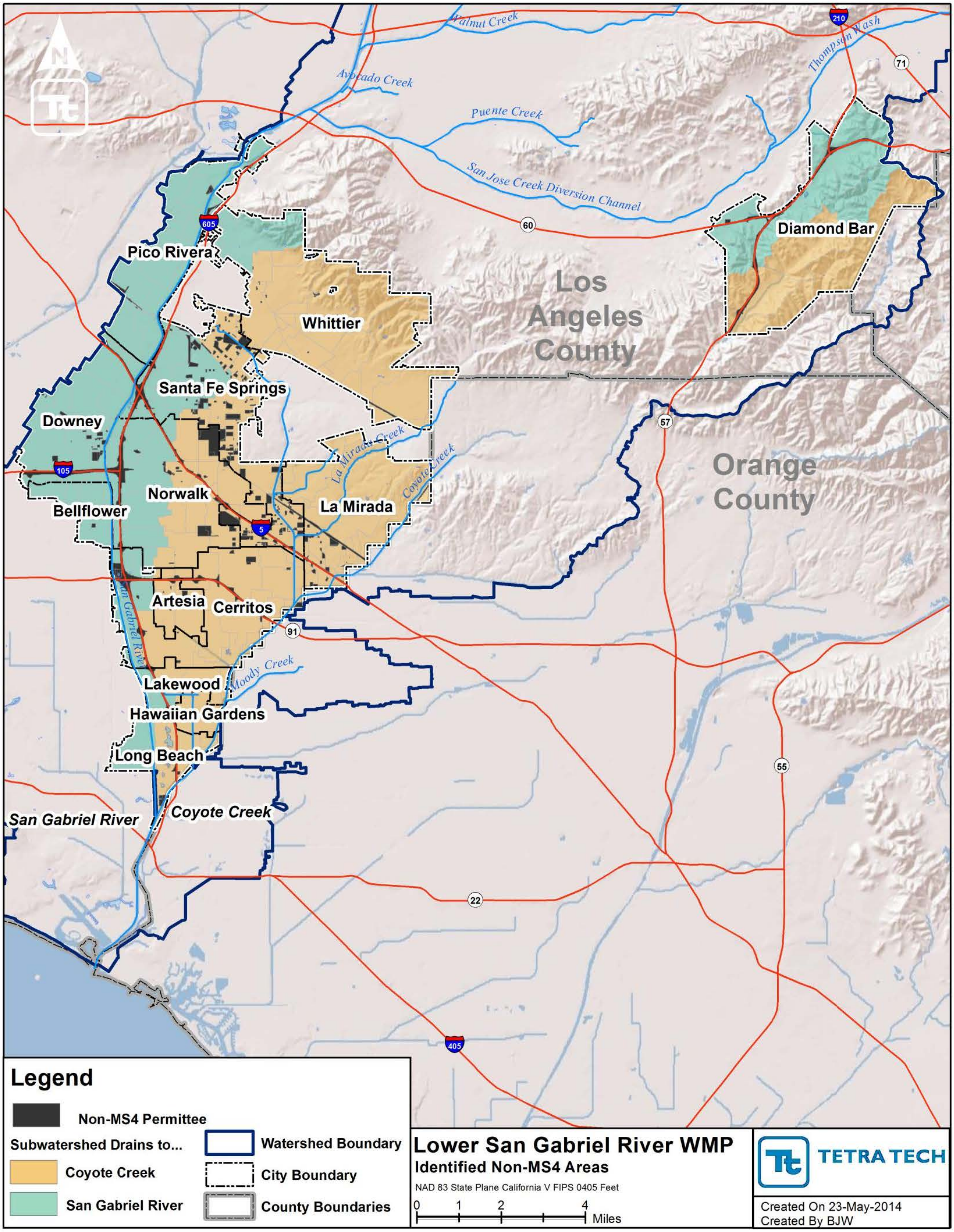

Figure 51. LSGR Non-MS4 Permittees

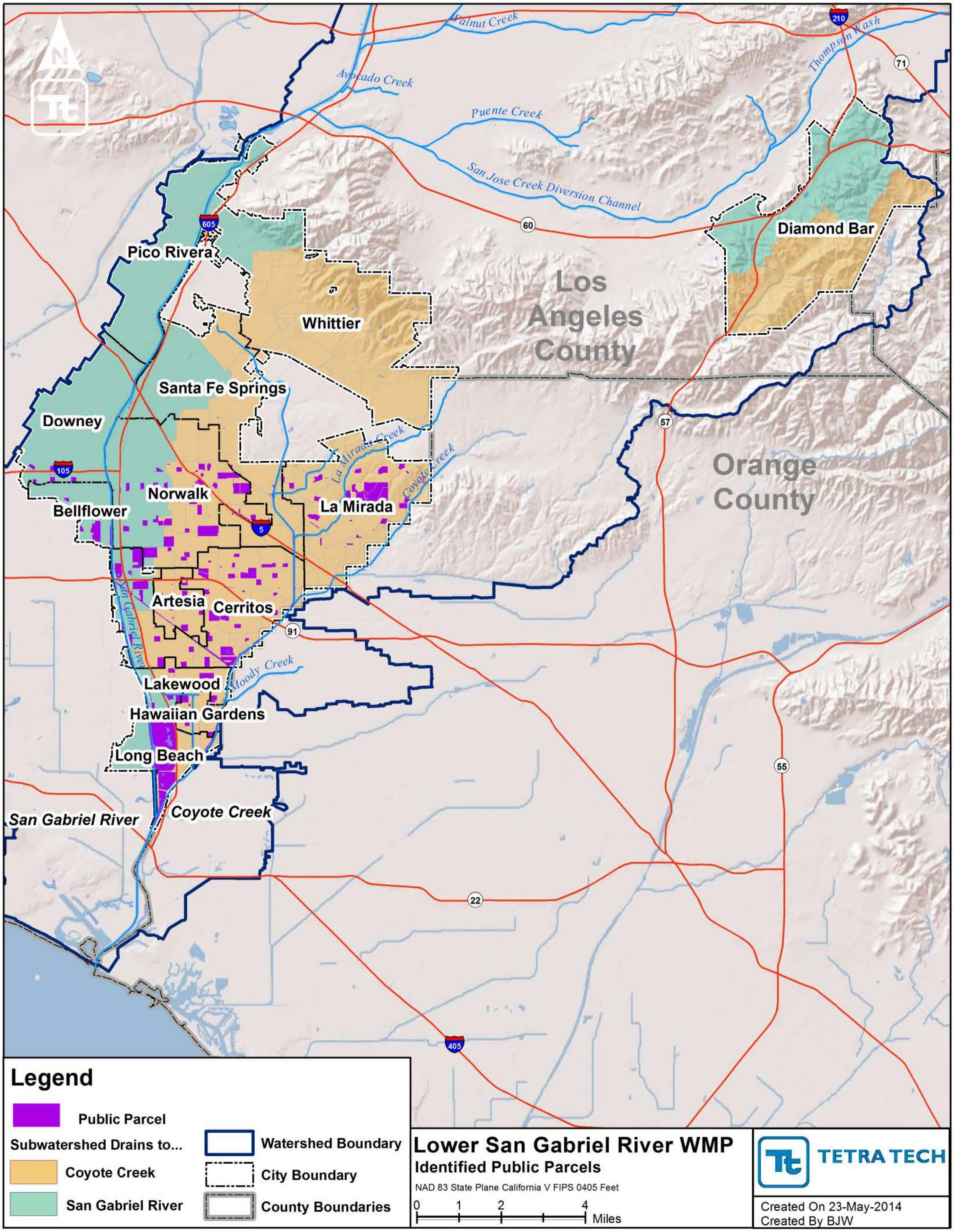

Figure 52. LSGR identified public parcels

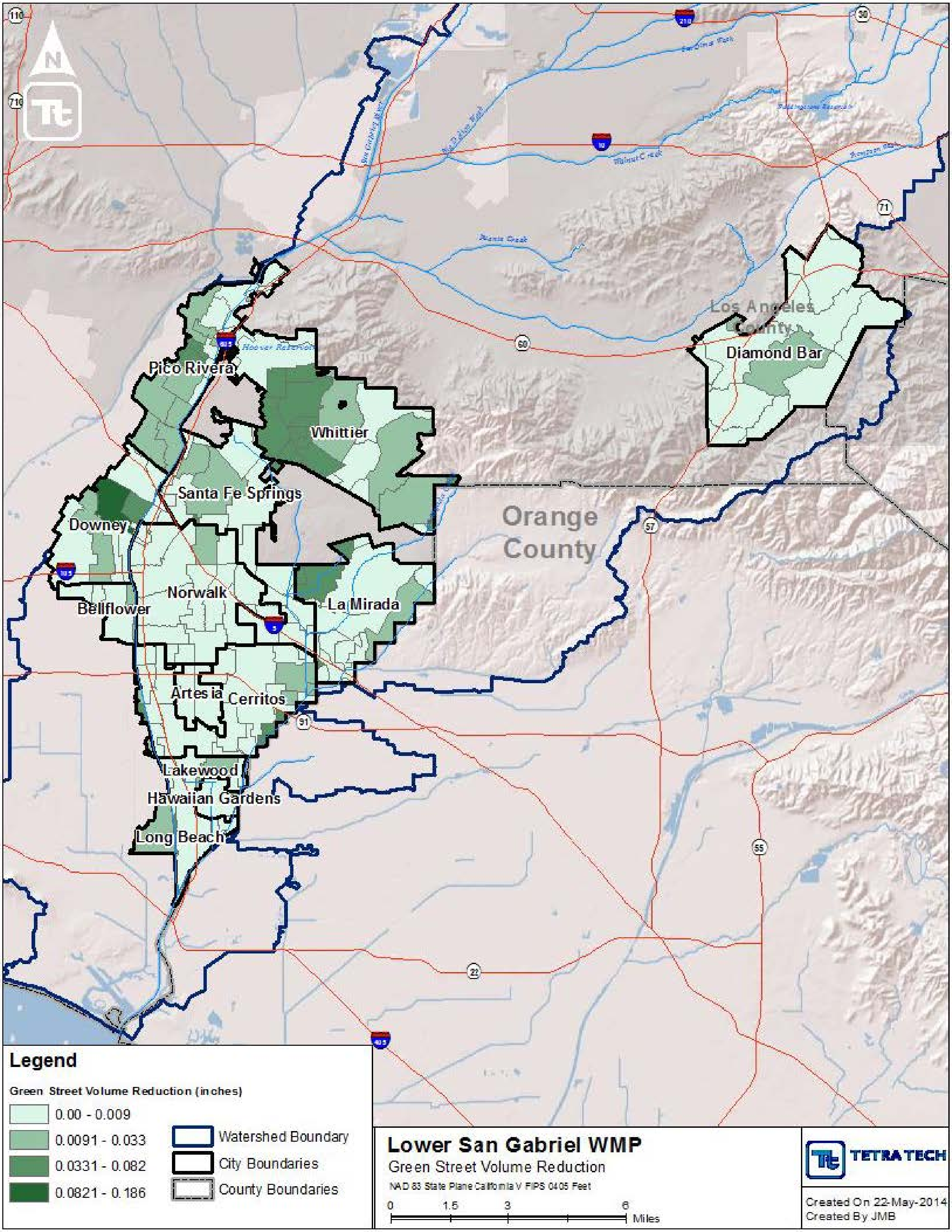

Figure 53. LSGR ROW BMP Volume Reduction

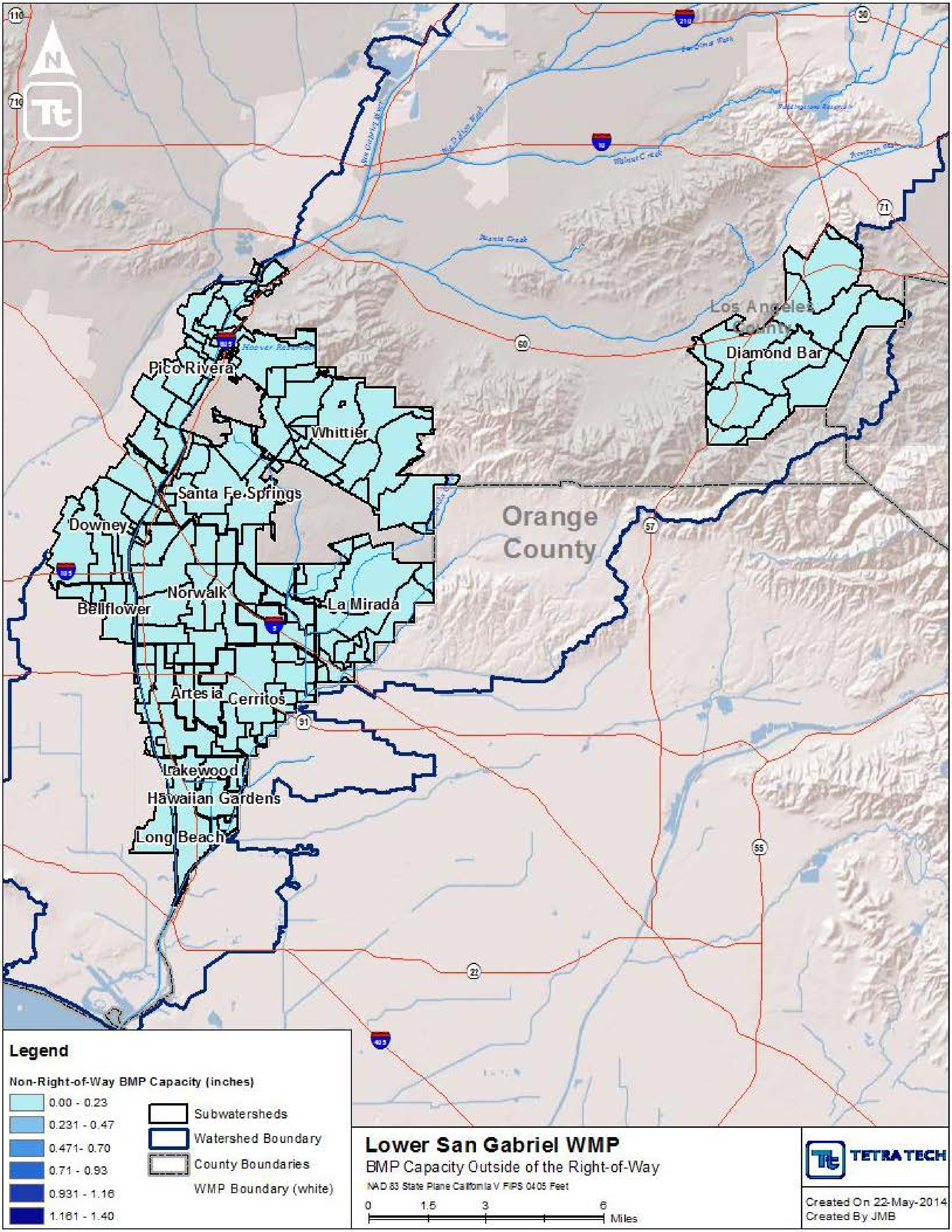

Figure 54. LSGR BMP capacity outside of the right-of-way

Attachment D: Existing and Planned BMPs

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

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9444 Balboa Ave., Suite 215
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January 15, 2015

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D1. Existing and Planned BMPs

The following tables summarize existing and planned BMPs in each jurisdiction.

D1.1. City of Bellflower

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration	Existing	Riverview Park Infiltration Trenches	2012	10500 Somerset Blvd.	33.896662	-118.11016	105113	16	ac		
Bioretention / Biofiltration	Existing	Riverview Park Infiltration Trenches	2012	10500 Somerset Blvd.	33.896662	-118.11016	105113	16	ac		
Flow-Through Treatment BMP	Existing	Commercial Gas Station and mart	2008	14300 Bellflower Blvd	33.901581	-118.124915	105114	0.42	ac		
Flow-Through Treatment BMP	Existing	Commercial Storage	2005	10526 Rosecrans	33.902009	-118.108102	575118	19.5	ac		
Infiltration BMPs	Existing	St George Church	2012	15725 Cornuta	33.890539	-118.120735	105113	1.36	ac		
Infiltration BMPs	Existing	Autozone	2012	10239 Rosecrans	33.902265	-118.114834	105113	0.78	ac		

D1.2. City of Downey

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow Through Treatment BMP	Existing	8314 SECOND ST	2/14/2014		33.9409	-118.13243	245114	1322	sf	0.153	cfs
Flow Through Treatment BMP	Existing	10030 LAKEWOOD	8/17/2007		33.9477	-118.11664	245125	24560	sf	0.17	cfs
Infiltration BMP	Existing	12327 WOODRUFF AV	2/14/2014		33.91989	-118.11706	245113	6894.4	sf	430.9	cf
Infiltration BMP	Existing	12145 WOODRUFF	7/8/2008		33.92338	-118.11805	245113	3200	sf	200	cf
Infiltration BMP	Existing	9500 WASHBURN	2/14/2014		33.92366	-118.1172	245113	342000	sf	9500	cf
Infiltration BMP	Existing	9236 HALL	4/17/2007		33.92972	-118.12155	245113	411840	sf	25740	cf
Infiltration BMP	Existing	9737 IMPERIAL	6/22/2010		33.91761	-118.11961	245114	5600	sf	350	cf
Infiltration BMP	Existing	12254 BELLFLOWER	9/13/2003		33.9214	-118.1239	245114	57600	sf	3600	cf
Infiltration BMP	Existing	11904 BELLFLOWER	2/14/2014		33.92607	-118.12515	245114	5400	sf	300	cf
Infiltration BMP	Existing	11610 LAKEWOOD	9/28/2007		33.93101	-118.12594	245114	91520	sf	5720	cf
Infiltration BMP	Existing	8329 DAVIS	6/15/2010		33.9366	-118.13379	245114	12608	sf	788	cf
Infiltration BMP	Existing	8522 FIRESTONE	2/16/2005		33.93678	-118.12978	245114	105456	sf	6591	cf
Infiltration BMP	Existing	8320 FIRESTONE BLVD	1/1/2010		33.9387	-118.13176	245114	90660	sf	525	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9060 IMPERIAL	4/15/2005		33.91646	-118.13532	245115	7056	sf	441	cf
Infiltration BMP	Existing	8141 DE PALMAQ	6/30/2003		33.93618	-118.1402	245115	443008	sf	27688	cf
Infiltration BMP	Existing	8317 DAVIS ST	2/14/2014		33.93683	-118.13441	245115	13920	sf	870	cf
Infiltration BMP	Existing	8333 IOWA	10/11/2001		33.93756	-118.13356	245115	9808	sf	613	cf
Infiltration BMP	Existing	8100 PHLOX	5/20/2004		33.93956	-118.13854	245115	14400	sf	900	cf
Infiltration BMP	Existing	11040 BROOKSHIRE	1/1/2014		33.93932	-118.12496	245119	1923616	sf	120226	cf
Infiltration BMP	Existing	11136 DOLLISON	6/22/2010		33.93448	-118.09613	245122	13824	sf	864	cf
Infiltration BMP	Existing	10239 PICO VISTA	4/7/2003		33.939	-118.10316	245126	2176	sf	136	cf
Infiltration BMP	Existing	10233 PICO VISTA	4/7/2003		33.93914	-118.10305	245126	2176	sf	136	cf
Infiltration BMP	Existing	10228 PICO VISTA	4/7/2003		33.93919	-118.10235	245126	5856	sf	366	cf
Infiltration BMP	Existing	10229 PICO VISTA	4/7/2003		33.93928	-118.10295	245126	2176	sf	136	cf
Infiltration BMP	Existing	10223 PICO VISTA	4/7/2003		33.93946	-118.10289	245126	2048	sf	128	cf
Infiltration BMP	Existing	10218 PICO VISTA	4/7/2003		33.93947	-118.10223	245126	5952	sf	372	cf
Infiltration BMP	Existing	10215 PICO VISTA	4/7/2003		33.93962	-118.10237	245126	2112	sf	132	cf
Infiltration BMP	Existing	10211 PICO VISTA	4/7/2003		33.93969	-118.10255	245126	2304	sf	144	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10219 PICO VISTA	4/7/2003		33.93975	-118.10273	245126	2304	sf	144	cf
Infiltration BMP	Existing	12800 PARAMOUNT	9/16/2008		33.92108	-118.15383	246077	3168	sf	198	cf
Infiltration BMP	Existing	7930 STEWARD & GRAY	11/18/2004		33.93539	-118.14527	246077	1600	sf	100	cf
Infiltration BMP	Existing	12229 JULIUS	1/1/2006		33.93343	-118.1561	246079	944	sf	59	cf
Infiltration BMP	Existing	7845 BENARES ST	6/14/2001		33.93839	-118.14549	246079	3568	sf	223	cf
Infiltration BMP	Existing	7841 BENARES ST	6/14/2001		33.93851	-118.14537	246079	1760	sf	110	cf
Infiltration BMP	Existing	7837 BENARES ST	6/14/2001		33.93863	-118.14528	246079	1760	sf	110	cf
Infiltration BMP	Existing	7848 BENARES ST	6/14/2001		33.93863	-118.14598	246079	10640	sf	665	cf
Infiltration BMP	Existing	7833 BENARES ST	6/14/2001		33.93875	-118.14518	246079	1760	sf	110	cf
Infiltration BMP	Existing	7844 BENARES ST	6/14/2001		33.93876	-118.14591	246079	2000	sf	125	cf
Infiltration BMP	Existing	7840 BENARES ST	6/14/2001		33.93886	-118.14578	246079	2000	sf	125	cf
Infiltration BMP	Existing	11706 RIVES	6/14/2001		33.93888	-118.14506	246079	1760	sf	110	cf
Infiltration BMP	Existing	7816 BENARES ST	6/14/2001		33.93896	-118.14553	246079	9600	sf	600	cf
Infiltration BMP	Existing	7812 BENARES ST	6/14/2001		33.93904	-118.14568	246079	1760	sf	110	cf
Infiltration BMP	Existing	11726 RIVES	6/14/2001		33.93904	-118.14614	246079	1920	sf	120	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7808 BENARES ST	6/14/2001		33.93911	-118.14583	246079	1760	sf	110	cf
Infiltration BMP	Existing	7808 BENARES ST	6/14/2001		33.93919	-118.14598	246079	1760	sf	110	cf
Infiltration BMP	Existing	7821 BENARES ST	6/14/2001		33.93921	-118.14506	246079	1872	sf	117	cf
Infiltration BMP	Existing	7804 BENARES ST	6/14/2001		33.93926	-118.14613	246079	9760	sf	610	cf
Infiltration BMP	Existing	7817 BENARES ST	6/14/2001		33.93931	-118.14525	246079	1760	sf	110	cf
Infiltration BMP	Existing	7813 BENARES ST	6/14/2001		33.93938	-118.14542	246079	1760	sf	110	cf
Infiltration BMP	Existing	7809 BENARES ST	6/14/2001		33.93945	-118.14557	246079	1760	sf	110	cf
Infiltration BMP	Existing	7805 BENARES ST	6/14/2001		33.93953	-118.14572	246079	1760	sf	110	cf
Infiltration BMP	Existing	7801 BENARES ST	6/14/2001		33.93961	-118.14587	246079	9600	sf	600	cf
Infiltration BMP	Existing	7140 FIRESTONE	10/3/2005		33.94707	-118.15469	246079	24048	sf	1503	cf
Infiltration BMP	Existing	8233 FIRESTONE	6/21/2010		33.94076	-118.13358	246102	91648	sf	5728	cf
Infiltration BMP	Existing	7814 FIRESTONE	2/14/2014		33.94418	-118.14232	246102	3000	sf	125	cf
Infiltration BMP	Existing	7676 FIRESTONE	2/26/2004		33.94527	-118.144	246102	213824	sf	13364	cf
Infiltration BMP	Existing	7201 FIRESTONE	4/19/2007		33.94821	-118.15273	246102	34352	sf	2147	cf
Infiltration BMP	Existing	7360 FLORENCE	6/21/2010		33.95872	-118.141	246102	14496	sf	906	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8129 FLORENCE	6/23/2010		33.95231	-118.12677	246103	8880	sf	555	cf
Infiltration BMP	Existing	8605 GALLATIN ROAD	2/14/2014		33.95768	-118.11432	246103	85792	sf	5362	cf
Infiltration BMP	Existing	9276 DOWNEY	1/4/2007		33.95901	-118.11926	246103	6400	sf	400	cf
Infiltration BMP	Existing	8801 LAKEWOOD	7/14/2006		33.96317	-118.11498	246106	18352	sf	1147	cf
Infiltration BMP	Existing	7880 TELEGRAPH	11/14/2004		33.97112	-118.12113	246111	123104	sf	7694	cf
Permeable Pavement	Existing	9449 IMPERIAL	6/22/2010		33.91809	-118.12656	245115	32160	sf	2010	cf
Permeable Pavement	Existing	9565 FIRESTONE	6/3/2008		33.93043	-118.11175	245119	18928	sf	1183	cf
Permeable Pavement	Existing	12628 PARAMOUNT	2/14/2014		33.92329	-118.15283	246077	15000	sf	284	cf
Permeable Pavement	Existing	11555 PARAMOUNT	2/14/2014		33.94116	-118.14067	246077	8125	sf	400	cf
Permeable Pavement	Existing	8043 SECOND ST	1/1/2009		33.94254	-118.13737	246102	105023	sf	6787	cf
Permeable Pavement	Existing	9250 LAKEWOOD	2/14/2014		33.95768	-118.1153	246103	24662	sf	939	cf
Regional Detention Facility	Existing	9341 IMPERIAL	5/6/2004		33.91918	-118.12898	245115	664624	sf	41539	cf
Regional Infiltration Facility	Existing	12074 LAKEWOOD	5/22/2005		33.9257	-118.13203	245115	960800	sf	60050	cf
Regional Infiltration Facility	Existing	12002 LAKEWOOD	5/22/2005		33.9261	-118.13169	245115	605264	sf	37829	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8764 FIRESTONE	8/14/2008	6523923.595890	6523923.595890	1798908.496460	245119	20064	sf	1254	cf
Infiltration BMP	Existing	9915 DOWNEY	9/27/2005	6523909.682530	6523909.682530	1805554.600030	246103	2265	sf	142	cf
Infiltration BMP	Existing	7602 RUNDELL	1/27/2006	6514863.657960	6514863.657960	1798182.489930	246079	2265	sf	142	cf
Infiltration BMP	Existing	10403 SAMOLINE	10/3/2005	6521224.982130	6521224.982130	1804890.047210	246102	2265	sf	142	cf
Infiltration BMP	Existing	12516 DOLAN	11/18/2005	6518146.741440	6518146.741440	1794105.551200	245115	1698	sf	106	cf
Infiltration BMP	Existing	7845 QUILL	3/28/2006	6515351.811960	6515351.811960	1796427.555720	246079	1698	sf	106	cf
Infiltration BMP	Existing	10435 BIRCHDALE	5/19/2005	6524444.362750	6524444.362750	1802478.415410	245119	1132	sf	71	cf
Infiltration BMP	Existing	8538 ALBIA	9/23/2005	6520089.101510	6520089.101510	1795567.094110	245115	566	sf	35	cf
Infiltration BMP	Existing	12159 CORNUTA	9/16/2005	6525392.928460	6525392.928460	1794233.560240	245114	566	sf	35	cf
Infiltration BMP	Existing	8064 DACOSTA	7/7/2005	6523365.354910	6523365.354910	1805913.806160	246103	566	sf	35	cf
Infiltration BMP	Existing	8551 DALEN	10/6/2005	6518205.327280	6518205.327280	1792517.271110	245115	566	sf	35	cf
Infiltration BMP	Existing	8318 DINSDALE	6/15/2006	6523907.628300	6523907.628300	1804895.972630	246103	566	sf	35	cf
Infiltration BMP	Existing	12641 DOLAN	9/2/2005	6517370.498610	6517370.498610	1793094.154440	245115	566	sf	35	cf
Infiltration BMP	Existing	12837 DOWNEY	6/13/2008	6516221.544620	6516221.544620	1792552.216840	246077	566	sf	35	cf
Infiltration BMP	Existing	12608 DUNROBIN	1/1/2007	6525044.715110	6525044.715110	1792041.222140	245114	566	sf	35	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7715 GAINFORD	5/9/2006	6521302.031220	6521302.03 1220	1807578.3937 30	246106	566	sf	35	cf
Infiltration BMP	Existing	12337 HORLEY	6/20/2007	6514828.837130	6514828.83 7130	1797233.8948 80	246079	566	sf	35	cf
Infiltration BMP	Existing	12619 IBBETSON	4/7/2008	6525826.717640	6525826.71 7640	1791950.6946 70	245114	566	sf	35	cf
Infiltration BMP	Existing	12142 MARBEL	5/5/2008	6521265.537710	6521265.53 7710	1794924.2305 50	245115	566	sf	35	cf
Infiltration BMP	Existing	12228 NORLAIN	6/24/2005	6513924.473210	6513924.47 3210	1798288.2061 30	246079	566	sf	35	cf
Infiltration BMP	Existing	11733 PATTON	12/9/2005	6521629.388810	6521629.38 8810	1797656.6816 10	245114	566	sf	35	cf
Infiltration BMP	Existing	11712 PRUESS	3/29/2006	6518005.349510	6518005.34 9510	1799785.0988 00	246077	566	sf	35	cf
Infiltration BMP	Existing	8605 SAMOLINE	10/23/2006	6525562.919850	6525562.91 9850	1810382.6226 70	246106	566	sf	35	cf
Infiltration BMP	Existing	7814 SPRINGER	7/20/2005	6515325.745000	6515325.74 5000	1796943.2500 00	246079	566	sf	35	cf
Infiltration BMP	Existing	7406 THIRD	9/23/2005	6517102.209740	6517102.20 9740	1803992.2240 80	246102	566	sf	35	cf
Infiltration BMP	Existing	8836 TWEEDY	8/21/2006	6524333.205540	6524333.20 5540	1809897.9968 80	246106	566	sf	35	cf
Infiltration BMP	Existing	9702 TWEEDY	8/30/2005	6522704.033740	6522704.03 3740	1807211.8246 30	246103	566	sf	35	cf
Infiltration BMP	Existing	11414 PARAMOUNT	11/17/2006	6519592.558830	6519592.55 8830	1800943.3483 10	245115	37135	sf	2321	cf
Infiltration BMP	Existing	8077 FLORENCE AV	1/1/2009	6523000.000000	6523000.00 0000	1805200.0000 00	246103	31872	sf	1992	cf
Infiltration BMP	Existing	8351 FLORENCE	11/29/2005	6524092.726100	6524092.72 6100	1804613.4557 50	246103	8252	sf	516	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11003 LAKEWOOD	1/1/2006	6524400.000000	6524400.000000	1799800.000000	245119	8252	sf	516	cf
Infiltration BMP	Existing	9288 LUBEC	6/21/2010	6528705.843900	6528705.843900	1803218.787040	245125	8252	sf	516	cf
Infiltration BMP	Existing	13240 BARLIN	6/24/2005	6517118.017720	6517118.017720	1789361.126310	245524	6189	sf	387	cf
Infiltration BMP	Existing	9802 BROOKSHIRE	4/24/2007	6525737.765210	6525737.765210	1805415.750650	246103	6189	sf	387	cf
Infiltration BMP	Existing	9026 SUVA	10/5/2006	6527186.692380	6527186.692380	1804858.393970	245125	6189	sf	387	cf
Infiltration BMP	Existing	7325 IRWINGROVE	4/27/2005	6518419.969630	6518419.969630	1807291.337240	246102	5158	sf	322	cf
Infiltration BMP	Existing	10064 PANGBORN	8/16/2005	6529846.676910	6529846.676910	1801177.429270	245125	5158	sf	322	cf
Infiltration BMP	Existing	8102 THIRD	3/4/2009	6520617.238210	6520617.238210	1801805.039980	246103	7616	sf	476	cf
Infiltration BMP	Existing	12200 BELLFLOWER	11/4/2008	6524061.916580	6524061.916580	1794195.827920	245114	4126	sf	258	cf
Infiltration BMP	Existing	9818 BIRCHDALE	12/28/2005	6526194.448530	6526194.448530	1804634.814020	245125	4126	sf	258	cf
Infiltration BMP	Existing	10419 BROOKSHIRE	7/30/2007	6523842.460000	6523842.460000	1803179.994160	245119	4126	sf	258	cf
Infiltration BMP	Existing	10432 BROOKSHIRE	2/14/2007	6523911.001360	6523911.001360	1803018.354450	245119	4126	sf	258	cf
Infiltration BMP	Existing	10329 CASANES	1/1/2006	6528565.218740	6528565.218740	1800358.453120	245126	4126	sf	258	cf
Infiltration BMP	Existing	13221 CORRIGAN	3/9/2006	6523120.117490	6523120.117490	1789965.324450	245114	4126	sf	258	cf
Infiltration BMP	Existing	8816 ELSTON	12/28/2005	6526840.850650	6526840.850650	1808666.263650	246103	4126	sf	258	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9278 GAINFORD	6/15/2005	6528421.969980	6528421.969980	1803000.469050	245125	4126	sf	258	cf
Infiltration BMP	Existing	7340 IRWINGROVE	12/6/2005	6518415.507880	6518415.507880	1806990.616650	246102	4126	sf	258	cf
Infiltration BMP	Existing	9055 IRWINGROVE	10/17/2006	6526414.238800	6526414.238800	1802422.724820	245119	4126	sf	258	cf
Infiltration BMP	Existing	9005 KRISTIN	1/1/2006	6524171.005660	6524171.005660	1809376.398810	246106	4126	sf	258	cf
Infiltration BMP	Existing	9015 KRISTIN	1/1/2006	6524137.396040	6524137.396040	1809320.713720	246106	4126	sf	258	cf
Infiltration BMP	Existing	10014 LA REINA	11/3/2005	6523603.973220	6523603.973220	1805275.605180	246103	4126	sf	258	cf
Infiltration BMP	Existing	8334 LEXINGTON	3/20/2006	6523900.000000	6523900.000000	1804200.000000	246103	4126	sf	258	cf
Infiltration BMP	Existing	7114 LUXOR	7/27/2005	6513446.571340	6513446.571340	1802395.175860	246100	4126	sf	258	cf
Infiltration BMP	Existing	10348 PANGBORN	10/12/2006	6529020.867850	6529020.867850	1800144.106260	245126	4126	sf	258	cf
Infiltration BMP	Existing	7268 PELLET	12/8/2005	6516203.991240	6516203.991240	1804244.566160	246104	4126	sf	258	cf
Infiltration BMP	Existing	9821 RIVES	9/12/2005	6521261.613640	6521261.613640	1807221.725140	246106	4126	sf	258	cf
Infiltration BMP	Existing	10427 STAMPS	2/27/2006	6523141.588150	6523141.588150	1803526.008280	246103	4126	sf	258	cf
Infiltration BMP	Existing	8325 TEXAS	8/30/2007	6520789.744350	6520789.744350	1799109.948610	245114	4126	sf	258	cf
Infiltration BMP	Existing	9211 ARRINGTON	6/21/2010	6527822.609270	6527822.609270	1805896.813180	245125	3095	sf	193	cf
Infiltration BMP	Existing	10372 BIRCHDALE	1/17/2006	6524786.108330	6524786.108330	1802711.833690	245119	2660	sf	166	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9509 BROCK	10/6/2005	6524084.133490	6524084.133490	1807438.122200	246103	3095	sf	193	cf
Infiltration BMP	Existing	9600 CORD	5/12/2008	6529842.639410	6529842.639410	1803668.379590	245125	3095	sf	193	cf
Infiltration BMP	Existing	10943 CORD	3/13/2007	6526539.555830	6526539.555830	1798046.595190	245119	3095	sf	193	cf
Infiltration BMP	Existing	12569 DOLAN	9/27/2006	6517675.526540	6517675.526540	1793796.546690	245115	3095	sf	193	cf
Infiltration BMP	Existing	9252A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9252B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9258C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	3095	sf	193	cf
Infiltration BMP	Existing	9622 HALEDON	3/16/2006	6528283.868130	6528283.868130	1804260.791520	245125	3095	sf	193	cf
Infiltration BMP	Existing	11442 JULIUS	7/26/2007	6517126.240320	6517126.240320	1802109.297720	246079	3095	sf	193	cf
Infiltration BMP	Existing	10026 MATTOCK	1/1/2006	6530326.462180	6530326.462180	1801330.602850	245125	3095	sf	193	cf
Infiltration BMP	Existing	9303 PARAMOUNT	3/14/2006	6523934.101920	6523934.101920	1808355.150660	246106	3095	sf	193	cf
Infiltration BMP	Existing	8739 PARKCLIFF	1/23/2006	6516653.896010	6516653.896010	1788072.265990	245524	2063	sf	129	cf
Infiltration BMP	Existing	9303 PARROT	1/4/2007	6524270.384450	6524270.384450	1808221.036420	246106	3095	sf	193	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7313 PELLET	6/22/2010	6516478.702600	6516478.702600	1804386.841100	246104	3095	sf	193	cf
Infiltration BMP	Existing	10473 PICO VISTA	1/21/2009	6529579.260180	6529579.260180	1798825.132300	245126	3095	sf	193	cf
Infiltration BMP	Existing	7840 THIRD	8/29/2007	6519254.945150	6519254.945150	1802616.251380	246102	3095	sf	193	cf
Infiltration BMP	Existing	8347 VISTA DEL ROSA	7/26/2007	6527061.884710	6527061.884710	1808864.927170	246106	3095	sf	193	cf
Infiltration BMP	Existing	11632 ADENMOOR	6/15/2005	6524141.212380	6524141.212380	1797138.142940	245114	2063	sf	129	cf
Infiltration BMP	Existing	7124 ADWEN	12/20/2007	6513937.816490	6513937.816490	1803059.644840	246100	2063	sf	129	cf
Infiltration BMP	Existing	7258 ADWEN	1/3/2008	6515068.905460	6515068.905460	1802384.347520	246079	2063	sf	129	cf
Infiltration BMP	Existing	7646 ADWEN	10/6/2005	6517037.957040	6517037.957040	1801170.785850	246079	2063	sf	129	cf
Infiltration BMP	Existing	7702 ADWEN	5/11/2006	6517121.727310	6517121.727310	1801116.179360	246079	2063	sf	129	cf
Infiltration BMP	Existing	13032 AIRPOINT	5/14/2007	6517972.459000	6517972.459000	1790335.341940	245115	2063	sf	129	cf
Infiltration BMP	Existing	8455 ALAMEDA	8/7/2008	6519558.018350	6519558.018350	1795721.453060	245115	2063	sf	129	cf
Infiltration BMP	Existing	8632 ALAMEDA	11/2/2006	6520500.318510	6520500.318510	1795019.322380	245115	2063	sf	129	cf
Infiltration BMP	Existing	7945 ALBIA	10/11/2005	6516993.544600	6516993.544600	1797608.073070	246079	2063	sf	129	cf
Infiltration BMP	Existing	8704 ALBIA	5/28/2008	6520928.243910	6520928.243910	1795073.644330	245115	2063	sf	129	cf
Infiltration BMP	Existing	7845 ARNETT	6/18/2010	6518353.322440	6518353.322440	1801165.354440	246079	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9217 ARRINGTON	3/27/2006	6527795.727670	6527795.727670	1805838.303240	245125	2063	sf	129	cf
Infiltration BMP	Existing	7870 BAYSINGER	2/8/2008	6521311.922790	6521311.922790	1805484.679070	246102	2063	sf	129	cf
Infiltration BMP	Existing	9964 BELCHER	5/16/2007	6525622.979960	6525622.979960	1789815.793090	245113	2063	sf	129	cf
Infiltration BMP	Existing	12556 BELLDER	8/17/2007	6518567.857140	6518567.857140	1793310.793680	245115	2063	sf	129	cf
Infiltration BMP	Existing	11614 BELLFLOWER	11/7/2008	6523771.271210	6523771.271210	1797348.312220	245114	2063	sf	129	cf
Infiltration BMP	Existing	11802 BELLMAN	3/9/2007	6521898.080850	6521898.080850	1797268.375540	245114	2063	sf	129	cf
Infiltration BMP	Existing	7502 BENARES	1/30/2009	6515952.395710	6515952.395710	1801162.932420	246079	2063	sf	129	cf
Infiltration BMP	Existing	7824 BORSON	5/24/2007	6514090.231790	6514090.231790	1794571.039330	246077	2063	sf	129	cf
Infiltration BMP	Existing	7442 BROOKMILL	2/6/2006	6515991.568850	6515991.568850	1801492.813950	246079	2063	sf	129	cf
Infiltration BMP	Existing	9202 BUELL	7/21/2008	6526325.599230	6526325.599230	1799668.061170	245119	2063	sf	129	cf
Infiltration BMP	Existing	9340 BUELL	8/9/2006	6527287.659290	6527287.659290	1799162.594770	245126	2063	sf	129	cf
Infiltration BMP	Existing	8707 BYERS	3/15/2006	6521183.641890	6521183.641890	1796053.567730	245115	2063	sf	129	cf
Infiltration BMP	Existing	10446 CASANES	10/26/2006	6528470.793910	6528470.793910	1799828.787480	245126	2063	sf	129	cf
Infiltration BMP	Existing	10932 CASANES	11/17/2005	6527225.467210	6527225.467210	1797760.272650	245119	2063	sf	129	cf
Infiltration BMP	Existing	13341 CASTANA	10/28/2005	6517576.502130	6517576.502130	1788949.477410	245524	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7408 CECILIA	10/27/2005	6517829.130300	6517829.130300	1804625.827460	246102	2063	sf	129	cf
Infiltration BMP	Existing	7604 CECILIA	5/14/2007	6518455.494160	6518455.494160	1804215.794590	246102	2063	sf	129	cf
Infiltration BMP	Existing	9116 CHANEY	12/19/2005	6529189.877980	6529189.877980	1805493.817150	245125	2063	sf	129	cf
Infiltration BMP	Existing	8210 CHEYENNE	3/18/2008	6515440.785260	6515440.785260	1792057.306890	246077	2063	sf	129	cf
Infiltration BMP	Existing	9663 CLANCEY	8/17/2005	6527712.819630	6527712.819630	1804149.908320	245125	2063	sf	129	cf
Infiltration BMP	Existing	10708 CLANCEY	12/9/2005	6525546.299290	6525546.299290	1800088.746900	245119	2063	sf	129	cf
Infiltration BMP	Existing	8336 CLETA	5/8/2006	6520552.025180	6520552.025180	1798452.238760	245114	2063	sf	129	cf
Infiltration BMP	Existing	8557 CLETA	7/24/2006	6521804.225790	6521804.225790	1798033.515210	245114	2063	sf	129	cf
Infiltration BMP	Existing	8532 COLE	11/7/2005	6521000.000000	6521000.000000	1796400.000000	245115	2063	sf	129	cf
Infiltration BMP	Existing	9003 CORD	6/23/2010	6530731.156250	6530731.156250	1805583.409840	245127	2063	sf	129	cf
Infiltration BMP	Existing	9203 CORD	11/14/2008	6530209.591170	6530209.591170	1804419.169900	245125	2063	sf	129	cf
Infiltration BMP	Existing	13029 CORNUTA	5/17/2007	6525511.407030	6525511.407030	1790564.440990	245113	2063	sf	129	cf
Infiltration BMP	Existing	13102 CORNUTA	8/2/2007	6525701.503660	6525701.503660	1790504.914950	245113	2063	sf	129	cf
Infiltration BMP	Existing	13130 CORNUTA	6/25/2007	6525701.486250	6525701.486250	1790230.251310	245113	2063	sf	129	cf
Infiltration BMP	Existing	9245 DALEWOOD	9/23/2005	6532196.615620	6532196.615620	1804345.945760	245127	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13440 DEMPSTER	10/26/2006	6516234.168650	6516234.168650	1789111.153470	245524	2063	sf	129	cf
Infiltration BMP	Existing	13448 DEMPSTER	5/10/2007	6516184.596670	6516184.596670	1789023.378330	245524	2063	sf	129	cf
Infiltration BMP	Existing	8125 DINSDALE	12/20/2005	6523223.693140	6523223.693140	1805447.514320	246103	2063	sf	129	cf
Infiltration BMP	Existing	10343 DOLAN	3/7/2007	6523688.489440	6523688.489440	1803733.392340	246103	2063	sf	129	cf
Infiltration BMP	Existing	10616 DOLAN	12/8/2005	6523091.688370	6523091.688370	1802186.196180	246103	2063	sf	129	cf
Infiltration BMP	Existing	8451 DONOVAN	10/20/2006	6518824.326830	6518824.326830	1794831.678890	245115	2063	sf	129	cf
Infiltration BMP	Existing	11915 DOWNEY	9/26/2007	6519404.158310	6519404.158310	1797577.606330	245115	2063	sf	129	cf
Infiltration BMP	Existing	12269 DOWNEY	3/16/2006	6518129.427940	6518129.427940	1795616.200900	246077	2063	sf	129	cf
Infiltration BMP	Existing	12631 DUNROBIN	1/14/2009	6524865.692630	6524865.692630	1791809.740080	245114	2063	sf	129	cf
Infiltration BMP	Existing	12644 DUNROBIN	12/27/2006	6525045.107610	6525045.107610	1791670.201830	245114	2063	sf	129	cf
Infiltration BMP	Existing	13212 DUNROBIN	3/6/2008	6525046.199690	6525046.199690	1790094.955960	245114	2063	sf	129	cf
Infiltration BMP	Existing	9018 EGLISE	6/18/2010	6530595.364130	6530595.364130	1805560.296250	245127	2063	sf	129	cf
Infiltration BMP	Existing	9252C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9252D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9252E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9254A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9254E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9258D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9258E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260E ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260A ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260B ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260C ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9260D ELM VISTA	4/5/2006	6524400.000000	6524400.000000	1795600.000000	245114	2063	sf	129	cf
Infiltration BMP	Existing	8902 ELSTON	6/22/2010	6526760.905110	6526760.905110	1808606.155990	246103	2063	sf	129	cf
Infiltration BMP	Existing	8420 EUCALYPTUS	11/1/2007	6518268.185230	6518268.185230	1794519.531140	245115	2063	sf	129	cf
Infiltration BMP	Existing	8543 FARM	7/14/2008	6524366.648200	6524366.648200	1802748.102990	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7963 FIFTH	4/13/2007	6520492.297340	6520492.297340	1803181.748460	246103	2063	sf	129	cf
Infiltration BMP	Existing	7606 FINEVALE	7/23/2007	6522317.087820	6522317.087820	1809781.757910	246111	2063	sf	129	cf
Infiltration BMP	Existing	8740 FIRESTONE	2/5/2008	6523707.154590	6523707.154590	1799037.579000	245119	2063	sf	129	cf
Infiltration BMP	Existing	8663 FONTANA	8/11/2005	6522041.808010	6522041.808010	1796935.622550	245114	2063	sf	129	cf
Infiltration BMP	Existing	7435 FOSTORIA	8/30/2005	6517713.795360	6517713.795360	1804555.032870	246102	2063	sf	129	cf
Infiltration BMP	Existing	7611 FOSTORIA	7/5/2007	6518456.715640	6518456.715640	1804071.041810	246102	2063	sf	129	cf
Infiltration BMP	Existing	8029 FOURTH	6/15/2006	6520786.200710	6520786.200710	1802533.409070	246103	2063	sf	129	cf
Infiltration BMP	Existing	8524 GAINFORD	6/27/2008	6525485.453790	6525485.453790	1804820.431910	245125	2063	sf	129	cf
Infiltration BMP	Existing	9332 GAINFORD	7/20/2006	6528750.550820	6528750.550820	1802746.272930	245125	2063	sf	129	cf
Infiltration BMP	Existing	9330 GALLATIN	8/2/2007	6529116.628720	6529116.628720	1804180.197000	245125	2063	sf	129	cf
Infiltration BMP	Existing	12271 GLYNN	10/18/2005	6518435.603700	6518435.603700	1795389.616520	245115	2063	sf	129	cf
Infiltration BMP	Existing	9123 HALEDON	1/23/2006	6528738.408770	6528738.408770	1805747.051990	245125	2063	sf	129	cf
Infiltration BMP	Existing	7915 HARPER	2/7/2006	6520609.146350	6520609.146350	1804298.454990	246102	2063	sf	129	cf
Infiltration BMP	Existing	9108 HASTY	8/23/2006	6531133.870830	6531133.870830	1805211.202040	245127	2063	sf	129	cf
Infiltration BMP	Existing	10840 HASTY	1/16/2008	6527245.272860	6527245.272860	1798387.513250	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7468 HONDO	12/31/2008	6513888.485770	6513888.485770	1797503.008930	246079	2063	sf	129	cf
Infiltration BMP	Existing	7838 HONDO	2/26/2008	6515366.533450	6515366.533450	1796561.911100	246079	2063	sf	129	cf
Infiltration BMP	Existing	7926 HONDO	7/25/2006	6515828.269550	6515828.269550	1796282.236280	246079	2063	sf	129	cf
Infiltration BMP	Existing	12023 HORTON	10/5/2005	6515547.066470	6515547.066470	1799512.855270	246079	1032	sf	64	cf
Infiltration BMP	Existing	10234 JULIUS	11/5/2009	6519723.348540	6519723.348540	1806551.787860	246102	2063	sf	129	cf
Infiltration BMP	Existing	11828 JULIUS	1/3/2008	6515976.382140	6515976.382140	1800524.752810	246079	2063	sf	129	cf
Infiltration BMP	Existing	9256 KLINEDALE	12/4/2007	6531745.367500	6531745.367500	1804500.031620	245127	2063	sf	129	cf
Infiltration BMP	Existing	9452 KLINEDALE	4/24/2008	6531257.497660	6531257.497660	1803653.019950	245127	2063	sf	129	cf
Infiltration BMP	Existing	9031 LEMORAN	1/30/2009	6529792.995960	6529792.995960	1806045.812140	245125	2063	sf	129	cf
Infiltration BMP	Existing	9910 LESTERFORD	8/3/2005	6531140.582200	6531140.582200	1801442.142180	245125	2063	sf	129	cf
Infiltration BMP	Existing	8533 LOWMAN	1/3/2008	6525796.079270	6525796.079270	1810845.309540	246106	2063	sf	129	cf
Infiltration BMP	Existing	8349 LUBEC	12/27/2006	6524776.248350	6524776.248350	1805794.753990	246103	2063	sf	129	cf
Infiltration BMP	Existing	7630 LUXOR	6/27/2005	6516552.896900	6516552.896900	1800452.817120	246079	2063	sf	129	cf
Infiltration BMP	Existing	12342 MARBEL	3/23/2006	6520586.635090	6520586.635090	1793799.804370	245115	2063	sf	129	cf
Infiltration BMP	Existing	9045 MARGARET ST	1/1/2006	6524143.176440	6524143.176440	1798109.987740	245114	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10410 MATTOCK	10/2/2007	6529164.649420	6529164.649420	1799820.803610	245126	2063	sf	129	cf
Infiltration BMP	Existing	10615 MATTOCK	2/22/2006	6528479.681880	6528479.681880	1798952.207590	245126	2063	sf	129	cf
Infiltration BMP	Existing	9136 MELDAR	3/1/2007	6526738.891530	6526738.891530	1807241.651780	246103	2063	sf	129	cf
Infiltration BMP	Existing	7437 MULLER	10/3/2005	6518230.115820	6518230.115820	1805283.479580	246102	1032	sf	64	cf
Infiltration BMP	Existing	7452 MULLER	10/3/2005	6518271.461030	6518271.461030	1805049.518080	246102	2063	sf	129	cf
Infiltration BMP	Existing	10715 NEW	8/9/2007	6521988.945450	6521988.945450	1802370.638520	246103	2063	sf	129	cf
Infiltration BMP	Existing	10715 NEW	7/14/2008	6521988.945450	6521988.945450	1802370.638520	246103	2063	sf	129	cf
Infiltration BMP	Existing	10261 NEWVILLE	10/30/2007	6529641.666020	6529641.666020	1800383.942770	245126	2063	sf	129	cf
Infiltration BMP	Existing	10311 NEWVILLE	1/29/2009	6529538.574620	6529538.574620	1800214.882210	245126	2063	sf	129	cf
Infiltration BMP	Existing	10420 NEWVILLE	4/11/2008	6529346.061190	6529346.061190	1799529.176420	245126	2063	sf	129	cf
Infiltration BMP	Existing	10524 NEWVILLE	6/11/2007	6529062.272820	6529062.272820	1798916.257500	245126	2063	sf	129	cf
Infiltration BMP	Existing	9842 NORLAIN	3/9/2007	6519878.070320	6519878.070320	1807987.575840	246111	2063	sf	129	cf
Infiltration BMP	Existing	10403 PANGBORN	9/16/2005	6528806.561730	6528806.561730	1800136.574080	245126	2063	sf	129	cf
Infiltration BMP	Existing	10421 PANGBORN	6/5/2006	6528710.057740	6528710.057740	1799977.600600	245126	2063	sf	129	cf
Infiltration BMP	Existing	10903 PANGBORN	5/12/2008	6527497.056040	6527497.056040	1797964.159830	245119	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9508 PARAMOUNT	7/23/2007	6523724.334180	6523724.334180	1807653.518330	246106	2063	sf	129	cf
Infiltration BMP	Existing	9709 PARROT	6/20/2008	6523336.123150	6523336.123150	1806770.831150	246103	2063	sf	129	cf
Infiltration BMP	Existing	7107 PELLET	10/26/2005	6515228.221140	6515228.221140	1805197.090730	246104	2063	sf	129	cf
Infiltration BMP	Existing	10316 PICO VISTA	6/22/2010	6530326.941520	6530326.941520	1799752.739480	245126	2063	sf	129	cf
Infiltration BMP	Existing	10459 PICO VISTA	8/20/2008	6529643.308750	6529643.308750	1798930.291180	245126	2063	sf	129	cf
Infiltration BMP	Existing	11809 POMERING	1/25/2008	6515588.727520	6515588.727520	1800891.851040	246079	2063	sf	129	cf
Infiltration BMP	Existing	11821 POMERING	11/20/2008	6515535.205010	6515535.205010	1800794.072400	246079	2063	sf	129	cf
Infiltration BMP	Existing	9050 PRISCILLA	2/21/2007	6519218.937330	6519218.937330	1790014.532510	245115	2063	sf	129	cf
Infiltration BMP	Existing	8230 PURITAN	7/12/2007	6515756.650110	6515756.650110	1792196.388750	246077	2063	sf	129	cf
Infiltration BMP	Existing	8107 RAVILLER	6/22/2010	6524405.759790	6524405.759790	1808219.110840	246106	2063	sf	129	cf
Infiltration BMP	Existing	9940 RICHEON	12/26/2007	6520640.158150	6520640.158150	1807053.597690	246106	2063	sf	129	cf
Infiltration BMP	Existing	12015 RICHEON	6/21/2010	6515852.443580	6515852.443580	1799404.256870	246079	2063	sf	129	cf
Infiltration BMP	Existing	7336 RIO HONDO PL	12/26/2007	6516915.991390	6516915.991390	1804928.334260	246104	2063	sf	129	cf
Infiltration BMP	Existing	8418 RIVES	9/30/2005	6525367.917230	6525367.917230	1811575.863460	246106	1032	sf	64	cf
Infiltration BMP	Existing	11638 RIVES	11/2/2006	6517541.202300	6517541.202300	1800577.741160	246079	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11706 RIVES	10/16/2006	6517702.333530	6517702.333530	1800238.435400	246079	2063	sf	129	cf
Infiltration BMP	Existing	12436 ROSE	11/6/2006	6520776.455000	6520776.455000	1793075.765000	245115	2063	sf	129	cf
Infiltration BMP	Existing	12033 SAMOLINE	2/22/2008	6517025.771360	6517025.771360	1798249.691900	246079	2063	sf	129	cf
Infiltration BMP	Existing	12051 SAMOLINE	9/3/2008	6516919.542440	6516919.542440	1798077.846870	246079	2063	sf	129	cf
Infiltration BMP	Existing	12302 SAMOLINE	6/22/2010	6516399.204110	6516399.204110	1796321.463670	246077	2063	sf	129	cf
Infiltration BMP	Existing	7921 SECOND	2/15/2006	6519427.915180	6519427.915180	1802349.970040	246102	2063	sf	129	cf
Infiltration BMP	Existing	9700 SHELLEYFIELD	7/17/2008	6527622.312900	6527622.312900	1804250.399390	245125	2063	sf	129	cf
Infiltration BMP	Existing	10553 SHELLEYFIELD	6/11/2008	6525493.222190	6525493.222190	1800845.190450	245119	2063	sf	129	cf
Infiltration BMP	Existing	8732 SMALLWOOD	2/16/2006	6524307.398160	6524307.398160	1810444.440300	246106	2063	sf	129	cf
Infiltration BMP	Existing	8816 SMALLWOOD	10/11/2005	6524123.348010	6524123.348010	1810138.117570	246106	2063	sf	129	cf
Infiltration BMP	Existing	9127 SONGFEST	12/1/2005	6531508.595900	6531508.595900	1805094.820630	245127	2063	sf	129	cf
Infiltration BMP	Existing	9143 STEWART & GRAY	11/30/2005	6523803.019500	6523803.019500	1796254.085000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9211 STEWART & GRAY	11/27/2006	6524190.537790	6524190.537790	1796254.765000	245114	2063	sf	129	cf
Infiltration BMP	Existing	9112 STOAKES	8/23/2006	6526782.391540	6526782.391540	1807626.036510	246103	2063	sf	129	cf
Infiltration BMP	Existing	9533 SUVA	6/27/2006	6530409.847860	6530409.847860	1802701.771860	245125	2063	sf	129	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9729 TRISTAN	10/18/2005	6526617.474570	6526617.474570	1804798.283870	245125	2063	sf	129	cf
Infiltration BMP	Existing	9216 TWEEDY	12/9/2005	6523630.155980	6523630.155980	1808715.397490	246106	2063	sf	129	cf
Infiltration BMP	Existing	13602 VERDURA	6/28/2007	6516296.473820	6516296.473820	1788728.235150	245524	2063	sf	129	cf
Infiltration BMP	Existing	10305 VULTEE	10/9/2006	6525949.622700	6525949.622700	1802510.250780	245119	2063	sf	129	cf
Infiltration BMP	Existing	10017 WILEY BURKE	6/22/2010	6520091.056520	6520091.056520	1807145.868160	246106	2063	sf	129	cf
Infiltration BMP	Existing	8538 ADOREE	9/26/2007	6517768.216360	6517768.216360	1792006.503470	245115	1032	sf	64	cf
Infiltration BMP	Existing	9407 ADOREE	1/1/2006	6522413.313750	6522413.313750	1791106.017430	245115	1032	sf	64	cf
Infiltration BMP	Existing	7134 ADWEN	1/1/2005	6514021.670500	6514021.670500	1803005.164870	246100	1032	sf	64	cf
Infiltration BMP	Existing	7343 ADWEN	9/4/2007	6515521.914470	6515521.914470	1802266.858280	246079	1032	sf	64	cf
Infiltration BMP	Existing	7743 ADWEN	12/5/2006	6517543.195590	6517543.195590	1801041.561520	246079	1032	sf	64	cf
Infiltration BMP	Existing	7802 ADWEN	10/18/2005	6517699.212930	6517699.212930	1800872.280990	246079	1032	sf	64	cf
Infiltration BMP	Existing	7828 ADWEN	8/4/2005	6517918.117250	6517918.117250	1800738.511970	246079	1032	sf	64	cf
Infiltration BMP	Existing	7852 ADWEN	1/9/2009	6518131.432520	6518131.432520	1800607.974520	246079	1032	sf	64	cf
Infiltration BMP	Existing	7855 ADWEN	11/23/2005	6518235.708380	6518235.708380	1800774.963010	246079	1032	sf	64	cf
Infiltration BMP	Existing	12823 AIRPOINT	6/29/2007	6518348.749200	6518348.749200	1791281.430170	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8441 ALAMEDA	10/31/2005	6519442.769190	6519442.769190	1795780.926380	245115	1032	sf	64	cf
Infiltration BMP	Existing	8549 ALAMEDA	6/23/2010	6520129.148230	6520129.148230	1795426.542360	245115	1032	sf	64	cf
Infiltration BMP	Existing	8448 ALBIA	1/1/2007	6519556.734390	6519556.734390	1795840.452920	245115	1032	sf	64	cf
Infiltration BMP	Existing	8528 ALBIA	2/27/2007	6520000.245000	6520000.245000	1795612.955000	245115	1032	sf	64	cf
Infiltration BMP	Existing	9718 ALIWIN	8/2/2005	6532030.038780	6532030.038780	1804115.104340	245127	1032	sf	64	cf
Infiltration BMP	Existing	7936 ALLENGROVE	1/22/2007	6524421.678930	6524421.678930	1809567.173140	246106	1032	sf	64	cf
Infiltration BMP	Existing	8116 ALLENGROVE	12/5/2005	6525137.825210	6525137.825210	1808747.451430	246106	1032	sf	64	cf
Infiltration BMP	Existing	9166 ANGELL	9/2/2008	6520625.089300	6520625.089300	1790394.866750	245115	1032	sf	64	cf
Infiltration BMP	Existing	9351 APPLEBY	1/3/2008	6529580.566170	6529580.566170	1804445.997380	245125	1032	sf	64	cf
Infiltration BMP	Existing	9520 ARDINE	10/6/2005	6527613.323800	6527613.323800	1797533.903060	245119	1032	sf	64	cf
Infiltration BMP	Existing	7814 ARNETT	6/22/2010	6517981.553910	6517981.553910	1801095.347060	246079	1032	sf	64	cf
Infiltration BMP	Existing	7815 ARNETT	6/22/2010	6518066.490340	6518066.490340	1801237.713920	246079	1032	sf	64	cf
Infiltration BMP	Existing	7832 ARNETT	1/11/2007	6518132.684800	6518132.684800	1801021.243050	246079	1032	sf	64	cf
Infiltration BMP	Existing	8241 ARNETT	11/29/2006	6520442.071210	6520442.071210	1799867.842140	245115	1032	sf	64	cf
Infiltration BMP	Existing	7743 BAIRNSDALE	5/16/2006	6523474.546480	6523474.546480	1810551.323320	246106	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12904 BARLIN	1/15/2009	6518150.890370	6518150.890370	1791163.941140	245115	1032	sf	64	cf
Infiltration BMP	Existing	13247 BARLIN	5/5/2005	6516868.829160	6516868.829160	1789428.146200	245524	1032	sf	64	cf
Infiltration BMP	Existing	7871 BAYSINGER	1/10/2007	6521422.493960	6521422.493960	1805635.813480	246102	1032	sf	64	cf
Infiltration BMP	Existing	8607 BAYSINGER	1/1/2005	6525304.240800	6525304.240800	1803291.716200	245119	1032	sf	64	cf
Infiltration BMP	Existing	9131 BAYSINGER	9/10/2008	6526918.982970	6526918.982970	1802474.767100	245119	1032	sf	64	cf
Infiltration BMP	Existing	9411 BAYSINGER	9/24/2007	6528736.042510	6528736.042510	1801262.782730	245126	1032	sf	64	cf
Infiltration BMP	Existing	9320 BELCHER	4/10/2007	6520600.361450	6520600.361450	1789754.109890	245115	1032	sf	64	cf
Infiltration BMP	Existing	9969 BELCHER	7/29/2009	6525669.288070	6525669.288070	1789992.480470	245113	1032	sf	64	cf
Infiltration BMP	Existing	10375 BELDER	6/22/2010	6522812.240000	6522812.240000	1803043.757460	246103	1032	sf	64	cf
Infiltration BMP	Existing	7441 BENARES	10/25/2005	6515921.019300	6515921.019300	1801396.174500	246079	1032	sf	64	cf
Infiltration BMP	Existing	7503 BENARES	1/16/2008	6516046.045620	6516046.045620	1801313.189720	246079	1032	sf	64	cf
Infiltration BMP	Existing	11014 BENFIELD	12/19/2005	6531918.630750	6531918.630750	1797937.959120	245122	1032	sf	64	cf
Infiltration BMP	Existing	8555 BIGBY	8/22/2005	6524606.668030	6524606.668030	1802914.545010	245119	1032	sf	64	cf
Infiltration BMP	Existing	9308 BIGBY	12/18/2008	6527591.908660	6527591.908660	1800839.109380	245126	1032	sf	64	cf
Infiltration BMP	Existing	9345 BIGBY	5/16/2006	6527999.312020	6527999.312020	1800803.102000	245126	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9389 BIGBY	9/20/2007	6528361.925530	6528361.925530	1800582.426270	245126	1032	sf	64	cf
Infiltration BMP	Existing	8246 BIRCHCREST	11/28/2005	6526713.325530	6526713.325530	1809350.628180	246106	1032	sf	64	cf
Infiltration BMP	Existing	10434 BIRCHDALE	12/2/2008	6524586.579650	6524586.579650	1802390.820140	245119	1032	sf	64	cf
Infiltration BMP	Existing	8812 BIRCHLEAF	5/3/2007	6527457.897210	6527457.897210	1808468.377860	246103	1032	sf	64	cf
Infiltration BMP	Existing	8912 BIRCHLEAF	10/9/2007	6527209.329660	6527209.329660	1808281.543500	246103	1032	sf	64	cf
Infiltration BMP	Existing	13330 BIXLER	3/21/2007	6516259.886220	6516259.886220	1789972.109000	245524	1032	sf	64	cf
Infiltration BMP	Existing	13411 BIXLER	9/30/2008	6515914.285010	6515914.285010	1789635.314360	245524	1032	sf	64	cf
Infiltration BMP	Existing	13425 BIXLER	8/17/2005	6515841.147610	6515841.147610	1789505.869380	245524	1032	sf	64	cf
Infiltration BMP	Existing	13454 BIXLER	5/10/2007	6515808.905200	6515808.905200	1789174.120800	245524	1032	sf	64	cf
Infiltration BMP	Existing	8220 BLANDWOOD	6/22/2010	6526086.691350	6526086.691350	1808873.058080	246103	1032	sf	64	cf
Infiltration BMP	Existing	12809 BLODGETT	1/1/2006	6518629.647540	6518629.647540	1791208.759970	245115	1032	sf	64	cf
Infiltration BMP	Existing	13026 BLODGETT	1/1/2005	6518225.401930	6518225.401930	1790248.943990	245115	1032	sf	64	cf
Infiltration BMP	Existing	13045 BLODGETT	10/6/2005	6517990.284020	6517990.284020	1790176.483690	245115	1032	sf	64	cf
Infiltration BMP	Existing	13114 BLODGETT	10/6/2005	6517888.613290	6517888.613290	1789931.616790	245115	1032	sf	64	cf
Infiltration BMP	Existing	7931 BORSON	9/6/2006	6514752.824370	6514752.824370	1794266.718830	246077	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8202 BORSON	6/5/2006	6516202.097710	6516202.097710	1793267.543860	246077	1032	sf	64	cf
Infiltration BMP	Existing	8428 BORSON	11/21/2008	6517449.915190	6517449.915190	1792528.167220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8515 BORSON	3/14/2005	6517771.929480	6517771.929480	1792500.505870	245115	1032	sf	64	cf
Infiltration BMP	Existing	8345 BOYNE	6/18/2010	6519344.143470	6519344.143470	1796446.421390	245115	1032	sf	64	cf
Infiltration BMP	Existing	8402 BOYNE	1/1/2005	6519302.113240	6519302.113240	1796279.573520	245115	1032	sf	64	cf
Infiltration BMP	Existing	8525 BOYNE	7/20/2006	6520189.715440	6520189.715440	1796009.699660	245115	1032	sf	64	cf
Infiltration BMP	Existing	8528 BOYNE	2/22/2007	6520138.661540	6520138.661540	1795848.718800	245115	1032	sf	64	cf
Infiltration BMP	Existing	8613 BOYSON	1/1/2006	6520167.899980	6520167.899980	1794794.451220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8647 BOYSON	7/29/2008	6520447.155570	6520447.155570	1794619.557270	245115	1032	sf	64	cf
Infiltration BMP	Existing	10216 BRANSCOMB	2/21/2007	6526794.108720	6526794.108720	1790310.156040	245113	1032	sf	64	cf
Infiltration BMP	Existing	10291 BRANSCOMB	7/25/2006	6527529.378260	6527529.378260	1790458.207730	245118	1032	sf	64	cf
Infiltration BMP	Existing	9624 BROCK	4/22/2005	6523849.153810	6523849.153810	1806723.688440	246103	1032	sf	64	cf
Infiltration BMP	Existing	12351 BROCK	9/3/2008	6516676.858850	6516676.858850	1795612.256100	246077	1032	sf	64	cf
Infiltration BMP	Existing	12608 BROCK	2/11/2005	6516008.590090	6516008.590090	1794308.259250	246077	1032	sf	64	cf
Infiltration BMP	Existing	8269 BROOKGREEN	1/1/2006	6526709.836510	6526709.836510	1808858.860970	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7847 BROOKMILL	6/21/2010	6518005.266020	6518005.266020	1800484.266850	246079	1032	sf	64	cf
Infiltration BMP	Existing	8025 BROOKPARK	1/1/2005	6525207.617130	6525207.617130	1809814.105880	246106	1032	sf	64	cf
Infiltration BMP	Existing	9707 BROOKSHIRE	3/14/2005	6525762.512240	6525762.512240	1805795.982660	246103	1032	sf	64	cf
Infiltration BMP	Existing	10429 BROOKSHIRE	1/19/2005	6523911.001360	6523911.001360	1803018.354450	245119	1032	sf	64	cf
Infiltration BMP	Existing	12404 BROOKSHIRE	6/25/2007	6518808.785660	6518808.785660	1794169.944640	245115	1032	sf	64	cf
Infiltration BMP	Existing	7622 BRUNACHE	10/31/2007	6515665.309920	6515665.309920	1799097.073030	246079	1032	sf	64	cf
Infiltration BMP	Existing	8216 BRUNACHE	11/6/2007	6518414.904440	6518414.904440	1797242.748270	245115	1032	sf	64	cf
Infiltration BMP	Existing	9033 BUCKLES	6/21/2010	6523179.898540	6523179.898540	1796909.863810	245114	1032	sf	64	cf
Infiltration BMP	Existing	7540 BUELL	1/1/2004	6518499.698980	6518499.698980	1804545.470300	246102	1032	sf	64	cf
Infiltration BMP	Existing	9330 BUELL	2/15/2006	6527195.126160	6527195.126160	1799219.087810	245126	1032	sf	64	cf
Infiltration BMP	Existing	9351 BUELL	6/21/2010	6527484.251630	6527484.251630	1799288.621620	245126	1032	sf	64	cf
Infiltration BMP	Existing	9634 BUELL	3/16/2006	6528774.281270	6528774.281270	1798139.573770	245126	1032	sf	64	cf
Infiltration BMP	Existing	9067 BUHMAN	11/20/2007	6530056.595350	6530056.595350	1805336.923900	245125	1032	sf	64	cf
Infiltration BMP	Existing	9208 BUHMAN	6/16/2008	6529799.831660	6529799.831660	1804544.819190	245125	1032	sf	64	cf
Infiltration BMP	Existing	10237 CASANES	3/23/2006	6528975.248660	6528975.248660	1801017.460740	245126	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10321 CASANES	1/1/2007	6528597.524650	6528597.524650	1800411.412530	245126	1032	sf	64	cf
Infiltration BMP	Existing	10403 CASANES	12/21/2005	6528532.829940	6528532.829940	1800305.536240	245126	1032	sf	64	cf
Infiltration BMP	Existing	10408 CASANES	1/1/2005	6528665.671960	6528665.671960	1800149.799930	245126	1032	sf	64	cf
Infiltration BMP	Existing	10812 CASANES	3/14/2005	6527610.698650	6527610.698650	1798391.295520	245119	1032	sf	64	cf
Infiltration BMP	Existing	10835 CASANES	4/1/2008	6527345.484730	6527345.484730	1798305.683780	245119	1032	sf	64	cf
Infiltration BMP	Existing	10944 CASANES	1/1/2006	6527151.352860	6527151.352860	1797710.972890	245119	1032	sf	64	cf
Infiltration BMP	Existing	8457 CAVEL	9/24/2007	6519984.576530	6519984.576530	1796420.555450	245115	1032	sf	64	cf
Infiltration BMP	Existing	9502 CECILIA	10/11/2007	6527927.079440	6527927.079440	1798327.652080	245126	1032	sf	64	cf
Infiltration BMP	Existing	9531 CECILIA	8/23/2006	6528208.236430	6528208.236430	1798317.933420	245126	1032	sf	64	cf
Infiltration BMP	Existing	9435 CEDARTREE	6/22/2010	6530636.457520	6530636.457520	1805866.234670	245127	1032	sf	64	cf
Infiltration BMP	Existing	9010 CHANEY	11/30/2005	6529789.693370	6529789.693370	1806340.793150	245125	1032	sf	64	cf
Infiltration BMP	Existing	9011 CHANEY	1/31/2006	6529640.900410	6529640.900410	1806424.653160	245125	1032	sf	64	cf
Infiltration BMP	Existing	9134 CHANEY	1/1/2005	6529119.825860	6529119.825860	1805332.958450	245125	1032	sf	64	cf
Infiltration BMP	Existing	10252 CHANEY	1/1/2006	6527373.631100	6527373.631100	1801932.130180	245119	1032	sf	64	cf
Infiltration BMP	Existing	10530 CHANEY	6/3/2008	6526461.472620	6526461.472620	1800532.795270	245119	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8355 CHARLOMA	9/16/2005	6524931.861530	6524931.861530	1806017.636180	246103	1032	sf	64	cf
Infiltration BMP	Existing	9037 CHARLOMA	9/25/2007	6527230.271760	6527230.271760	1804669.291940	245125	1032	sf	64	cf
Infiltration BMP	Existing	8565 CHEROKEE	2/14/2008	6524386.530150	6524386.530150	1802386.701010	245119	1032	sf	64	cf
Infiltration BMP	Existing	8030 CHEYENNE	1/1/2005	6514573.751210	6514573.751210	1792580.925090	246077	1032	sf	64	cf
Infiltration BMP	Existing	8117 CHEYENNE	4/10/2006	6515045.470000	6515045.470000	1792480.065000	246077	1032	sf	64	cf
Infiltration BMP	Existing	8418 CHEYENNE	1/1/2006	6516589.334020	6516589.334020	1791278.419980	245524	1032	sf	64	cf
Infiltration BMP	Existing	9303 CLANCEY	4/3/2006	6528228.489510	6528228.489510	1805319.961840	245125	1032	sf	64	cf
Infiltration BMP	Existing	10518 CLANCEY	3/9/2007	6526045.670270	6526045.670270	1800904.969960	245119	1032	sf	64	cf
Infiltration BMP	Existing	8316 CLETA	4/3/2007	6520383.826830	6520383.826830	1798544.940710	245114	1032	sf	64	cf
Infiltration BMP	Existing	8529 CLETA	1/1/2004	6521562.602410	6521562.602410	1798134.090240	245114	1032	sf	64	cf
Infiltration BMP	Existing	13113 COLDBROOK	6/13/2007	6524340.025750	6524340.025750	1790440.866070	245114	3095	sf	193	cf
Infiltration BMP	Existing	13227 COLDBROOK	2/22/2008	6524428.823880	6524428.823880	1789883.562480	245114	1032	sf	64	cf
Infiltration BMP	Existing	8554 COMOLETTE	6/21/2010	6517765.395020	6517765.395020	1791693.915800	245115	1032	sf	64	cf
Infiltration BMP	Existing	8417 CONKLIN	1/1/2006	6516931.143420	6516931.143420	1791819.671020	245524	1032	sf	64	cf
Infiltration BMP	Existing	7219 COOLGROVE	4/25/2006	6521787.460350	6521787.460350	1811479.001950	246111	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7605 COOLGROVE	6/22/2010	6522636.872680	6522636.872680	1810413.845850	246111	1032	sf	64	cf
Infiltration BMP	Existing	10210 CORD	2/12/2009	6528662.670970	6528662.670970	1801499.064930	245126	1032	sf	64	cf
Infiltration BMP	Existing	7706 COREY	6/22/2010	6515304.522120	6515304.522120	1798247.325380	246079	1032	sf	64	cf
Infiltration BMP	Existing	11708 CORRIGAN	5/30/2006	6523410.919990	6523410.919990	1796690.721900	245114	1032	sf	64	cf
Infiltration BMP	Existing	13227 CORRIGAN	4/11/2006	6523118.258510	6523118.258510	1789898.574120	245114	1032	sf	64	cf
Infiltration BMP	Existing	10809 CROSSDALE	1/30/2006	6532012.269030	6532012.269030	1798722.436870	245122	1032	sf	64	cf
Infiltration BMP	Existing	7803 DACOSTA	1/1/2006	6521705.534400	6521705.534400	1807011.928190	246106	1032	sf	64	cf
Infiltration BMP	Existing	7808 DACOSTA	3/29/2007	6521675.640660	6521675.640660	1806840.332210	246106	1032	sf	64	cf
Infiltration BMP	Existing	7826 DACOSTA	3/23/2007	6521825.889640	6521825.889640	1806744.301550	246106	1032	sf	64	cf
Infiltration BMP	Existing	8064 DACOSTA	1/6/2009	6523365.354910	6523365.354910	1805913.806160	246103	1032	sf	64	cf
Infiltration BMP	Existing	9242 DALEWOOD	5/17/2007	6532339.520890	6532339.520890	1804239.830010	245127	1032	sf	64	cf
Infiltration BMP	Existing	7044 DE PALMA	1/30/2006	6513058.006240	6513058.006240	1802286.102090	246100	1032	sf	64	cf
Infiltration BMP	Existing	7956 DE PALMA	7/28/2005	6517915.235930	6517915.235930	1799223.139650	246077	1032	sf	64	cf
Infiltration BMP	Existing	8232 DE PALMA	12/10/2008	6519342.730110	6519342.730110	1798392.424410	245115	1032	sf	64	cf
Infiltration BMP	Existing	13134 DEMING	2/6/2007	6518053.947000	6518053.947000	1789691.993030	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13240 DEMING	8/12/2005	6518068.820530	6518068.820530	1789032.682680	245115	1032	sf	64	cf
Infiltration BMP	Existing	13415 DEMPSTER	1/1/2007	6516194.546390	6516194.546390	1789419.790430	245524	1032	sf	64	cf
Infiltration BMP	Existing	13434 DEMPSTER	1/12/2006	6516258.965410	6516258.965410	1789155.039770	245524	1032	sf	64	cf
Infiltration BMP	Existing	13452 DEMPSTER	9/20/2005	6516159.819690	6516159.819690	1788979.483200	245524	1032	sf	64	cf
Infiltration BMP	Existing	7324 DINSDALE	6/21/2010	6518936.024560	6518936.024560	1807958.155410	246106	1032	sf	64	cf
Infiltration BMP	Existing	8352 DINSDALE	12/19/2005	6524191.795240	6524191.795240	1804722.231880	246103	1032	sf	64	cf
Infiltration BMP	Existing	9325 DINSDALE	7/3/2007	6528635.640220	6528635.640220	1802187.000380	245125	1032	sf	64	cf
Infiltration BMP	Existing	9812 DOLAN	1/10/2007	6524918.033470	6524918.033470	1805427.859430	246103	1032	sf	64	cf
Infiltration BMP	Existing	10410 DOLAN	9/19/2007	6523686.660150	6523686.660150	1803351.652190	245119	1032	sf	64	cf
Infiltration BMP	Existing	12522 DOLAN	12/9/2005	6518109.498100	6518109.498100	1794046.260040	245115	1032	sf	64	cf
Infiltration BMP	Existing	12634 DOLAN	4/11/2006	6517527.198260	6517527.198260	1793053.966010	245115	1032	sf	64	cf
Infiltration BMP	Existing	12712 DOLAN	4/27/2005	6517393.756980	6517393.756980	1792842.640770	245115	1032	sf	64	cf
Infiltration BMP	Existing	8740 DONOVAN	11/2/2006	6520467.711390	6520467.711390	1793463.175520	245115	1032	sf	64	cf
Infiltration BMP	Existing	6408 DOS RIOS	3/7/2007	6523246.583700	6523246.583700	1811462.058000	246111	1032	sf	64	cf
Infiltration BMP	Existing	6420 DOS RIOS	7/14/2008	6523082.430580	6523082.430580	1811381.024700	246111	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	6449 DOS RIOS	8/23/2005	6522675.424950	6522675.424950	1811505.638050	246111	1032	sf	64	cf
Infiltration BMP	Existing	6481 DOS RIOS	8/8/2007	6522296.417970	6522296.417970	1811546.494500	246111	1032	sf	64	cf
Infiltration BMP	Existing	9532 DOWNEY	9/21/2007	6524828.225510	6524828.225510	1806555.186060	246103	1032	sf	64	cf
Infiltration BMP	Existing	12115 DOWNEY	8/12/2005	6518801.058860	6518801.058860	1796628.276370	245115	1032	sf	64	cf
Infiltration BMP	Existing	12116 DOWNEY	7/24/2008	6518985.048760	6518985.048760	1796501.621880	245115	1032	sf	64	cf
Infiltration BMP	Existing	12545 DOWNEY	7/7/2005	6517126.997680	6517126.997680	1794204.833310	246077	1032	sf	64	cf
Infiltration BMP	Existing	13620 DOWNEY	10/24/2007	6515777.167020	6515777.167020	1788934.803130	245524	1032	sf	64	cf
Infiltration BMP	Existing	9756 DOWNEY SANFORD BRIDGE	11/6/2008	6530232.905320	6530232.905320	1802732.275270	245125	1032	sf	64	cf
Infiltration BMP	Existing	12109 DUNROBIN	5/27/2008	6524849.554990	6524849.554990	1794742.565720	245114	1032	sf	64	cf
Infiltration BMP	Existing	12602 DUNROBIN	4/21/2008	6525045.021790	6525045.021790	1792096.938130	245114	1032	sf	64	cf
Infiltration BMP	Existing	13118 DUNROBIN	8/1/2008	6525045.611060	6525045.611060	1790357.500340	245114	1032	sf	64	cf
Infiltration BMP	Existing	13447 EARNSHAW	3/4/2005	6516486.580000	6516486.580000	1788881.960000	245524	1032	sf	64	cf
Infiltration BMP	Existing	12246 EASTBROOK	7/3/2007	6525290.855020	6525290.855020	1793729.113600	245114	1032	sf	64	cf
Infiltration BMP	Existing	13102 EASTBROOK	5/30/2006	6525376.065000	6525376.065000	1790509.718450	245114	1032	sf	64	cf
Infiltration BMP	Existing	13207 EASTBROOK	1/1/2006	6525181.215010	6525181.215010	1790147.343800	245114	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9010 EGLISE	6/22/2010	6530616.481070	6530616.481070	1805612.930940	245127	1032	sf	64	cf
Infiltration BMP	Existing	9124 EGLISE	1/1/2006	6530099.347460	6530099.347460	1804464.036140	245125	1032	sf	64	cf
Infiltration BMP	Existing	10228 EGLISE	6/16/2008	6528317.527320	6528317.527320	1801552.496190	245126	1032	sf	64	cf
Infiltration BMP	Existing	8432 EUCALYPTUS	6/21/2010	6518375.883890	6518375.883890	1794450.252220	245115	1032	sf	64	cf
Infiltration BMP	Existing	8451 EUCALYPTUS	11/5/2008	6518648.903650	6518648.903650	1794509.449160	245115	1032	sf	64	cf
Infiltration BMP	Existing	8449 EVEREST	9/20/2006	6518402.636450	6518402.636450	1794253.840980	245115	1032	sf	64	cf
Infiltration BMP	Existing	9036 FARM	1/1/2005	6525791.032450	6525791.032450	1801568.335890	245119	1032	sf	64	cf
Infiltration BMP	Existing	9068 FARM	1/1/2005	6526062.157630	6526062.157630	1801402.977290	245119	1032	sf	64	cf
Infiltration BMP	Existing	8334 FIFTH	6/24/2005	6522409.331110	6522409.331110	1801742.536430	245114	1032	sf	64	cf
Infiltration BMP	Existing	8540 FIFTH	1/1/2005	6523591.182480	6523591.182480	1801021.450470	245114	1032	sf	64	cf
Infiltration BMP	Existing	7238 FLORENCE	11/14/2005	6518231.298960	6518231.298960	1807648.949310	246104	1032	sf	64	cf
Infiltration BMP	Existing	8324 FONTANA	1/1/2006	6519936.868340	6519936.868340	1797701.691440	245115	1032	sf	64	cf
Infiltration BMP	Existing	7322 FOSTER BRIDGE	6/18/2010	6520302.817760	6520302.817760	1810322.849060	246111	1032	sf	64	cf
Infiltration BMP	Existing	7441 FOSTORIA	10/25/2005	6517764.674110	6517764.674110	1804520.953030	246102	1032	sf	64	cf
Infiltration BMP	Existing	7520 FOSTORIA	1/20/2006	6517974.460950	6517974.460950	1804167.759820	246102	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7639 FOSTORIA	7/27/2007	6518691.469740	6518691.469740	1803918.676960	246102	1032	sf	64	cf
Infiltration BMP	Existing	7915 FOURTH	5/29/2007	6519890.537430	6519890.537430	1803170.158590	246102	1032	sf	64	cf
Infiltration BMP	Existing	7922 FOURTH	1/1/2005	6519878.319950	6519878.319950	1802959.531390	246102	1032	sf	64	cf
Infiltration BMP	Existing	7411 FOURTH PL	9/10/2007	6517375.746060	6517375.746060	1804408.156270	246102	1032	sf	64	cf
Infiltration BMP	Existing	7519 FOURTH PL	6/23/2005	6517868.488420	6517868.488420	1804088.501010	246102	1032	sf	64	cf
Infiltration BMP	Existing	7329 GAINFORD	9/20/2007	6519599.973200	6519599.973200	1808409.397520	246111	1032	sf	64	cf
Infiltration BMP	Existing	7725 GAINFORD	6/21/2010	6521357.607460	6521357.607460	1807543.814610	246106	1032	sf	64	cf
Infiltration BMP	Existing	7735 GAINFORD	12/15/2006	6521461.236080	6521461.236080	1807480.220630	246106	1032	sf	64	cf
Infiltration BMP	Existing	7771 GAINFORD	12/3/2007	6521758.954890	6521758.954890	1807297.289390	246106	1032	sf	64	cf
Infiltration BMP	Existing	8353 GAINFORD	1/4/2007	6524689.963810	6524689.963810	1805534.024270	246103	1032	sf	64	cf
Infiltration BMP	Existing	8553 GAINFORD	4/7/2008	6525875.670020	6525875.670020	1804802.065800	245125	1032	sf	64	cf
Infiltration BMP	Existing	9114 GAINFORD	6/23/2010	6527375.967240	6527375.967240	1803418.253090	245125	1032	sf	64	cf
Infiltration BMP	Existing	8319 GALLATIN	6/23/2010	6525634.222480	6525634.222480	1807445.394810	246103	1032	sf	64	cf
Infiltration BMP	Existing	9069 GALLATIN	3/1/2005	6527846.830170	6527846.830170	1805432.059660	245125	1032	sf	64	cf
Infiltration BMP	Existing	9243 GALLATIN	6/19/2006	6528915.102070	6528915.102070	1804595.777040	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8408 GALT	6/18/2010	6520848.594160	6520848.594160	1798562.646220	245114	1032	sf	64	cf
Infiltration BMP	Existing	8435 GALT	12/27/2005	6521154.530230	6521154.530230	1798569.782020	245114	1032	sf	64	cf
Infiltration BMP	Existing	9119 GARNISH	6/22/2010	6529517.516530	6529517.516530	1805110.082900	245125	1032	sf	64	cf
Infiltration BMP	Existing	9136 GARNISH	2/5/2007	6529607.954040	6529607.954040	1804869.027300	245125	1032	sf	64	cf
Infiltration BMP	Existing	9024 GAYMONT	8/28/2007	6523451.624790	6523451.624790	1809501.434890	246111	1032	sf	64	cf
Infiltration BMP	Existing	12636 GLYNN	10/25/2005	6517337.921050	6517337.921050	1793251.757000	245524	1032	sf	64	cf
Infiltration BMP	Existing	12751 GLYNN	1/1/2005	6516780.406550	6516780.406550	1792749.927780	245524	1032	sf	64	cf
Infiltration BMP	Existing	12755 GLYNN	6/18/2010	6516753.778610	6516753.778610	1792707.557200	245524	1032	sf	64	cf
Infiltration BMP	Existing	12912 GLYNN	1/1/2005	6516567.905690	6516567.905690	1791996.175300	245524	1032	sf	64	cf
Infiltration BMP	Existing	8731 GUATEMALA	10/30/2008	6523507.693960	6523507.693960	1811098.218950	246106	1032	sf	64	cf
Infiltration BMP	Existing	9203 GUATEMALA	3/23/2006	6521893.308510	6521893.308510	1810154.570390	246111	1032	sf	64	cf
Infiltration BMP	Existing	9959 GUATEMALA	6/23/2010	6518699.649950	6518699.649950	1808234.818150	246111	1032	sf	64	cf
Infiltration BMP	Existing	13537 GUNDERSON	3/3/2008	6517350.406160	6517350.406160	1787757.556610	245524	1032	sf	64	cf
Infiltration BMP	Existing	13547 GUNDERSON	6/19/2006	6517298.502270	6517298.502270	1787667.099660	245524	1032	sf	64	cf
Infiltration BMP	Existing	11538 GURLEY	5/3/2005	6520211.328840	6520211.328840	1799382.602480	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11935 GURLEY	6/18/2010	6519051.777570	6519051.777570	1797582.114550	245115	1032	sf	64	cf
Infiltration BMP	Existing	12019 GURLEY	6/18/2010	6518869.145640	6518869.145640	1797295.091770	245115	1032	sf	64	cf
Infiltration BMP	Existing	12052 GURLEY	1/10/2006	6518841.793230	6518841.793230	1796925.916150	245115	1032	sf	64	cf
Infiltration BMP	Existing	12117 GURLEY	1/1/2007	6518497.250390	6518497.250390	1796711.283370	245115	1032	sf	64	cf
Infiltration BMP	Existing	9117 HALEDON	7/31/2006	6528761.573350	6528761.573350	1805801.190120	245125	1032	sf	64	cf
Infiltration BMP	Existing	10341 HALEDON	5/1/2006	6526657.457480	6526657.457480	1801653.926760	245119	1032	sf	64	cf
Infiltration BMP	Existing	10349 HALEDON	2/8/2005	6526618.690140	6526618.690140	1801591.635520	245119	1032	sf	64	cf
Infiltration BMP	Existing	10425 HALEDON	4/14/2005	6526424.760130	6526424.760130	1801280.406410	245119	1032	sf	64	cf
Infiltration BMP	Existing	10439 HALEDON	9/30/2005	6526346.747570	6526346.747570	1801155.573630	245119	1032	sf	64	cf
Infiltration BMP	Existing	10525 HALEDON	1/28/2005	6526113.410380	6526113.410380	1800804.505840	245119	1032	sf	64	cf
Infiltration BMP	Existing	10550 HALEDON	12/19/2005	6526112.578950	6526112.578950	1800485.376650	245119	1032	sf	64	cf
Infiltration BMP	Existing	9049 HALL ROAD	4/30/2008	6523684.587500	6523684.587500	1797586.831540	245114	1032	sf	64	cf
Infiltration BMP	Existing	7215 HANNON	12/19/2008	6521498.261440	6521498.261440	1811442.204100	246111	1032	sf	64	cf
Infiltration BMP	Existing	13005 HANWELL	2/11/2009	6519590.457150	6519590.457150	1789492.134120	245115	1032	sf	64	cf
Infiltration BMP	Existing	9022 HASTY	10/13/2005	6531232.650260	6531232.650260	1805433.916070	245127	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9205 HASTY	6/22/2010	6530848.690890	6530848.690890	1804978.371330	245127	1032	sf	64	cf
Infiltration BMP	Existing	9206 HASTY	1/1/2005	6531000.691980	6531000.691980	1804885.411940	245127	1032	sf	64	cf
Infiltration BMP	Existing	9241 HASTY	1/1/2006	6530719.487200	6530719.487200	1804649.180550	245127	1032	sf	64	cf
Infiltration BMP	Existing	7736 HONDO	2/8/2005	6514830.078530	6514830.078530	1796886.774430	246079	1032	sf	64	cf
Infiltration BMP	Existing	7753 HONDO	1/24/2007	6515005.269000	6515005.269000	1796951.957630	246079	1032	sf	64	cf
Infiltration BMP	Existing	7803 HONDO	10/11/2005	6515156.509020	6515156.509020	1796903.351830	246079	1032	sf	64	cf
Infiltration BMP	Existing	7808 HONDO	6/22/2010	6515109.805390	6515109.805390	1796717.393590	246079	1032	sf	64	cf
Infiltration BMP	Existing	7814 HONDO	7/25/2008	6515161.093050	6515161.093050	1796686.379320	246079	1032	sf	64	cf
Infiltration BMP	Existing	7920 HONDO	8/21/2006	6515777.018460	6515777.018460	1796313.217950	246079	1032	sf	64	cf
Infiltration BMP	Existing	7932 HONDO	1/1/2006	6515879.568480	6515879.568480	1796251.099580	246079	1032	sf	64	cf
Infiltration BMP	Existing	9008 HORLEY	7/19/2007	6523080.991430	6523080.991430	1809910.740800	246111	1032	sf	64	cf
Infiltration BMP	Existing	9838 HORLEY	7/3/2008	6521155.061500	6521155.061500	1807271.870840	246106	1032	sf	64	cf
Infiltration BMP	Existing	12307 HORLEY	1/1/2005	6514989.782150	6514989.782150	1797487.116040	246079	1032	sf	64	cf
Infiltration BMP	Existing	11427 HORTON	11/23/2005	6517266.456490	6517266.456490	1802136.009270	246079	1032	sf	64	cf
Infiltration BMP	Existing	11553 HORTON	4/21/2005	6516872.120940	6516872.120940	1801498.085040	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11708 HORTON	10/25/2005	6516455.941870	6516455.941870	1800783.417100	246079	1032	sf	64	cf
Infiltration BMP	Existing	12646 IBBETSON	5/6/2005	6526008.756240	6526008.756240	1791650.535870	245114	1032	sf	64	cf
Infiltration BMP	Existing	8217 IMPERIAL	1/5/2009	6516889.628840	6516889.628840	1794092.786860	246077	1032	sf	64	cf
Infiltration BMP	Existing	7320 IRWINGROVE	1/1/2006	6518255.802480	6518255.802480	1807084.876440	246102	1032	sf	64	cf
Infiltration BMP	Existing	7710 IRWINGROVE	12/11/2007	6520151.425540	6520151.425540	1805902.138310	246102	1032	sf	64	cf
Infiltration BMP	Existing	12208 IZETTA	1/1/2006	6524718.745010	6524718.745010	1794118.344290	245114	1032	sf	64	cf
Infiltration BMP	Existing	12252 IZETTA	7/10/2008	6524718.900100	6524718.900100	1793666.382200	245114	1032	sf	64	cf
Infiltration BMP	Existing	12631 IZETTA	8/28/2007	6524602.625920	6524602.625920	1791809.267080	245114	1032	sf	64	cf
Infiltration BMP	Existing	10228 JULIUS	5/20/2008	6519748.327880	6519748.327880	1806603.074440	246102	1032	sf	64	cf
Infiltration BMP	Existing	10234 JULIUS	6/22/2010	6519723.348540	6519723.348540	1806551.787860	246102	1032	sf	64	cf
Infiltration BMP	Existing	11848 JULIUS	6/23/2010	6515875.825190	6515875.825190	1800351.825190	246079	1032	sf	64	cf
Infiltration BMP	Existing	11859 JULIUS	8/23/2005	6515676.490910	6515676.490910	1800355.137490	246079	1032	sf	64	cf
Infiltration BMP	Existing	11865 JULIUS	11/13/2006	6515650.173870	6515650.173870	1800309.916770	246079	1032	sf	64	cf
Infiltration BMP	Existing	12129 JULIUS	9/29/2005	6514728.334670	6514728.334670	1798846.683770	246079	1032	sf	64	cf
Infiltration BMP	Existing	9263 KLINEDALE	6/21/2010	6531573.525950	6531573.525950	1804517.918460	245127	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9205 LA REINA	11/27/2006	6525690.537020	6525690.537020	1808255.600740	246103	1032	sf	64	cf
Infiltration BMP	Existing	9251 LA REINA	8/10/2007	6525325.121400	6525325.121400	1807968.316200	246103	1032	sf	64	cf
Infiltration BMP	Existing	9260 LA REINA	6/14/2007	6525343.506110	6525343.506110	1807785.350080	246103	1032	sf	64	cf
Infiltration BMP	Existing	9633 LA REINA	9/24/2007	6524180.010720	6524180.010720	1806496.849820	246103	1032	sf	64	cf
Infiltration BMP	Existing	10026 LA REINA	1/1/2005	6523542.730590	6523542.730590	1805175.247470	246103	1032	sf	64	cf
Infiltration BMP	Existing	10219 LA REINA	5/25/2006	6522978.941790	6522978.941790	1804778.433210	246103	1032	sf	64	cf
Infiltration BMP	Existing	8346 LA VILLA	8/29/2005	6522426.709000	6522426.709000	1801414.465390	245114	1032	sf	64	cf
Infiltration BMP	Existing	9524 LA VILLA	9/27/2005	6527942.492070	6527942.492070	1797972.664540	245119	1032	sf	64	cf
Infiltration BMP	Existing	14305 LAKEWOOD	1/1/2006	6518183.322800	6518183.322800	1787270.059950	245524	1032	sf	64	cf
Infiltration BMP	Existing	8218 LANKIN	3/28/2006	6516908.705740	6516908.705740	1794755.893760	246077	1032	sf	64	cf
Infiltration BMP	Existing	13407 LAURELDALE	10/25/2005	6516128.982330	6516128.982330	1789557.891060	245524	1032	sf	64	cf
Infiltration BMP	Existing	11034 LE FLOSS	3/21/2008	6531318.633350	6531318.633350	1797718.334360	245124	1032	sf	64	cf
Infiltration BMP	Existing	9013 LEMORAN	3/16/2006	6529860.990680	6529860.990680	1806212.694780	245125	1032	sf	64	cf
Infiltration BMP	Existing	10036 LESTERFORD	1/11/2006	6530911.516090	6530911.516090	1801094.347740	245125	1032	sf	64	cf
Infiltration BMP	Existing	8355 LEXINGTON	6/15/2005	6523932.891700	6523932.891700	1804236.927600	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7432 LUBEC	7/8/2005	6519806.105180	6519806.105180	1808430.037290	246111	1032	sf	64	cf
Infiltration BMP	Existing	9318 LUBEC	1/1/2006	6528946.832250	6528946.832250	1803071.454980	245125	1032	sf	64	cf
Infiltration BMP	Existing	7341 LUXOR	9/30/2005	6515165.173860	6515165.173860	1801559.243950	246079	1032	sf	64	cf
Infiltration BMP	Existing	7743 LUXOR	8/18/2006	6517197.964320	6517197.964320	1800308.569440	246079	1032	sf	64	cf
Infiltration BMP	Existing	7809 LUXOR	1/1/2006	6517239.593210	6517239.593210	1799986.863830	246079	1032	sf	64	cf
Infiltration BMP	Existing	7982 LUXOR	7/3/2007	6518306.219270	6518306.219270	1799333.376300	246077	1032	sf	64	cf
Infiltration BMP	Existing	8509 LUXOR	12/31/2008	6521183.510000	6521183.510000	1797885.775000	245114	1032	sf	64	cf
Infiltration BMP	Existing	11505 MAC GOVERN	5/1/2006	6519990.708800	6519990.708800	1799977.759420	245115	1032	sf	64	cf
Infiltration BMP	Existing	11527 MAC GOVERN	11/19/2007	6519889.562820	6519889.562820	1799806.361750	245115	1032	sf	64	cf
Infiltration BMP	Existing	8518 MANATEE	4/27/2005	6521541.591450	6521541.591450	1798287.495050	245114	1032	sf	64	cf
Infiltration BMP	Existing	12306 MARBEL	12/29/2005	6520780.434840	6520780.434840	1794110.003960	245115	1032	sf	64	cf
Infiltration BMP	Existing	12322 MARBEL	8/24/2005	6520697.258530	6520697.258530	1793976.926170	245115	1032	sf	64	cf
Infiltration BMP	Existing	10423 MATTOCK	11/21/2008	6528946.576280	6528946.576280	1799798.739650	245126	1032	sf	64	cf
Infiltration BMP	Existing	10527 MATTOCK	1/11/2007	6528618.163260	6528618.163260	1799183.483330	245126	1032	sf	64	cf
Infiltration BMP	Existing	8602 MEADOW	2/28/2008	6519007.155950	6519007.155950	1793158.643900	245115	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8606 MEADOW	10/26/2006	6519050.372960	6519050.372960	1793129.529230	245115	1032	sf	64	cf
Infiltration BMP	Existing	8739 MEADOW	12/17/2007	6520051.313480	6520051.313480	1792689.390880	245115	1032	sf	64	cf
Infiltration BMP	Existing	9106 MELDAR	4/23/2007	6526980.004600	6526980.004600	1807421.893550	246103	1032	sf	64	cf
Infiltration BMP	Existing	7819 MELVA	1/1/2005	6515811.952890	6515811.952890	1797638.263460	246079	1032	sf	64	cf
Infiltration BMP	Existing	8609 MELVA	4/6/2007	6520260.479750	6520260.479750	1795043.474460	245115	1032	sf	64	cf
Infiltration BMP	Existing	9558 METRO	4/3/2008	6531485.802060	6531485.802060	1804114.777900	245127	1032	sf	64	cf
Infiltration BMP	Existing	11711 MITLA	7/13/2005	6513453.724060	6513453.724060	1802912.278240	246100	1032	sf	64	cf
Infiltration BMP	Existing	11819 MORNING	6/21/2010	6517496.555960	6517496.555960	1799723.226450	246077	1032	sf	64	cf
Infiltration BMP	Existing	12070 MORNING	9/13/2006	6516788.931410	6516788.931410	1797957.975300	246079	1032	sf	64	cf
Infiltration BMP	Existing	8637 MORY	1/1/2005	6520217.929830	6520217.929830	1794453.857040	245115	1032	sf	64	cf
Infiltration BMP	Existing	10903 MYRTLE	10/25/2005	6520809.999180	6520809.999180	1802308.735020	246103	1032	sf	64	cf
Infiltration BMP	Existing	8208 NADA	6/29/2005	6518679.653960	6518679.653960	1797804.552950	245115	1032	sf	64	cf
Infiltration BMP	Existing	8249 NADA	2/12/2008	6519111.183860	6519111.183860	1797730.010570	245115	1032	sf	64	cf
Infiltration BMP	Existing	9458 NANCE	6/20/2005	6526752.832360	6526752.832360	1796717.105850	245119	1032	sf	64	cf
Infiltration BMP	Existing	10609 NEDRA	6/3/2005	6522752.614640	6522752.614640	1802538.434710	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10850 NEWVILLE	7/3/2007	6528159.933410	6528159.933410	1797635.549950	245119	1032	sf	64	cf
Infiltration BMP	Existing	7510 NOREN	5/23/2006	6520838.348300	6520838.348300	1809064.222230	246111	1032	sf	64	cf
Infiltration BMP	Existing	11720 NORLAIN	9/22/2006	6515696.110230	6515696.110230	1801264.632180	246079	1032	sf	64	cf
Infiltration BMP	Existing	12336 NORLAIN	8/1/2007	6513658.838460	6513658.838460	1797875.767390	246079	1032	sf	64	cf
Infiltration BMP	Existing	11628 OLD RIVER SCHOOL	1/1/2006	6515797.838400	6515797.838400	1801876.521840	246079	1032	sf	64	cf
Infiltration BMP	Existing	8521 ORANGE	3/9/2007	6519427.831130	6519427.831130	1794911.101980	245115	1032	sf	64	cf
Infiltration BMP	Existing	9255 ORIZABA	2/15/2006	6525108.451310	6525108.451310	1808168.208600	246103	1032	sf	64	cf
Infiltration BMP	Existing	9719 ORIZABA	8/8/2007	6523780.810110	6523780.810110	1806377.528150	246103	1032	sf	64	cf
Infiltration BMP	Existing	12615 ORIZABA	1/27/2006	6516062.877730	6516062.877730	1794206.618320	246077	1032	sf	64	cf
Infiltration BMP	Existing	8511 OTTO	4/12/2005	6525130.700850	6525130.700850	1804530.864040	245125	1032	sf	64	cf
Infiltration BMP	Existing	9933 PANGBORN	6/29/2006	6530067.434760	6530067.434760	1801915.181390	245125	1032	sf	64	cf
Infiltration BMP	Existing	10202 PANGBORN	1/1/2006	6529571.236640	6529571.236640	1801045.668670	245125	1032	sf	64	cf
Infiltration BMP	Existing	11009 PANGBORN	1/31/2007	6527339.080190	6527339.080190	1797691.116980	245119	1032	sf	64	cf
Infiltration BMP	Existing	9530 PARAMOUNT	7/14/2005	6523601.663290	6523601.663290	1807461.311510	246103	1032	sf	64	cf
Infiltration BMP	Existing	9624 PARAMOUNT	5/9/2005	6523328.526550	6523328.526550	1807031.980170	246103	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8603 PARROT	3/14/2006	6526080.240790	6526080.240790	1809719.746830	246106	1032	sf	64	cf
Infiltration BMP	Existing	9625 PARROT	1/1/2005	6523451.735380	6523451.735380	1806960.011690	246103	1032	sf	64	cf
Infiltration BMP	Existing	9708 PARROT	6/29/2006	6523491.321500	6523491.321500	1806678.668660	246103	1032	sf	64	cf
Infiltration BMP	Existing	12045 PARROT	6/22/2010	6517861.439330	6517861.439330	1797868.798060	246077	1032	sf	64	cf
Infiltration BMP	Existing	12751 PARROT	12/14/2006	6515222.728500	6515222.728500	1793830.999240	246077	1032	sf	64	cf
Infiltration BMP	Existing	7130 PELLET	1/27/2005	6515276.387650	6515276.387650	1804845.311440	246104	1032	sf	64	cf
Infiltration BMP	Existing	7323 PELLET	1/1/2005	6516571.171210	6516571.171210	1804327.110650	246104	1032	sf	64	cf
Infiltration BMP	Existing	7354 PELLET	1/1/2006	6516665.448760	6516665.448760	1803945.359790	246102	1032	sf	64	cf
Infiltration BMP	Existing	7861 PHLOX	9/17/2007	6518688.116640	6518688.116640	1801430.417420	246079	1032	sf	64	cf
Infiltration BMP	Existing	10620 PICO VISTA	3/7/2007	6529428.403390	6529428.403390	1798283.402620	245126	1032	sf	64	cf
Infiltration BMP	Existing	10635 PICO VISTA	8/28/2007	6529197.816790	6529197.816790	1798270.093070	245126	1032	sf	64	cf
Infiltration BMP	Existing	7530 PIVOT	11/23/2005	6516899.016370	6516899.016370	1802660.318910	246079	1032	sf	64	cf
Infiltration BMP	Existing	7709 PIVOT	10/11/2005	6517859.569570	6517859.569570	1802212.124870	246079	1032	sf	64	cf
Infiltration BMP	Existing	7753 PIVOT	6/14/2005	6518241.212950	6518241.212950	1801966.921690	246079	1032	sf	64	cf
Infiltration BMP	Existing	11974 POMERING	6/18/2010	6515116.938670	6515116.938670	1799645.797070	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8732 PRICHARD ST	1/12/2009	6516786.371080	6516786.371080	1788406.289900	245524	1032	sf	64	cf
Infiltration BMP	Existing	8734 PRICHARD ST	1/12/2009	6516831.574810	6516831.574810	1788380.860770	245524	1032	sf	64	cf
Infiltration BMP	Existing	8738 PRICHARD ST	1/12/2009	6516876.454020	6516876.454020	1788355.597890	245524	1032	sf	64	cf
Infiltration BMP	Existing	8740 PRICHARD ST	1/12/2009	6516921.333860	6516921.333860	1788330.343610	245524	1032	sf	64	cf
Infiltration BMP	Existing	8240 PRISCILLA	9/13/2007	6515555.844810	6515555.844810	1791697.292180	246077	1032	sf	64	cf
Infiltration BMP	Existing	9044 PRISCILLA	8/18/2005	6519169.042140	6519169.042140	1790017.667840	245115	1032	sf	64	cf
Infiltration BMP	Existing	9060 PRISCILLA	6/21/2010	6519318.719160	6519318.719160	1790008.270400	245115	1032	sf	64	cf
Infiltration BMP	Existing	11448 PRUESS	1/1/2006	6518742.114860	6518742.114860	1801046.878700	246077	1032	sf	64	cf
Infiltration BMP	Existing	11609 PRUESS	11/16/2006	6518299.675980	6518299.675980	1800455.121300	246077	1032	sf	64	cf
Infiltration BMP	Existing	11619 PRUESS	6/10/2005	6518270.484730	6518270.484730	1800355.677990	246077	1032	sf	64	cf
Infiltration BMP	Existing	11708 PRUESS	1/18/2005	6518033.994760	6518033.994760	1799832.073440	246077	1032	sf	64	cf
Infiltration BMP	Existing	8121 PURITAN	6/5/2006	6515245.448070	6515245.448070	1792698.037730	246077	1032	sf	64	cf
Infiltration BMP	Existing	7707 QUILL	6/1/2007	6514508.683200	6514508.683200	1796937.770200	246079	1032	sf	64	cf
Infiltration BMP	Existing	8108 QUOIT	6/5/2008	6516594.034560	6516594.034560	1795288.918170	246077	1032	sf	64	cf
Infiltration BMP	Existing	9109 RAVILLER	2/6/2007	6527953.464140	6527953.464140	1804924.402110	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9367 RAVILLER	1/1/2006	6529435.914270	6529435.914270	1803746.913820	245125	1032	sf	64	cf
Infiltration BMP	Existing	9728 RICHEON	6/18/2010	6521201.804800	6521201.804800	1807962.626360	246106	1032	sf	64	cf
Infiltration BMP	Existing	12217 RICHEON	1/1/2005	6514937.033870	6514937.033870	1797986.477150	246079	1032	sf	64	cf
Infiltration BMP	Existing	12336 RICHEON	1/10/2007	6514721.816510	6514721.816510	1797298.695230	246079	1032	sf	64	cf
Infiltration BMP	Existing	12342 RICHEON	1/1/2005	6514694.932100	6514694.932100	1797256.523880	246079	1032	sf	64	cf
Infiltration BMP	Existing	12352 RICHEON	10/30/2008	6514641.834370	6514641.834370	1797172.034360	246079	1032	sf	64	cf
Infiltration BMP	Existing	11010 RIO HONDO	2/6/2006	6514511.989690	6514511.989690	1805412.886430	246104	1032	sf	64	cf
Infiltration BMP	Existing	8515 RIVES	2/6/2006	6524958.575190	6524958.575190	1811619.081610	246111	1032	sf	64	cf
Infiltration BMP	Existing	8546 RIVES	6/14/2010	6524726.063490	6524726.063490	1811337.492550	246106	1032	sf	64	cf
Infiltration BMP	Existing	11828 RIVES	1/1/2006	6517020.372820	6517020.372820	1799741.223590	246079	1032	sf	64	cf
Infiltration BMP	Existing	12056 RIVES	10/7/2005	6516252.097820	6516252.097820	1798479.870770	246079	1032	sf	64	cf
Infiltration BMP	Existing	12213 RIVES	6/7/2007	6515544.034920	6515544.034920	1797794.303030	246079	1032	sf	64	cf
Infiltration BMP	Existing	12301 RIVES	1/27/2006	6515274.134590	6515274.134590	1797373.251430	246079	1032	sf	64	cf
Infiltration BMP	Existing	12542 ROSE	6/18/2010	6520775.320830	6520775.320830	1792425.734550	245115	1032	sf	64	cf
Infiltration BMP	Existing	7444 RUNDELL	9/28/2006	6514195.392880	6514195.392880	1798477.819400	246079	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7458 RUNDELL	1/1/2006	6514328.036950	6514328.036950	1798395.544300	246079	1032	sf	64	cf
Infiltration BMP	Existing	8734 RUPP	5/24/2007	6518769.625610	6518769.625610	1791861.464390	245115	1032	sf	64	cf
Infiltration BMP	Existing	9206 SAMOLINE	9/20/2006	6524105.922670	6524105.922670	1808777.784250	246106	1032	sf	64	cf
Infiltration BMP	Existing	9363 SAMOLINE	2/12/2009	6523342.697990	6523342.697990	1808041.206940	246106	1032	sf	64	cf
Infiltration BMP	Existing	9630 SAMOLINE	1/1/2006	6523000.405210	6523000.405210	1807164.143360	246103	1032	sf	64	cf
Infiltration BMP	Existing	12041 SAMOLINE	6/23/2010	6516971.702030	6516971.702030	1798170.274910	246079	1032	sf	64	cf
Infiltration BMP	Existing	10629 SHELLEYFIELD	6/21/2010	6525284.582980	6525284.582980	1800508.363190	245119	1032	sf	64	cf
Infiltration BMP	Existing	9118 SHERIDELL	6/22/2010	6528683.896100	6528683.896100	1805941.227670	245125	1032	sf	64	cf
Infiltration BMP	Existing	10042 SIDEVIEW	6/21/2010	6529464.806690	6529464.806690	1801729.923910	245125	1032	sf	64	cf
Infiltration BMP	Existing	8349 SIXTH	6/21/2010	6522706.066860	6522706.066860	1802231.249170	245114	1032	sf	64	cf
Infiltration BMP	Existing	8363 SIXTH	6/18/2010	6522832.335670	6522832.335670	1802150.209500	245114	1032	sf	64	cf
Infiltration BMP	Existing	8532 SIXTH	6/23/2010	6523697.106090	6523697.106090	1801388.440460	245119	1032	sf	64	cf
Infiltration BMP	Existing	8514 SMALLWOOD	8/24/2006	6525167.581560	6525167.581560	1811228.866910	246106	1032	sf	64	cf
Infiltration BMP	Existing	12007 SMALLWOOD	1/1/2005	6516682.861570	6516682.861570	1798786.226940	246079	1032	sf	64	cf
Infiltration BMP	Existing	12936 SMALLWOOD	7/31/2006	6513688.714060	6513688.714060	1793540.982580	246077	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9235 SONGFEST	6/14/2006	6531351.855720	6531351.855720	1804709.858310	245127	1032	sf	64	cf
Infiltration BMP	Existing	7939 SPRINGER	10/6/2006	6516193.792450	6516193.792450	1796630.732180	246079	1032	sf	64	cf
Infiltration BMP	Existing	9306 STAMPS	6/21/2010	6525546.826990	6525546.826990	1807197.501010	246103	1032	sf	64	cf
Infiltration BMP	Existing	10446 STAMPS	1/1/2005	6523214.650320	6523214.650320	1803242.228000	246103	1032	sf	64	cf
Infiltration BMP	Existing	10536 STAMPS	6/1/2006	6522871.528480	6522871.528480	1802783.838380	246103	1032	sf	64	cf
Infiltration BMP	Existing	13219 STANBRIDGE	9/17/2007	6522806.618420	6522806.618420	1790045.381220	245114	1032	sf	64	cf
Infiltration BMP	Existing	8723 STEWART & GRAY	2/11/2009	6522100.372490	6522100.372490	1796545.507760	245114	1032	sf	64	cf
Infiltration BMP	Existing	9028 STOAKES	8/17/2007	6527221.634250	6527221.634250	1807951.198320	246103	1032	sf	64	cf
Infiltration BMP	Existing	7809 SUVA	1/13/2009	6522703.875430	6522703.875430	1808490.998990	246106	1032	sf	64	cf
Infiltration BMP	Existing	7827 SUVA	1/1/2006	6522849.829890	6522849.829890	1808368.560310	246106	1032	sf	64	cf
Infiltration BMP	Existing	8564 SUVA	1/1/2006	6526403.328390	6526403.328390	1805373.281490	245125	1032	sf	64	cf
Infiltration BMP	Existing	9943 TECUM	4/11/2008	6519363.349470	6519363.349470	1808047.658450	246111	1032	sf	64	cf
Infiltration BMP	Existing	9636 TELEGRAPH	5/8/2006	6531995.042290	6531995.042290	1804929.677680	245128	1032	sf	64	cf
Infiltration BMP	Existing	7968 THIRD	6/21/2005	6519929.169700	6519929.169700	1802199.016820	246102	1032	sf	64	cf
Infiltration BMP	Existing	9819 TRISTAN	10/7/2005	6526302.584780	6526302.584780	1804524.383680	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9253 TRUE	1/1/2005	6531891.994890	6531891.99 4890	1804462.8213 10	245127	1032	sf	64	cf
Infiltration BMP	Existing	8843 TWEEDY	9/12/2006	6524140.679400	6524140.67 9400	1809940.1357 80	246106	1032	sf	64	cf
Infiltration BMP	Existing	9012 TWEEDY	1/1/2005	6523977.735950	6523977.73 5950	1809300.2732 40	246106	1032	sf	64	cf
Infiltration BMP	Existing	9029 TWEEDY	1/1/2006	6523763.012330	6523763.01 2330	1809288.6818 80	246106	1032	sf	64	cf
Infiltration BMP	Existing	9612 TWEEDY	6/22/2010	6522847.016620	6522847.01 6620	1807449.0289 80	246106	1032	sf	64	cf
Infiltration BMP	Existing	9636 TWEEDY	10/11/2005	6522732.626430	6522732.62 6430	1807259.2663 40	246103	1032	sf	64	cf
Infiltration BMP	Existing	9714 TWEEDY	7/24/2006	6522647.237500	6522647.23 7500	1807116.8229 30	246103	1032	sf	64	cf
Infiltration BMP	Existing	9718 TWEEDY	9/22/2008	6522619.325230	6522619.32 5230	1807068.9903 10	246103	1032	sf	64	cf
Infiltration BMP	Existing	9730 TWEEDY	6/18/2010	6522565.360970	6522565.36 0970	1806976.1552 70	246103	1032	sf	64	cf
Infiltration BMP	Existing	13409 VERDURA	1/1/2006	6516484.588360	6516484.58 8360	1789346.1599 60	245524	1032	sf	64	cf
Infiltration BMP	Existing	8607 VIA AMORITA	1/19/2006	6524994.226680	6524994.22 6680	1803003.2265 20	245119	1032	sf	64	cf
Infiltration BMP	Existing	9356 VIA AMORITA	4/27/2005	6528170.664540	6528170.66 4540	1800850.9791 40	245126	1032	sf	64	cf
Infiltration BMP	Existing	7402 VIA RIO NIDO	2/10/2005	6518371.376580	6518371.37 6580	1806186.7041 60	246102	1032	sf	64	cf
Infiltration BMP	Existing	8303 VISTA DEL RIO	5/1/2007	6526003.249760	6526003.24 9760	1808077.0114 40	246103	1032	sf	64	cf
Infiltration BMP	Existing	8303 VISTA DEL ROSA	4/26/2007	6526763.242710	6526763.24 2710	1809159.6079 70	246106	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8351 VISTA DEL ROSA	12/19/2005	6527091.635630	6527091.63 5630	1808824.6328 20	246106	2063	sf	129	cf
Infiltration BMP	Existing	10265 VULTEE	4/24/2006	6525980.530560	6525980.53 0560	1802568.7729 80	245119	1032	sf	64	cf
Infiltration BMP	Existing	10339 VULTEE	6/18/2010	6525804.209560	6525804.20 9560	1802209.8798 60	245119	1032	sf	64	cf
Infiltration BMP	Existing	12709 VULTEE	3/9/2007	6519587.948000	6519587.94 8000	1791264.7148 30	245115	1032	sf	64	cf
Infiltration BMP	Existing	12725 WHITEWOOD	7/26/2005	6520341.668580	6520341.66 8580	1791179.4607 70	245115	1032	sf	64	cf
Infiltration BMP	Existing	9702 WILEY BURKE	6/21/2010	6521126.099980	6521126.09 9980	1808337.6565 30	246106	1032	sf	64	cf
Infiltration BMP	Existing	9750 WILEY BURKE	12/11/2006	6520822.729060	6520822.72 9060	1807995.1324 10	246106	1032	sf	64	cf
Infiltration BMP	Existing	9925 WILEY BURKE	1/10/2007	6520271.299840	6520271.29 9840	1807447.0075 70	246106	1032	sf	64	cf
Infiltration BMP	Existing	10540 WILEY BURKE	6/21/2007	6519089.326110	6519089.32 6110	1805048.3068 70	246102	1032	sf	64	cf
Infiltration BMP	Existing	10643 WOODRUFF	1/1/2006	6526887.322420	6526887.32 2420	1799535.3756 50	245119	1032	sf	64	cf
Infiltration BMP	Existing	7515 YANKEY	10/24/2006	6515115.108440	6515115.10 8440	1798924.3897 40	246079	1032	sf	64	cf
Infiltration BMP	Existing	10047 CASANES	1/1/2006	6529512.635540	6529512.63 5540	1801587.6581 00	245125	1032	sf	64	cf
Infiltration BMP	Existing	9220 CORD	1/1/2004	6530296.778820	6530296.77 8820	1804178.9013 50	245125	1032	sf	64	cf
Infiltration BMP	Existing	10040 MATTOCK	1/1/2006	6530247.042350	6530247.04 2350	1801200.6012 40	245125	1032	sf	64	cf
Infiltration BMP	Existing	10018 PANGBORN	1/1/2006	6530084.251260	6530084.25 1260	1801567.5256 40	245125	1032	sf	64	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12053 PATTON	10/19/2004	6520642.037410	6520642.037410	1796050.004800	245115	1032	sf	64	cf
Infiltration BMP	Existing	12048 SAMOLINE	3/20/2007	6517021.712450	6517021.712450	1798014.455830	246079	2063	sf	129	cf
Infiltration BMP	Existing	7879 FLORENCE	2/14/2014	6521700.000000	6521700.000000	1806100.000000	246103	16504	sf	1032	cf
Infiltration BMP	Existing	9020 FIRESTONE	9/12/2008	6524113.023390	6524113.023390	1798572.164290	245119	70288	sf	4393	cf
Infiltration BMP	Existing	7910 FIRESTONE	6/28/2005	6519165.968790	6519165.968790	1801736.513180	246102	55686	sf	3480	cf
Infiltration BMP	Existing	7252 FIRESTONE	5/19/2004	6515489.000650	6515489.000650	1803082.633110	246079	36224	sf	2264	cf
Infiltration BMP	Existing	12256 PARAMOUNT	3/13/2006	6516813.225030	6516813.225030	1796497.685630	246077	34112	sf	2132	cf
Infiltration BMP	Existing	9462 FIRESTONE BL	2/14/2014	6526885.862260	6526885.862260	1797100.585140	245119	35437	sf	2215	cf
Infiltration BMP	Existing	8250 FIRESTONE BLVD	2/14/2014	6521000.000000	6521000.000000	1800300.000000	245115	59085	sf	3693	cf
Infiltration BMP	Existing	8018 TELEGRAPH	8/20/2004	6526800.000000	6526800.000000	1809400.000000	246106	35437	sf	2215	cf
Infiltration BMP	Existing	7447 FIRESTONE BLVD	7/9/2009	6516971.590923	6516971.590923	1803474.089243	246102	43124	sf	2192	cf
Infiltration BMP	Existing	9126 FLORENCE	4/25/2008	6526980.883730	6526980.883730	1802613.015890	245119	29248	sf	1828	cf
Infiltration BMP	Existing	11111 OLD RIVER SCHOOL	6/15/2004	6515500.000000	6515500.000000	1803800.000000	246102	27843	sf	1740	cf
Infiltration BMP	Existing	9634 WASHBURN	5/25/2004	6526574.558590	6526574.558590	1794738.334020	245118	35712	sf	2232	cf
Infiltration BMP	Existing	9475 FIRESTONE	9/20/2004	6527102.470060	6527102.470060	1797292.175990	245119	25078	sf	1567	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9125 IMPERIAL	9/17/2007	6520700.000000	6520700.000000	1792100.000000	245115	53104	sf	3319	cf
Infiltration BMP	Existing	11231 RIVES	4/25/2006	6518392.506170	6518392.506170	1802335.247680	246102	20250	sf	1266	cf
Infiltration BMP	Existing	7936 QUILL	8/23/2006	6515830.400000	6515830.400000	1795880.196930	246079	18984	sf	1187	cf
Infiltration BMP	Existing	8337 FONTANA	8/11/2005	6520206.194620	6520206.194620	1797870.434810	245114	36672	sf	2292	cf
Infiltration BMP	Existing	10225 LESTERFORD	6/22/2010	6530244.844140	6530244.844140	1800567.187010	245126	17718	sf	1107	cf
Infiltration BMP	Existing	7915 FLORENCE	8/11/2009	6522019.025220	6522019.025220	1805973.779210	246103	20192	sf	1262	cf
Infiltration BMP	Existing	11229 PARAMOUNT	3/16/2004	6519482.925030	6519482.925030	1801457.806750	246102	16453	sf	1028	cf
Infiltration BMP	Existing	8103 COLE	5/1/2007	6518213.448370	6518213.448370	1798049.118910	246077	0	sf	0	cf
Infiltration BMP	Existing	8722 BOYNE	7/1/2008	6521213.643060	6521213.643060	1795216.473800	245115	11390	sf	712	cf
Infiltration BMP	Existing	10612 LESTERFORD	6/14/2006	6529218.389270	6529218.389270	1798513.115960	245126	11390	sf	712	cf
Infiltration BMP	Existing	8444 LEXINGTON	4/24/2006	6524361.433930	6524361.433930	1803767.599820	246103	11390	sf	712	cf
Infiltration BMP	Existing	13221 BARLIN	10/10/2006	6516992.431610	6516992.431610	1789646.610200	245524	10125	sf	633	cf
Infiltration BMP	Existing	9611 GARNISH	6/7/2007	6529217.309540	6529217.309540	1803965.758960	245125	10125	sf	633	cf
Infiltration BMP	Existing	7118 PELLET	12/3/2008	6515184.074160	6515184.074160	1804905.113850	246104	10125	sf	633	cf
Infiltration BMP	Existing	9325 RIVES AM	2/14/2014	6522517.375370	6522517.375370	1808878.723180	246111	10125	sf	633	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9371 SUVA	3/13/2007	6529247.009310	6529247.009310	1803484.685240	245125	10125	sf	633	cf
Infiltration BMP	Existing	8556 FLORENCE	1/1/2006	6525137.675720	6525137.675720	1803770.147850	245125	8859	sf	554	cf
Infiltration BMP	Existing	9755 IMPERIAL	3/29/2006	6525700.000000	6525700.000000	1792200.000000	245114	8859	sf	554	cf
Infiltration BMP	Existing	10000 IMPERIAL	3/29/2006	6527246.839530	6527246.839530	1791706.604350	245118	8859	sf	554	cf
Infiltration BMP	Existing	10030 LESTERFORD	6/21/2010	6530953.991420	6530953.991420	1801165.004470	245125	8859	sf	554	cf
Infiltration BMP	Existing	7235 LUXOR	12/12/2005	6514593.326010	6514593.326010	1801941.887350	246079	8859	sf	554	cf
Infiltration BMP	Existing	8115 STEWART & GRAY	3/25/2009	6518648.406750	6518648.406750	1798495.150040	246077	11760	sf	735	cf
Infiltration BMP	Existing	9804 BROOKSHIRE	5/2/2007	6525737.765210	6525737.765210	1805415.750650	246103	7594	sf	475	cf
Infiltration BMP	Existing	7830 DANVERS	12/18/2008	6523967.248740	6523967.248740	1810379.348050	246106	7594	sf	475	cf
Infiltration BMP	Existing	8357 FLORENCE	11/29/2005	6524137.162990	6524137.162990	1804589.285090	246103	7594	sf	475	cf
Infiltration BMP	Existing	8562 FLORENCE	1/1/2006	6525210.620820	6525210.620820	1803736.004200	245125	7594	sf	475	cf
Infiltration BMP	Existing	10735 LAKEWOOD	1/19/2007	6524698.379320	6524698.379320	1800460.893140	245119	8640	sf	540	cf
Infiltration BMP	Existing	9732 ORIZABA	6/5/2008	6523842.356050	6523842.356050	1806158.297200	246103	7594	sf	475	cf
Infiltration BMP	Existing	12066 SAMOLINE	6/18/2010	6517119.562750	6517119.562750	1797806.070750	246079	7594	sf	475	cf
Infiltration BMP	Existing	7711 SECOND	6/21/2010	6518493.103400	6518493.103400	1802942.740750	246102	7594	sf	475	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9517 STOAKES	6/21/2010	6525287.319840	6525287.319840	1806612.266920	246103	7594	sf	475	cf
Infiltration BMP	Existing	12133 ANDERBERG	6/26/2009	6518010.879310	6518010.879310	1796818.463370	245115	6328	sf	396	cf
Infiltration BMP	Existing	9115 BROCK	6/21/2010	6524898.717190	6524898.717190	1808433.166330	246106	6328	sf	396	cf
Infiltration BMP	Existing	9541 CECILIA	6/23/2010	6528302.087900	6528302.087900	1798262.111790	245126	6328	sf	396	cf
Infiltration BMP	Existing	10243 CORD	11/4/2008	6528334.164460	6528334.164460	1801344.678940	245126	6328	sf	396	cf
Infiltration BMP	Existing	13108 CORNUTA	6/21/2010	6525701.475550	6525701.475550	1790449.882450	245113	6328	sf	396	cf
Infiltration BMP	Existing	8129 DACOSTA	8/5/2008	6523736.839560	6523736.839560	1805716.362640	246103	6328	sf	396	cf
Infiltration BMP	Existing	7247 DINWIDDIE	6/22/2010	6515896.418780	6515896.418780	1804170.223670	246104	6328	sf	396	cf
Infiltration BMP	Existing	12002A DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	6328	sf	396	cf
Infiltration BMP	Existing	12002C DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	6328	sf	396	cf
Infiltration BMP	Existing	8529 EUCALYPTUS	6/18/2010	6519136.171020	6519136.171020	1794210.333930	245115	6328	sf	396	cf
Infiltration BMP	Existing	9204 LA REINA	6/22/2010	6525799.255250	6525799.255250	1808110.827020	246103	6328	sf	396	cf
Infiltration BMP	Existing	9241 LUBEC	6/21/2010	6528410.398740	6528410.398740	1803633.947240	245125	6328	sf	396	cf
Infiltration BMP	Existing	10051 MATTOCK	9/25/2008	6530040.953970	6530040.953970	1801237.222590	245125	6328	sf	396	cf
Infiltration BMP	Existing	12273 PLANETT	6/21/2010	6518942.439290	6518942.439290	1795136.426680	245115	6328	sf	396	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9075 RAVILLER	4/9/2007	6527819.498980	6527819.498980	1805031.907810	245125	6328	sf	396	cf
Infiltration BMP	Existing	7149 ADWEN	5/31/2006	6514275.907390	6514275.907390	1803122.312290	246079	5062	sf	316	cf
Infiltration BMP	Existing	8703 ALAMEDA	9/14/2005	6520830.700880	6520830.700880	1795016.469260	245115	4594	sf	287	cf
Infiltration BMP	Existing	9242 APPLEBY	11/21/2008	6528866.478730	6528866.478730	1804798.824690	245125	5062	sf	316	cf
Infiltration BMP	Existing	9926 BELLDER	3/19/2007	6525715.329050	6525715.329050	1804487.716960	245125	5062	sf	316	cf
Infiltration BMP	Existing	11715 BELLFLOWER	6/15/2009	6523530.688010	6523530.688010	1796655.823230	245114	5062	sf	316	cf
Infiltration BMP	Existing	8019 BERGMAN	10/22/2008	6517711.829130	6517711.829130	1797726.503570	246077	5062	sf	316	cf
Infiltration BMP	Existing	8417 BIGBY	7/23/2007	6523908.146010	6523908.146010	1803525.055670	245119	5062	sf	316	cf
Infiltration BMP	Existing	10004 BIRCHDALE	1/23/2006	6525798.638290	6525798.638290	1803985.957400	245125	5062	sf	316	cf
Infiltration BMP	Existing	9951 BROOKSHIRE	6/18/2010	6525004.036100	6525004.036100	1804835.952720	246103	5062	sf	316	cf
Infiltration BMP	Existing	10927 BROOKSHIRE AV	2/14/2014	6522640.981090	6522640.981090	1800949.695110	245114	5062	sf	316	cf
Infiltration BMP	Existing	10304 CLANCEY	9/19/2008	6526762.243870	6526762.243870	1802017.295250	245119	5062	sf	316	cf
Infiltration BMP	Existing	7213 DINWIDDIE	6/21/2010	6515644.523280	6515644.523280	1804333.457340	246104	5062	sf	316	cf
Infiltration BMP	Existing	9245 DOWNEY	9/19/2007	6525582.317560	6525582.317560	1807792.114420	246103	5062	sf	316	cf
Infiltration BMP	Existing	12002B DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12002D DOWNEY	8/24/2005	6519100.000000	6519100.000000	1797100.000000	245115	5062	sf	316	cf
Infiltration BMP	Existing	10250 EGLISE AV	2/14/2014	6528202.138900	6528202.138900	1801366.096440	245126	5062	sf	316	cf
Infiltration BMP	Existing	8719 ELMONT	6/18/2010	6526144.563940	6526144.563940	1809393.110180	246106	5062	sf	316	cf
Infiltration BMP	Existing	9355 FLORENCE	7/30/2007	6528769.559400	6528769.559400	1801814.385750	245125	5062	sf	316	cf
Infiltration BMP	Existing	9252 GALLATIN	3/29/2006	6528859.757520	6528859.757520	1804394.594600	245125	5062	sf	316	cf
Infiltration BMP	Existing	9553 GALLATIN	7/28/2004	6530910.776140	6530910.776140	1803037.898220	245125	5062	sf	316	cf
Infiltration BMP	Existing	9724 GARNISH	1/14/2008	6529062.109120	6529062.109120	1803453.035240	245125	5062	sf	316	cf
Infiltration BMP	Existing	8610 GUATEMALA	10/24/2006	6524386.905480	6524386.905480	1811339.167280	246106	5062	sf	316	cf
Infiltration BMP	Existing	10214 HORLEY	8/14/2007	6520372.544870	6520372.544870	1806355.591210	246102	5062	sf	316	cf
Infiltration BMP	Existing	10513 JULIUS	1/22/2009	6518877.932890	6518877.932890	1805532.376750	246102	5062	sf	316	cf
Infiltration BMP	Existing	9204 LA REINA	4/18/2007	6525799.255250	6525799.255250	1808110.827020	246103	5062	sf	316	cf
Infiltration BMP	Existing	9528 LEMORAN	8/29/2008	6529000.799820	6529000.799820	1804066.473220	245125	5062	sf	316	cf
Infiltration BMP	Existing	7334 LUXOR	4/25/2007	6514999.892740	6514999.892740	1801407.207050	246079	5062	sf	316	cf
Infiltration BMP	Existing	9226 MANZANAR	7/8/2005	6526470.419470	6526470.419470	1806685.422630	246103	5062	sf	316	cf
Infiltration BMP	Existing	10524 MATTOCK	2/5/2009	6528788.349750	6528788.349750	1799096.345380	245126	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12123 ORIZABA	12/28/2005	6517943.193960	6517943.193960	1797041.752750	245115	5062	sf	316	cf
Infiltration BMP	Existing	7130 PELLET	6/4/2008	6515276.387650	6515276.387650	1804845.311440	246104	5062	sf	316	cf
Infiltration BMP	Existing	8322 PURITAN	6/14/2007	6516164.281440	6516164.281440	1791774.558840	245524	5062	sf	316	cf
Infiltration BMP	Existing	7312 RIO FLORA	6/18/2010	6516577.089870	6516577.089870	1804589.040390	246104	5062	sf	316	cf
Infiltration BMP	Existing	9331 SAMOLINE	2/17/2006	6523511.819100	6523511.819100	1808307.819060	246106	5062	sf	316	cf
Infiltration BMP	Existing	8015 SEVENTH	8/16/2005	6521322.893520	6521322.893520	1803640.949260	246103	5062	sf	316	cf
Infiltration BMP	Existing	7821 SIXTH	12/6/2005	6519846.881130	6519846.881130	1804004.436800	246102	5062	sf	316	cf
Infiltration BMP	Existing	8409 SIXTH	12/10/2008	6523050.669740	6523050.669740	1802016.668700	245114	5062	sf	316	cf
Infiltration BMP	Existing	9317 STAMPS	1/30/2007	6525356.702810	6525356.702810	1807182.805460	246103	5062	sf	316	cf
Infiltration BMP	Existing	9322 STAMPS	3/16/2006	6525453.602600	6525453.602600	1807062.934260	246103	5062	sf	316	cf
Infiltration BMP	Existing	10443 STAMPS	5/21/2008	6523061.022110	6523061.022110	1803394.248860	246103	5062	sf	316	cf
Infiltration BMP	Existing	10517 STAMPS	6/18/2010	6522812.240000	6522812.240000	1803043.757460	246103	5062	sf	316	cf
Infiltration BMP	Existing	9444 STOAKES	5/22/2007	6525587.983230	6525587.983230	1806625.551490	246103	5062	sf	316	cf
Infiltration BMP	Existing	8329 VISTA DEL RIO	6/18/2010	6526300.133280	6526300.133280	1808123.116520	246103	5062	sf	316	cf
Infiltration BMP	Existing	8368 VISTA DEL RIO	6/1/2007	6526427.553640	6526427.553640	1807729.596630	246103	5062	sf	316	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8543 ALBIA	1/1/2006	6520215.566510	6520215.566510	1795689.212970	245115	3797	sf	237	cf
Infiltration BMP	Existing	7162 BENARES	1/1/2008	6514067.610360	6514067.610360	1802493.217160	246079	3797	sf	237	cf
Infiltration BMP	Existing	12812 BLODGETT	6/8/2009	6518629.647540	6518629.647540	1791208.759970	245115	3797	sf	237	cf
Infiltration BMP	Existing	9503 BROCK AV	2/14/2014	6524115.247920	6524115.247920	1807488.010330	246106	3797	sf	237	cf
Infiltration BMP	Existing	9045 BUCKLES	12/11/2008	6523278.581350	6523278.581350	1796905.300470	245114	3797	sf	237	cf
Infiltration BMP	Existing	10045 CHANEY	7/5/2007	6527656.534860	6527656.534860	1802672.871800	245125	3797	sf	237	cf
Infiltration BMP	Existing	8714 CHEROKEE	5/1/2007	6525056.428300	6525056.428300	1801833.489170	245119	3797	sf	237	cf
Infiltration BMP	Existing	10729 CLANCEY	7/5/2007	6525292.127080	6525292.127080	1799996.460370	245119	3797	sf	237	cf
Infiltration BMP	Existing	8215 COMOLETTE	5/18/2006	6516024.585540	6516024.585540	1792904.896040	246077	3563	sf	223	cf
Infiltration BMP	Existing	7809 DACOSTA	10/5/2007	6521756.096640	6521756.096640	1806979.884160	246106	3797	sf	237	cf
Infiltration BMP	Existing	10424 DOLAN AV	2/14/2014	6523609.999510	6523609.999510	1803226.099470	245119	3797	sf	237	cf
Infiltration BMP	Existing	12337 DUNROBIN	6/21/2010	6524854.924990	6524854.924990	1793158.910710	245114	3797	sf	237	cf
Infiltration BMP	Existing	13234 DUNROBIN	9/30/2005	6525046.618370	6525046.618370	1789885.630870	245114	3797	sf	237	cf
Infiltration BMP	Existing	12612 EASTBROOK	5/30/2006	6525374.680490	6525374.680490	1791988.629320	245114	3797	sf	237	cf
Infiltration BMP	Existing	9400 FLORENCE	7/8/2005	6528900.299250	6528900.299250	1801380.002980	245126	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7823 FOURTH PL	9/16/2005	6519381.530610	6519381.530610	1803107.418050	246102	3797	sf	237	cf
Infiltration BMP	Existing	7826 GAINFORD	10/13/2005	6521963.408230	6521963.408230	1806968.662960	246106	3797	sf	237	cf
Infiltration BMP	Existing	7909 GALLATIN	4/27/2006	6523955.572760	6523955.572760	1809190.106160	246106	3797	sf	237	cf
Infiltration BMP	Existing	9118 GARNISH	6/21/2010	6529677.777690	6529677.777690	1805040.238300	245125	3797	sf	237	cf
Infiltration BMP	Existing	12752 GLYNN	6/18/2010	6516929.257070	6516929.257070	1792615.717350	245524	3797	sf	237	cf
Infiltration BMP	Existing	9116 HALEDON	3/2/2006	6528925.738880	6528925.738880	1805732.953010	245125	3797	sf	237	cf
Infiltration BMP	Existing	12819 IBBETSON	11/23/2005	6525827.025010	6525827.025010	1791350.711010	245114	3797	sf	237	cf
Infiltration BMP	Existing	9528 LEMORAN	8/26/2008	6528914.390000	6528914.390000	1804053.870620	245125	3797	sf	237	cf
Infiltration BMP	Existing	10514 LESTERFORD	2/14/2006	6529382.491640	6529382.491640	1798787.162960	245126	3797	sf	237	cf
Infiltration BMP	Existing	9030 LUBEC	2/9/2006	6526996.357320	6526996.357320	1804242.372880	245125	3797	sf	237	cf
Infiltration BMP	Existing	9264 LUBEC	4/19/2006	6528519.099740	6528519.099740	1803331.221940	245125	3797	sf	237	cf
Infiltration BMP	Existing	8545 LUBEC ST	2/14/2014	6525866.355120	6525866.355120	1805123.134500	246103	3797	sf	237	cf
Infiltration BMP	Existing	9247 MANZANAR	10/30/2006	6526227.935330	6526227.935330	1806695.994430	246103	3797	sf	237	cf
Infiltration BMP	Existing	7866 MELVA	6/20/2006	6516126.027390	6516126.027390	1797191.628010	246079	3797	sf	237	cf
Infiltration BMP	Existing	12109 MORNING	5/16/2006	6516408.716280	6516408.716280	1797765.727430	246079	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7332 NADA	6/18/2007	6514319.703850	6514319.703850	1800394.247560	246079	3797	sf	237	cf
Infiltration BMP	Existing	7334 NADA	6/18/2007	6514319.703850	6514319.703850	1800394.247560	246079	3797	sf	237	cf
Infiltration BMP	Existing	9821 NEWVILLE	7/30/2007	6530987.438110	6530987.438110	1802116.080780	245125	3797	sf	237	cf
Infiltration BMP	Existing	10268 NEWVILLE	4/24/2007	6529747.604150	6529747.604150	1800228.046080	245126	3797	sf	237	cf
Infiltration BMP	Existing	12280 ORIZABA	6/18/2010	6517505.248620	6517505.248620	1795784.740290	246077	3797	sf	237	cf
Infiltration BMP	Existing	10404 PANGBORN	6/18/2010	6528952.556500	6528952.556500	1800031.154520	245126	3797	sf	237	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	3797	sf	237	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	3797	sf	237	cf
Infiltration BMP	Existing	11994 POMERING	2/23/2005	6514993.390330	6514993.390330	1799517.781680	246079	3797	sf	237	cf
Infiltration BMP	Existing	9525 QUINN	2/8/2007	6528803.711540	6528803.711540	1799421.544220	245126	3797	sf	237	cf
Infiltration BMP	Existing	8048 QUOIT	1/21/2009	6516443.407630	6516443.407630	1795348.218010	246077	3797	sf	237	cf
Infiltration BMP	Existing	12326 SAMOLINE	8/29/2008	6516269.535370	6516269.535370	1796118.615320	246077	3797	sf	237	cf
Infiltration BMP	Existing	12504 SMALLWOOD	9/30/2008	6515227.996100	6515227.996100	1795705.820110	246079	3797	sf	237	cf
Infiltration BMP	Existing	9520 STEWART & GRAY	4/10/2008	6526628.650930	6526628.650930	1796061.800920	245118	3797	sf	237	cf
Infiltration BMP	Existing	7411 THIRD	6/2/2006	6517216.302090	6517216.302090	1804140.837740	246102	3797	sf	237	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12706 WHITEWOOD	9/20/2007	6520505.791550	6520505.791550	1791390.733010	245115	3797	sf	237	cf
Infiltration BMP	Existing	9049 HALL ROAD	2/9/2007	6523684.587500	6523684.587500	1797586.831540	245114	2531	sf	158	cf
Infiltration BMP	Existing	7118 ADWEN	1/27/2006	6513895.884030	6513895.884030	1803086.756410	246100	2531	sf	158	cf
Infiltration BMP	Existing	13202 BARLIN	2/14/2007	6517303.317510	6517303.317510	1789688.349400	245524	2531	sf	158	cf
Infiltration BMP	Existing	10216 BELLMAN	1/5/2009	6525703.110200	6525703.110200	1803293.056930	245119	2531	sf	158	cf
Infiltration BMP	Existing	11809 BELLMAN	2/8/2006	6521732.804620	6521732.804620	1797303.369450	245114	2531	sf	158	cf
Infiltration BMP	Existing	7117 BENARES	8/10/2006	6513814.981610	6513814.981610	1802936.506930	246079	2531	sf	158	cf
Infiltration BMP	Existing	9108 BIGBY	11/23/2005	6526215.785230	6526215.785230	1801649.270450	245119	2531	sf	158	cf
Infiltration BMP	Existing	10213 BIRCHDALE	4/19/2006	6525304.414970	6525304.414970	1803562.084330	245119	2531	sf	158	cf
Infiltration BMP	Existing	9004 BIRCHLEAF	3/7/2007	6527047.235450	6527047.235450	1808159.837050	246103	2531	sf	158	cf
Infiltration BMP	Existing	13126 BLODGETT	8/18/2005	6517829.686700	6517829.686700	1789824.186060	245115	2531	sf	158	cf
Infiltration BMP	Existing	9508 BROCK	2/27/2006	6524228.012180	6524228.012180	1807355.118100	246103	2531	sf	158	cf
Infiltration BMP	Existing	7418 BROOKMILL	7/25/2008	6515791.043440	6515791.043440	1801624.672750	246079	2531	sf	158	cf
Infiltration BMP	Existing	12201 BROOKSHIRE	6/22/2010	6519506.452440	6519506.452440	1795585.950880	245115	2531	sf	158	cf
Infiltration BMP	Existing	7942 BRUNACHE	11/28/2005	6517219.149000	6517219.149000	1798061.073260	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9349 CECILIA	9/25/2008	6527282.306940	6527282.306940	1798988.874460	245126	2531	sf	158	cf
Infiltration BMP	Existing	9365 CECILIA	6/18/2010	6527411.791310	6527411.791310	1798910.665650	245126	2531	sf	158	cf
Infiltration BMP	Existing	9608 CECILIA	1/1/2007	6528406.351870	6528406.351870	1798010.127160	245126	2531	sf	158	cf
Infiltration BMP	Existing	9624 CEDARTREE	8/8/2005	6531911.946630	6531911.946630	1804673.812930	245127	2531	sf	158	cf
Infiltration BMP	Existing	8519 CLETA	9/10/2007	6521470.081710	6521470.081710	1798172.541560	245114	2531	sf	158	cf
Infiltration BMP	Existing	7803 CONKLIN	9/2/2005	6513317.560580	6513317.560580	1793980.901190	246077	2297	sf	144	cf
Infiltration BMP	Existing	12816 CORNUTA	10/9/2006	6525701.592160	6525701.592160	1791350.505200	245114	2531	sf	158	cf
Infiltration BMP	Existing	8018 DANVERS	1/26/2009	6524882.345060	6524882.345060	1809453.159850	246106	2531	sf	158	cf
Infiltration BMP	Existing	8517 DEVENIR	10/11/2005	6517399.640210	6517399.640210	1791811.493450	245115	2531	sf	158	cf
Infiltration BMP	Existing	8049 DINSDALE	6/15/2006	6522974.989820	6522974.989820	1805624.556380	246103	2531	sf	158	cf
Infiltration BMP	Existing	9317 DINSDALE	11/5/2008	6528560.545810	6528560.545810	1802232.852640	245125	2531	sf	158	cf
Infiltration BMP	Existing	8510 DONOVAN	7/5/2005	6519046.837890	6519046.837890	1794446.597550	245115	2531	sf	158	cf
Infiltration BMP	Existing	8415 DONOVAN ST	2/14/2014	6518508.946270	6518508.946270	1795018.898890	245115	2531	sf	158	cf
Infiltration BMP	Existing	9635 DOWNEY	7/15/2004	6524420.085960	6524420.085960	1806308.452290	246103	2531	sf	158	cf
Infiltration BMP	Existing	9830 DOWNEY	1/1/2006	6524176.121770	6524176.121770	1805651.929490	246103	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12718 DOWNEY	8/30/2007	6516814.229160	6516814.229160	1793075.140590	245524	2531	sf	158	cf
Infiltration BMP	Existing	12650 DUNROBIN	7/27/2007	6525045.587920	6525045.587920	1791614.482510	245114	2531	sf	158	cf
Infiltration BMP	Existing	9067 EGLISE	9/30/2005	6530265.716940	6530265.716940	1805184.414240	245127	2531	sf	158	cf
Infiltration BMP	Existing	9131 EGLISE	1/16/2009	6529904.336320	6529904.336320	1804464.041860	245125	2531	sf	158	cf
Infiltration BMP	Existing	8573 ELEVENTH	4/24/2006	6525253.900610	6525253.900610	1803595.328980	245119	2531	sf	158	cf
Infiltration BMP	Existing	9061 FARM ST	2/14/2014	6526099.027600	6526099.027600	1801582.141470	245119	2531	sf	158	cf
Infiltration BMP	Existing	7936 FOURTH	1/26/2006	6520005.666040	6520005.666040	1802880.634680	246103	2531	sf	158	cf
Infiltration BMP	Existing	7829 FOURTH PL	2/14/2014	6519381.530610	6519381.530610	1803107.418050	246102	2531	sf	158	cf
Infiltration BMP	Existing	7528 GAINFORD	6/18/2010	6520331.076350	6520331.076350	1807734.704270	246106	1266	sf	79	cf
Infiltration BMP	Existing	8150 GALLATIN	1/14/2008	6524851.065410	6524851.065410	1807922.731550	246103	2531	sf	158	cf
Infiltration BMP	Existing	9068 GALLATIN	7/18/2005	6527754.167230	6527754.167230	1805244.499940	245125	2531	sf	158	cf
Infiltration BMP	Existing	12703 GLENSHIRE	8/18/2006	6520090.968440	6520090.968440	1791341.816710	245115	2531	sf	158	cf
Infiltration BMP	Existing	8703 GUATEMALA	6/18/2010	6523747.929510	6523747.929510	1811239.685330	246111	2531	sf	158	cf
Infiltration BMP	Existing	9903 GUATEMALA	6/21/2010	6519189.043810	6519189.043810	1808530.913060	246111	2531	sf	158	cf
Infiltration BMP	Existing	9208 HALEDON	3/29/2007	6528788.981770	6528788.981770	1805412.621690	245125	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9083 HALL	12/8/2005	6524025.781090	6524025.781090	1797583.104370	245114	2531	sf	158	cf
Infiltration BMP	Existing	10348 HASTY	9/14/2006	6528480.545700	6528480.545700	1800482.839460	245126	2531	sf	158	cf
Infiltration BMP	Existing	7844 HONDO	7/8/2005	6515417.898670	6515417.898670	1796530.778030	246079	2531	sf	158	cf
Infiltration BMP	Existing	9244 HORLEY	6/22/2006	6522498.248530	6522498.248530	1809199.750130	246111	2531	sf	158	cf
Infiltration BMP	Existing	12612 IBBETSON	2/9/2007	6526008.655610	6526008.655610	1792000.536540	245114	2531	sf	158	cf
Infiltration BMP	Existing	7214 IRWINGROVE	8/17/2007	6517736.835580	6517736.835580	1807424.228480	246104	2531	sf	158	cf
Infiltration BMP	Existing	10209 JULIUS	6/21/2010	6519702.452650	6519702.452650	1806880.883230	246102	2531	sf	158	cf
Infiltration BMP	Existing	10341 JULIUS	6/4/2008	6519700.000000	6519700.000000	1806100.000000	246102	2531	sf	158	cf
Infiltration BMP	Existing	12313 JULIUS	6/21/2010	6514155.209020	6514155.209020	1797936.932020	246079	2531	sf	158	cf
Infiltration BMP	Existing	7944 KINGBEE	5/31/2007	6516311.045420	6516311.045420	1796702.710410	246079	2531	sf	158	cf
Infiltration BMP	Existing	9605 LA REINA	6/18/2010	6524325.141120	6524325.141120	1806744.664340	246103	2531	sf	158	cf
Infiltration BMP	Existing	10074 LESTERFORD	4/12/2006	6530716.286370	6530716.286370	1800772.683680	245125	2531	sf	158	cf
Infiltration BMP	Existing	9626 LUBEC	6/21/2005	6530889.535260	6530889.535260	1801910.718740	245125	2531	sf	158	cf
Infiltration BMP	Existing	7156 LUXOR	10/28/2005	6513800.826420	6513800.826420	1802169.595300	246100	2531	sf	158	cf
Infiltration BMP	Existing	9202 MANZANAR	4/13/2004	6526663.177850	6526663.177850	1806830.315690	246103	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9020 MARGARET	10/2/2006	6523822.925930	6523822.925930	1798066.530690	245114	2531	sf	158	cf
Infiltration BMP	Existing	9127 MELDAR	4/29/2004	6526710.714590	6526710.714590	1807437.827920	246103	2531	sf	158	cf
Infiltration BMP	Existing	11814 MORNING	9/2/2005	6517648.916460	6517648.916460	1799680.107480	246077	2531	sf	158	cf
Infiltration BMP	Existing	7440 MULLER	11/7/2006	6518162.654940	6518162.654940	1805120.460880	246102	2531	sf	158	cf
Infiltration BMP	Existing	12334 ORIZABA	5/5/2005	6517231.678930	6517231.678930	1795384.927500	246077	2531	sf	158	cf
Infiltration BMP	Existing	9311 OTTO	2/2/2008	6528809.245500	6528809.245500	1802513.951810	245125	2531	sf	158	cf
Infiltration BMP	Existing	10436 PANGBORN	7/6/2006	6528781.443840	6528781.443840	1799746.387720	245126	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12531 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12533 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12535 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	12537 PARAMOUNT	9/11/2003	6515510.297280	6515510.297280	1795114.190420	246079	2531	sf	158	cf
Infiltration BMP	Existing	9008 PARROT	6/22/2010	6524997.125330	6524997.125330	1808680.720210	246106	2531	sf	158	cf
Infiltration BMP	Existing	9530 PARROT	10/11/2006	6523866.950960	6523866.950960	1807305.627380	246103	2531	sf	158	cf
Infiltration BMP	Existing	7125 PELLET	11/21/2005	6515366.521160	6515366.521160	1805107.133170	246104	2531	sf	158	cf
Infiltration BMP	Existing	7335 PELLET	2/15/2007	6516661.302200	6516661.302200	1804268.401510	246104	2531	sf	158	cf
Infiltration BMP	Existing	7348 PELLET	6/22/2010	6516619.400060	6516619.400060	1803975.379460	246102	2531	sf	158	cf
Infiltration BMP	Existing	10433 PICO VISTA	6/21/2010	6529704.381130	6529704.381130	1799155.408730	245126	2531	sf	158	cf
Infiltration BMP	Existing	7629 PIVOT	6/4/2008	6517523.064870	6517523.064870	1802428.507060	246079	2531	sf	158	cf
Infiltration BMP	Existing	11962 POMERING	2/24/2006	6515175.131420	6515175.131420	1799743.806870	246079	2531	sf	158	cf
Infiltration BMP	Existing	8133 PRISCILLA	6/22/2010	6515078.400000	6515078.400000	1792153.440000	246077	2531	sf	158	cf
Infiltration BMP	Existing	7603 QUILL	2/28/2007	6514155.935840	6514155.935840	1797151.984960	246079	2531	sf	158	cf
Infiltration BMP	Existing	11539 RICHEON	7/8/2005	6517174.382020	6517174.382020	1801464.078770	246079	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	6545 RIVERGROVE	10/11/2005	6520696.757140	6520696.757140	1811248.378990	246111	2531	sf	158	cf
Infiltration BMP	Existing	9320 SAMOLINE	11/3/2006	6523716.410960	6523716.410960	1808296.703240	246106	2531	sf	158	cf
Infiltration BMP	Existing	9602 SAMOLINE	11/23/2005	6523146.135200	6523146.135200	1807399.732010	246103	2531	sf	158	cf
Infiltration BMP	Existing	12015 SAMOLINE	9/29/2008	6517129.601540	6517129.601540	1798409.043860	246079	2531	sf	158	cf
Infiltration BMP	Existing	12048 SAMOLINE	6/22/2010	6517021.712450	6517021.712450	1798014.455830	246079	2531	sf	158	cf
Infiltration BMP	Existing	7962 SECOND	10/3/2007	6519694.108620	6519694.108620	1801968.426700	246102	2531	sf	158	cf
Infiltration BMP	Existing	7712 SEVERY ST	1/1/2008	6524575.222650	6524575.222650	1807124.160130	246103	2531	sf	158	cf
Infiltration BMP	Existing	7331 SHADYOAK	1/16/2009	6521597.847660	6521597.847660	1810725.646550	246111	2531	sf	158	cf
Infiltration BMP	Existing	9103 SHERIDELL	10/29/2007	6528594.889520	6528594.889520	1806159.584670	245125	2531	sf	158	cf
Infiltration BMP	Existing	8345 SIXTH	4/23/2008	6522663.428460	6522663.428460	1802257.170290	245114	2531	sf	158	cf
Infiltration BMP	Existing	9124 STOAKES	4/29/2004	6526659.033140	6526659.033140	1807538.875170	246103	2531	sf	158	cf
Infiltration BMP	Existing	9906 TECUM	8/26/2008	6519710.324270	6519710.324270	1808196.223590	246111	2531	sf	158	cf
Infiltration BMP	Existing	9520 TELEGRAPH	12/4/2008	6531301.476840	6531301.476840	1805512.099740	245127	2531	sf	158	cf
Infiltration BMP	Existing	8302 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1840	sf	115	cf
Infiltration BMP	Existing	8304 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8306 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8308 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8310 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8312 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8314 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8316 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8318 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8320 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8322 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8324 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8326 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8328 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8330 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8332 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8334 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8336 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8338 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8340 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8342 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8344 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8346 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8348 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8350 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	8352 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	2531	sf	158	cf
Infiltration BMP	Existing	7438 THIRD	11/10/2005	6517353.808450	6517353.808450	1803828.489190	246102	2531	sf	158	cf
Infiltration BMP	Existing	7955 THIRD	1/30/2006	6519871.299810	6519871.299810	1802440.525110	246103	2531	sf	158	cf
Infiltration BMP	Existing	9819 TRISTAN	11/19/2007	6526302.584780	6526302.584780	1804524.383680	245125	2531	sf	158	cf
Infiltration BMP	Existing	8555 VIA AMORITA	10/27/2008	6524751.467620	6524751.467620	1803150.610950	245119	2531	sf	158	cf
Infiltration BMP	Existing	9631 WILEY BURKE	3/27/2006	6521095.475640	6521095.475640	1808618.175130	246106	2531	sf	158	cf
Infiltration BMP	Existing	10419 WILEY BURKE	3/7/2008	6519382.492080	6519382.492080	1805731.311650	246102	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7319 ADWEN	2/22/2006	6515346.754980	6515346.754980	1802425.342900	246079	1266	sf	79	cf
Infiltration BMP	Existing	13033 AIRPOINT	6/14/2010	6517837.198260	6517837.198260	1790420.981040	245115	1266	sf	79	cf
Infiltration BMP	Existing	8446 ALAMEDA	6/24/2005	6519341.878190	6519341.878190	1795502.737620	245115	1266	sf	79	cf
Infiltration BMP	Existing	9336 APPLEBY	3/9/2006	6529377.514420	6529377.514420	1804389.744220	245125	1266	sf	79	cf
Infiltration BMP	Existing	9540 ARDINE	1/1/2006	6527800.346060	6527800.346060	1797420.079620	245119	1266	sf	79	cf
Infiltration BMP	Existing	7849 ARNETT	7/8/2005	6518395.700160	6518395.700160	1801138.921810	246079	1266	sf	79	cf
Infiltration BMP	Existing	8645 BAYSINGER	11/10/2005	6525612.031290	6525612.031290	1803108.706240	245119	1266	sf	79	cf
Infiltration BMP	Existing	9210 BELCHER	10/12/2006	6519891.840050	6519891.840050	1789806.904790	245115	1266	sf	79	cf
Infiltration BMP	Existing	9245 BELCHER	9/4/2007	6520247.532430	6520247.532430	1789967.036150	245115	1266	sf	79	cf
Infiltration BMP	Existing	10234 BELCHER	6/18/2010	6527119.239350	6527119.239350	1789810.183210	245113	1266	sf	79	cf
Infiltration BMP	Existing	10285 BELCHER	6/21/2010	6527612.081010	6527612.081010	1789959.646450	245118	1266	sf	79	cf
Infiltration BMP	Existing	10028 BELLDER	1/1/2006	6525360.965940	6525360.965940	1803913.208580	245125	1266	sf	79	cf
Infiltration BMP	Existing	10304 BELLMAN	6/1/2005	6525418.498520	6525418.498520	1803041.069680	245119	1266	sf	79	cf
Infiltration BMP	Existing	11014 BENFIELD	6/24/2008	6531918.630750	6531918.630750	1797937.959120	245122	1266	sf	79	cf
Infiltration BMP	Existing	9324 BIRCHBARK	10/7/2005	6524879.129350	6524879.129350	1807661.831210	246103	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7847 BLANDWOOD	6/29/2006	6525016.522210	6525016.522210	1811074.341940	246106	1266	sf	79	cf
Infiltration BMP	Existing	8415 BORSON	10/9/2006	6517421.536650	6517421.536650	1792735.849280	245115	1266	sf	79	cf
Infiltration BMP	Existing	8710 BOYNE	6/29/2006	6521119.595500	6521119.595500	1795272.757840	245115	1266	sf	79	cf
Infiltration BMP	Existing	8910 BROCK	2/3/2009	6525582.226600	6525582.226600	1808734.892600	246106	1266	sf	79	cf
Infiltration BMP	Existing	9702 BROCK	9/25/2006	6523765.203820	6523765.203820	1806580.253440	246103	1266	sf	79	cf
Infiltration BMP	Existing	9730 BROCK	10/16/2009	6523625.354460	6523625.354460	1806340.478590	246103	1266	sf	79	cf
Infiltration BMP	Existing	7550 BROOKMILL	9/25/2006	6516432.435790	6516432.435790	1801137.496710	246079	1266	sf	79	cf
Infiltration BMP	Existing	10360 BROOKSHIRE	8/2/2005	6524254.056510	6524254.056510	1803200.425100	245119	1266	sf	79	cf
Infiltration BMP	Existing	9336 BUELL	5/4/2007	6527241.052050	6527241.052050	1799190.479610	245126	1266	sf	79	cf
Infiltration BMP	Existing	9408 BUELL	1/1/2007	6527563.840160	6527563.840160	1798993.546660	245126	1266	sf	79	cf
Infiltration BMP	Existing	10210 CASANES	7/20/2005	6529273.829610	6529273.829610	1801143.143100	245125	1266	sf	79	cf
Infiltration BMP	Existing	10308 CASANES	6/9/2005	6528827.020030	6528827.020030	1800415.364480	245126	1266	sf	79	cf
Infiltration BMP	Existing	10845 CASANES	12/4/2007	6527288.943480	6527288.943480	1798213.890680	245119	1266	sf	79	cf
Infiltration BMP	Existing	10922 CASANES	8/3/2005	6527279.490710	6527279.490710	1797849.792160	245119	1266	sf	79	cf
Infiltration BMP	Existing	8715 CAVEL	6/22/2010	6521261.550160	6521261.550160	1795688.489420	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9707 CEDARTREE	5/25/2006	6532283.863380	6532283.863380	1804587.051690	245127	1266	sf	79	cf
Infiltration BMP	Existing	10260 CHANEY	6/21/2010	6527337.911630	6527337.911630	1801874.691650	245119	1266	sf	79	cf
Infiltration BMP	Existing	10362 CHANEY	9/4/2007	6526983.558290	6526983.558290	1801306.071650	245119	1266	sf	79	cf
Infiltration BMP	Existing	9246 CLANCEY	5/1/2007	6528479.118010	6528479.118010	1805448.947460	245125	1266	sf	79	cf
Infiltration BMP	Existing	10546 CLANCEY	5/26/2005	6525904.831900	6525904.831900	1800674.595520	245119	1266	sf	79	cf
Infiltration BMP	Existing	12658 COLDBROOK	6/25/2009	6524501.637760	6524501.637760	1791525.543010	245114	1266	sf	79	cf
Infiltration BMP	Existing	8111 COMOLETTE	12/18/2006	6515465.796840	6515465.796840	1793242.397990	246077	1266	sf	79	cf
Infiltration BMP	Existing	8140 COMOLETTE	12/2/2008	6515640.775000	6515640.775000	1792943.865000	246077	1266	sf	79	cf
Infiltration BMP	Existing	8316 COMOLETTE	5/23/2005	6516475.681440	6516475.681440	1792370.081790	245524	1266	sf	79	cf
Infiltration BMP	Existing	9325 CORD	3/21/2008	6529940.912480	6529940.912480	1803762.584020	245125	1266	sf	79	cf
Infiltration BMP	Existing	7732 COREY	1/8/2009	6515481.796500	6515481.796500	1798137.416600	246079	1266	sf	79	cf
Infiltration BMP	Existing	11810 CORRIGAN	3/4/2009	6523411.287590	6523411.287590	1796210.739300	245114	1266	sf	79	cf
Infiltration BMP	Existing	10925 CROSSDALE	6/9/2005	6532012.125130	6532012.125130	1798163.740010	245122	1266	sf	79	cf
Infiltration BMP	Existing	7757 DACOSTA	6/7/2005	6521506.383470	6521506.383470	1807138.583520	246106	1266	sf	79	cf
Infiltration BMP	Existing	8324 DAVIS	6/15/2005	6520852.481770	6520852.481770	1799213.987880	245114	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8517 DEVENIR	2/19/2008	6517399.640210	6517399.640210	1791811.493450	245115	1266	sf	79	cf
Infiltration BMP	Existing	7345 DINSDALE	9/29/2005	6519203.299320	6519203.299320	1808002.090250	246111	1266	sf	79	cf
Infiltration BMP	Existing	8330 DINSDALE	6/21/2010	6524002.238290	6524002.238290	1804838.107610	246103	1266	sf	79	cf
Infiltration BMP	Existing	10340 DOLAN	8/15/2007	6523856.967630	6523856.967630	1803630.622810	245119	1266	sf	79	cf
Infiltration BMP	Existing	12260 DOLAN	4/5/2006	6518910.565000	6518910.565000	1795264.305000	245115	1266	sf	79	cf
Infiltration BMP	Existing	12521 DOLAN	7/19/2007	6517914.404040	6517914.404040	1794175.419610	245115	1266	sf	79	cf
Infiltration BMP	Existing	12621 DOLAN	8/17/2007	6517501.190610	6517501.190610	1793293.644730	245115	1266	sf	79	cf
Infiltration BMP	Existing	12308 DOWNEY	4/19/2007	6518251.608680	6518251.608680	1795363.261670	245115	1266	sf	79	cf
Infiltration BMP	Existing	12532 DOWNEY	10/11/2005	6517442.718730	6517442.718730	1794104.887260	245115	1266	sf	79	cf
Infiltration BMP	Existing	12820 DOWNEY	5/17/2007	6516486.923440	6516486.923440	1792584.707230	245524	1266	sf	79	cf
Infiltration BMP	Existing	12603 DUNROBIN	6/22/2010	6524864.880980	6524864.880980	1792095.613000	245114	1266	sf	79	cf
Infiltration BMP	Existing	12643 DUNROBIN	11/21/2006	6524865.889210	6524865.889210	1791696.268120	245114	1266	sf	79	cf
Infiltration BMP	Existing	12818 DUNROBIN	12/15/2006	6525044.191110	6525044.191110	1791331.787300	245114	1266	sf	79	cf
Infiltration BMP	Existing	12823 DUNROBIN	2/12/2008	6524866.593650	6524866.593650	1791299.463030	245114	1266	sf	79	cf
Infiltration BMP	Existing	13024 DUNROBIN	5/24/2005	6525048.058670	6525048.058670	1790633.750860	245114	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	13240 DUNROBIN	10/1/2008	6525046.731200	6525046.73 1200	1789833.3483 60	245114	1266	sf	79	cf
Infiltration BMP	Existing	13638 EARNSHAW	9/16/2005	6516330.576340	6516330.57 6340	1788317.0376 30	245524	1266	sf	79	cf
Infiltration BMP	Existing	12155 EASTBROOK	9/16/2005	6525128.882510	6525128.88 2510	1794289.1827 20	245114	2297	sf	144	cf
Infiltration BMP	Existing	9125 EGLISE	1/24/2007	6529928.564580	6529928.56 4580	1804520.9632 70	245125	1266	sf	79	cf
Infiltration BMP	Existing	10213 EGLISE	10/14/2008	6528271.447820	6528271.44 7820	1801803.0931 00	245126	1266	sf	79	cf
Infiltration BMP	Existing	8331 EVEREST	2/21/2007	6517984.856770	6517984.85 6770	1794526.9943 30	245115	1266	sf	79	cf
Infiltration BMP	Existing	9037 FARM	6/18/2010	6525882.141210	6525882.14 1210	1801714.4807 20	245119	1266	sf	79	cf
Infiltration BMP	Existing	9542 FARM	11/15/2005	6529019.221950	6529019.22 1950	1799423.7001 60	245126	1266	sf	79	cf
Infiltration BMP	Existing	8445 FIFTH	6/24/2005	6523180.907390	6523180.90 7390	1801530.1633 40	245114	1266	sf	79	cf
Infiltration BMP	Existing	8529 FIFTH	9/23/2005	6523578.003250	6523578.00 3250	1801288.5437 80	245114	1266	sf	79	cf
Infiltration BMP	Existing	9221 FOSTER	2/16/2008	6519835.324440	6519835.32 4440	1789377.6648 80	245115	1266	sf	79	cf
Infiltration BMP	Existing	9303 FOSTER	8/9/2006	6520280.515660	6520280.51 5660	1789513.9416 70	245115	1266	sf	79	cf
Infiltration BMP	Existing	9536 FOSTORIA	10/13/2005	6527900.524680	6527900.52 4680	1797686.0012 50	245119	1266	sf	79	cf
Infiltration BMP	Existing	7339 GAINFORD	11/5/2007	6519739.997490	6519739.99 7490	1808338.9360 30	246111	1266	sf	79	cf
Infiltration BMP	Existing	8426 GAINFORD	1/7/2008	6524961.213810	6524961.21 3810	1805124.6024 10	246103	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	9315 GAINFORD	7/5/2005	6528715.710300	6528715.710300	1803034.881460	245125	1266	sf	79	cf
Infiltration BMP	Existing	9641 GAINFORD	10/16/2006	6530976.949360	6530976.949360	1801752.372100	245125	1266	sf	79	cf
Infiltration BMP	Existing	9357 GALLATIN	4/17/2006	6529509.957360	6529509.957360	1804133.004270	245125	1266	sf	79	cf
Infiltration BMP	Existing	8411 GALT	7/18/2007	6520931.662600	6520931.662600	1798681.676310	245114	1266	sf	79	cf
Infiltration BMP	Existing	8125 GARDENDALE	10/3/2007	6514840.842010	6514840.842010	1791988.219650	246077	1266	sf	79	cf
Infiltration BMP	Existing	7553 GLENCLIFF	11/5/2008	6521939.189570	6521939.189570	1809565.009220	246111	1266	sf	79	cf
Infiltration BMP	Existing	12615 GURLEY	9/8/2008	6516705.632650	6516705.632650	1793818.816440	246077	1266	sf	79	cf
Infiltration BMP	Existing	10557 HALEDON	3/22/2006	6525946.687500	6525946.687500	1800529.637640	245119	1266	sf	79	cf
Infiltration BMP	Existing	10714 HALEDON	7/11/2008	6525734.412480	6525734.412480	1799854.605530	245119	1266	sf	79	cf
Infiltration BMP	Existing	9101 HALL	7/19/2007	6524088.768660	6524088.768660	1797585.986810	245114	1266	sf	79	cf
Infiltration BMP	Existing	7416 HONDO	11/21/2007	6513414.170490	6513414.170490	1797767.919490	246079	1266	sf	79	cf
Infiltration BMP	Existing	7927 HONDO	1/8/2007	6515926.722240	6515926.722240	1796435.751150	246079	1266	sf	79	cf
Infiltration BMP	Existing	9228 HORLEY	7/20/2005	6522584.029360	6522584.029360	1809343.702000	246111	1266	sf	79	cf
Infiltration BMP	Existing	9929 HORLEY	6/23/2005	6520827.895940	6520827.895940	1807104.698370	246106	1266	sf	79	cf
Infiltration BMP	Existing	12316 HORLEY	1/1/2007	6515085.680000	6515085.680000	1797312.060000	246079	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	11544 HORTON	5/1/2006	6517050.314050	6517050.314050	1801482.158860	246079	1266	sf	79	cf
Infiltration BMP	Existing	12619 IBBETSON	12/26/2007	6525826.717640	6525826.717640	1791950.694670	245114	1266	sf	79	cf
Infiltration BMP	Existing	12816 IBBETSON	11/23/2005	6526008.922590	6526008.922590	1791350.504040	245114	1266	sf	79	cf
Infiltration BMP	Existing	9030 IOWA	8/29/2007	6523719.000250	6523719.000250	1797706.215730	245114	1266	sf	79	cf
Infiltration BMP	Existing	9036 IOWA	1/23/2006	6523761.535660	6523761.535660	1797679.990250	245114	1266	sf	79	cf
Infiltration BMP	Existing	7214 IRWINGROVE	2/7/2008	6517736.835580	6517736.835580	1807424.228480	246104	1266	sf	79	cf
Infiltration BMP	Existing	7425 IRWINGROVE	11/22/2005	6519037.305040	6519037.305040	1806826.286520	246102	1266	sf	79	cf
Infiltration BMP	Existing	7431 IVO	5/23/2005	6520452.019960	6520452.019960	1808862.657860	246106	1266	sf	79	cf
Infiltration BMP	Existing	12258 IZETTA	11/19/2008	6524718.529730	6524718.529730	1793607.751080	245114	1266	sf	79	cf
Infiltration BMP	Existing	11427 JULIUS	10/6/2005	6517068.729490	6517068.729490	1802337.821610	246079	1266	sf	79	cf
Infiltration BMP	Existing	7863 KINGBEE	6/2/2005	6515998.395150	6515998.395150	1797104.463380	246079	1266	sf	79	cf
Infiltration BMP	Existing	10633 LA REINA	6/7/2005	6521844.406030	6521844.406030	1802801.159980	246103	1266	sf	79	cf
Infiltration BMP	Existing	10726 LA REINA	9/20/2005	6521763.725850	6521763.725850	1802369.001800	246103	1266	sf	79	cf
Infiltration BMP	Existing	10717 LAKEWOOD	1/1/2005	6524762.764130	6524762.764130	1800632.321080	245119	1266	sf	79	cf
Infiltration BMP	Existing	13229 LAKEWOOD	8/30/2005	6518145.854860	6518145.854860	1789091.323220	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8248 LANKIN	5/16/2007	6517152.534650	6517152.534650	1794608.293130	246077	1266	sf	79	cf
Infiltration BMP	Existing	13413 LAURELDALE	9/4/2007	6516097.983610	6516097.983610	1789503.029570	245524	1266	sf	79	cf
Infiltration BMP	Existing	9040 LEMORAN	9/16/2005	6529896.207920	6529896.207920	1805874.052840	245125	1266	sf	79	cf
Infiltration BMP	Existing	10225 LESTERFORD	12/22/2005	6530244.844140	6530244.844140	1800567.187010	245126	1266	sf	79	cf
Infiltration BMP	Existing	10415 LESTERFORD	6/22/2010	6529502.521580	6529502.521580	1799500.525910	245126	1266	sf	79	cf
Infiltration BMP	Existing	10730 LESTERFORD	6/8/2005	6528927.837490	6528927.837490	1798058.051080	245126	1266	sf	79	cf
Infiltration BMP	Existing	8020 LUBEC	3/8/2007	6523117.786070	6523117.786070	1806398.918760	246103	1266	sf	79	cf
Infiltration BMP	Existing	9230 LUBEC	9/30/2005	6528205.943320	6528205.943320	1803519.420650	245125	1266	sf	79	cf
Infiltration BMP	Existing	7259 LUXOR	1/1/2007	6514801.884280	6514801.884280	1801808.218080	246079	1266	sf	79	cf
Infiltration BMP	Existing	7315 LUXOR	3/16/2006	6514953.117040	6514953.117040	1801695.155730	246079	1266	sf	79	cf
Infiltration BMP	Existing	8444 LUXOR	11/10/2005	6520775.356850	6520775.356850	1797851.842110	245114	1266	sf	79	cf
Infiltration BMP	Existing	9102 MANZANAR	7/20/2005	6527192.246670	6527192.246670	1807219.965690	246103	1266	sf	79	cf
Infiltration BMP	Existing	10434 MANZANAR	6/7/2005	6523771.930100	6523771.930100	1803007.033470	245119	1266	sf	79	cf
Infiltration BMP	Existing	11109 MARBEL	7/20/2006	6523692.717760	6523692.717760	1799490.635090	245119	1266	sf	79	cf
Infiltration BMP	Existing	12108 MARBEL	1/31/2006	6521445.538760	6521445.538760	1795214.942010	245115	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7830 MELVA	1/1/2006	6515802.415360	6515802.415360	1797387.108860	246079	1266	sf	79	cf
Infiltration BMP	Existing	7844 MELVA	1/5/2006	6515910.196660	6515910.196660	1797321.983490	246079	1266	sf	79	cf
Infiltration BMP	Existing	12120 MORNING	8/14/2008	6516533.621320	6516533.621320	1797558.681060	246079	1266	sf	79	cf
Infiltration BMP	Existing	7339 NADA	7/8/2005	6514489.286480	6514489.286480	1800567.411080	246079	1266	sf	79	cf
Infiltration BMP	Existing	7351 NADA	6/23/2008	6514590.536380	6514590.536380	1800503.774190	246079	1266	sf	79	cf
Infiltration BMP	Existing	8202 NADA	1/9/2006	6518631.371590	6518631.371590	1797835.542430	245115	1266	sf	79	cf
Infiltration BMP	Existing	7415 NOREN	7/26/2005	6520794.671000	6520794.671000	1809286.272790	246111	1266	sf	79	cf
Infiltration BMP	Existing	9921 NORLAIN	11/3/2008	6519614.140210	6519614.140210	1807835.435830	246111	1266	sf	79	cf
Infiltration BMP	Existing	8127 ORANGE	6/23/2010	6517401.744430	6517401.744430	1796403.841780	246077	1266	sf	79	cf
Infiltration BMP	Existing	9554 ORIZABA	8/19/2005	6524235.753500	6524235.753500	1806817.618650	246103	1266	sf	79	cf
Infiltration BMP	Existing	12333 ORIZABA	1/23/2006	6517077.475660	6517077.475660	1795538.435260	246077	1266	sf	79	cf
Infiltration BMP	Existing	10834 PANGBORN	9/17/2007	6527760.431910	6527760.431910	1798051.772160	245119	1266	sf	79	cf
Infiltration BMP	Existing	7156 PELLET	6/22/2010	6515507.126970	6515507.126970	1804695.751890	246104	1266	sf	79	cf
Infiltration BMP	Existing	9466 PELLET	5/26/2005	6527082.799410	6527082.799410	1797550.782940	245119	1266	sf	79	cf
Infiltration BMP	Existing	10238 PICO VISTA	7/22/2008	6530559.495000	6530559.495000	1800212.246520	245126	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	7706 PIVOT	6/18/2010	6517776.543940	6517776.543940	1802077.153370	246079	1266	sf	79	cf
Infiltration BMP	Existing	11951 POMERING	6/18/2010	6515072.562230	6515072.562230	1799936.867790	246079	1266	sf	79	cf
Infiltration BMP	Existing	12010 POMERING	9/20/2005	6514897.027930	6514897.027930	1799318.472210	246079	1266	sf	79	cf
Infiltration BMP	Existing	7803 PURITAN	6/22/2010	6513186.710850	6513186.710850	1793767.422040	246077	1266	sf	79	cf
Infiltration BMP	Existing	8249 QUOIT	5/17/2007	6517406.484080	6517406.484080	1795006.472870	246077	1266	sf	79	cf
Infiltration BMP	Existing	8506 RAVILLER	6/22/2010	6526200.032280	6526200.032280	1805944.598850	246103	1266	sf	79	cf
Infiltration BMP	Existing	9441 RAVILLER	10/7/2005	6529831.524430	6529831.524430	1803323.207760	245125	1266	sf	79	cf
Infiltration BMP	Existing	7110 RIO FLORA	6/1/2010	6515643.202310	6515643.202310	1805187.382260	246104	1266	sf	79	cf
Infiltration BMP	Existing	7371 RIO HONDO PL	7/11/2005	6517283.740950	6517283.740950	1804924.767440	246104	1266	sf	79	cf
Infiltration BMP	Existing	10802 RIVES	3/23/2007	6519422.470020	6519422.470020	1803623.413330	246102	1266	sf	79	cf
Infiltration BMP	Existing	11916 RIVES	2/6/2007	6516737.168290	6516737.168290	1799258.165990	246079	1266	sf	79	cf
Infiltration BMP	Existing	10912 RYERSON	7/14/2005	6515882.754330	6515882.754330	1804962.955590	246104	1266	sf	79	cf
Infiltration BMP	Existing	9505 SAMOLINE	6/21/2010	6523279.038200	6523279.038200	1807936.970620	246106	1266	sf	79	cf
Infiltration BMP	Existing	9631 SAMOLINE	9/4/2007	6522855.010000	6522855.010000	1807250.890000	246103	1266	sf	79	cf
Infiltration BMP	Existing	12030 SAMOLINE	9/23/2005	6517133.868790	6517133.868790	1798177.361600	246079	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	12238 SAMOLINE	9/8/2006	6516738.176240	6516738.176240	1796883.684630	246079	1266	sf	79	cf
Infiltration BMP	Existing	7915 SECOND	3/23/2006	6519374.854020	6519374.854020	1802382.905560	246102	1266	sf	79	cf
Infiltration BMP	Existing	7816 SEVENTH	3/27/2007	6519884.790380	6519884.790380	1804163.292550	246102	1266	sf	79	cf
Infiltration BMP	Existing	8646 SEVENTH	1/3/2006	6524439.566780	6524439.566780	1801605.289810	245119	1266	sf	79	cf
Infiltration BMP	Existing	9225 SIDEVIEW	4/24/2006	6531114.889310	6531114.889310	1804872.365930	245127	1266	sf	79	cf
Infiltration BMP	Existing	8810 SMALLWOOD	6/20/2005	6524153.815510	6524153.815510	1810188.858090	246106	1266	sf	79	cf
Infiltration BMP	Existing	9264 SONGFEST	6/10/2008	6531394.983570	6531394.983570	1804360.661210	245127	1266	sf	79	cf
Infiltration BMP	Existing	7838 SPRINGER	11/21/2006	6515530.871940	6515530.871940	1796818.950680	246079	1266	sf	79	cf
Infiltration BMP	Existing	7844 SPRINGER	3/18/2008	6515582.250000	6515582.250000	1796787.835000	246079	1266	sf	79	cf
Infiltration BMP	Existing	10517 STAMPS	8/18/2005	6522812.240000	6522812.240000	1803043.757460	246103	1266	sf	79	cf
Infiltration BMP	Existing	9520 STEWART & GRAY	2/27/2009	6526628.650930	6526628.650930	1796061.800920	245118	1266	sf	79	cf
Infiltration BMP	Existing	8840 STOAKES	7/15/2005	6527643.045070	6527643.045070	1808263.273840	245125	1266	sf	79	cf
Infiltration BMP	Existing	11831 SUSAN	5/25/2006	6514568.915250	6514568.915250	1801466.560490	246079	1266	sf	79	cf
Infiltration BMP	Existing	8354 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8356 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8358 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8360 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8362 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8364 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8366 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	8368 TELEGRAPH	1/5/2004	6526800.000000	6526800.000000	1809400.000000	246106	1266	sf	79	cf
Infiltration BMP	Existing	7420 THIRD	9/20/2007	6517202.761340	6517202.761340	1803926.714420	246102	1266	sf	79	cf
Infiltration BMP	Existing	7964 THIRD	2/21/2006	6519886.681280	6519886.681280	1802225.378910	246102	1266	sf	79	cf
Infiltration BMP	Existing	9532 TWEEDY	4/20/2007	6523025.939870	6523025.939870	1807743.953100	246106	1266	sf	79	cf
Infiltration BMP	Existing	7347 VIA RIO NIDO	8/1/2007	6518199.953350	6518199.953350	1806523.073370	246104	1266	sf	79	cf
Infiltration BMP	Existing	10419 WILEY BURKE	1/2/2008	6519382.492080	6519382.492080	1805731.311650	246102	1266	sf	79	cf
Infiltration BMP	Existing	10442 WILEY BURKE	1/1/2007	6519428.439440	6519428.439440	1805422.866650	246102	1266	sf	79	cf
Infiltration BMP	Existing	12639 WOODRUFF	12/22/2006	6526127.737740	6526127.737740	1791800.878460	245113	1266	sf	79	cf
Infiltration BMP	Existing	12356 DOWNEY	4/29/2004	6518006.757310	6518006.757310	1794978.083160	245115	5062	sf	316	cf
Infiltration BMP	Existing	10613 NEWVILLE	4/21/2004	6528761.027810	6528761.027810	1798786.621380	245126	2531	sf	158	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	10627 OLD RIVER SCHOOL	7/24/2003	6515233.048270	6515233.048270	1805631.128330	246104	174752	sf	10922	cf
Infiltration BMP	Existing	9215 HALL	12/9/2002	6524758.793890	6524758.793890	1797647.866960	245113	74592	sf	4662	cf
Infiltration BMP	Existing	10933 LAKEWOOD BLVD	10/5/2005	6524600.000000	6524600.000000	1800100.000000	245119	6400	sf	400	cf
Infiltration BMP	Existing	12322 SAMOLINE	7/8/2005	6516301.814120	6516301.814120	1796169.128220	246077	4256	sf	266	cf
Infiltration BMP	Existing	12731 LAKEWOOD	9/17/2003	6519215.285000	6519215.285000	1791371.090000	245115	2128	sf	133	cf
Infiltration BMP	Existing	12739 LAKEWOOD	9/17/2003	6519200.000000	6519200.000000	1791100.000000	245115	2128	sf	133	cf
Infiltration BMP	Existing	8927 BIRCHLEAF	7/11/2006	6527008.160170	6527008.160170	1808327.449830	246103	1056	sf	66	cf
Infiltration BMP	Existing	11929 POMERING	5/1/2006	6515108.241040	6515108.241040	1800149.473170	246079	1056	sf	66	cf
Infiltration BMP	Existing	12240 WOODRUFF	3/19/2010	6526758.991120	6526758.991120	1793878.747920	245118	300224	sf	18764	cf
Infiltration BMP	Existing	12222 WOODRUFF	9/14/2009	6526625.121210	6526625.121210	1794009.479990	245118	70200	sf	4388	cf
Infiltration BMP	Existing	7624 FIRESTONE	1/1/2008	6517500.000000	6517500.000000	1802600.000000	246079	41632	sf	2602	cf
Infiltration BMP	Existing	7714 STEWART & GRAY	4/9/2007	6516397.756580	6516397.756580	1799563.749470	246079	30016	sf	1876	cf
Infiltration BMP	Existing	9637 LAKEWOOD	10/2/2008	6526780.802630	6526780.802630	1805111.536210	245125	15136	sf	946	cf
Infiltration BMP	Existing	12428 BENEDICT	6/14/2007	6525687.022380	6525687.022380	1792528.538110	245114	8080	sf	505	cf
Infiltration BMP	Existing	7774 DINSDALE	2/14/2014	6521332.495780	6521332.495780	1806385.183840	246103	4680	sf	293	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMP	Existing	8030 IMPERIAL HWY	2/14/2014	6515729.368090	6515729.368090	1794471.493939	246077	41789	sf	2000	cf
Infiltration BMP	Existing	9623 IMPERIAL HWY	2/14/2014	6524482.209740	6524482.209740	1792569.983950	245114	35408	sf	2213	cf
Infiltration BMP	Existing	10531 LAKEWOOD BL	2/14/2014	6525178.634060	6525178.634060	1801497.338680	245119	5840	sf	365	cf
Infiltration BMP	Existing	8121 FOURTH ST	2/14/2014	6521147.926450	6521147.926450	1802216.858440	246103	4680	sf	293	cf
Infiltration BMP	Existing	8123 FOURTH ST	2/14/2014	6521147.926450	6521147.926450	1802216.858440	246103	4680	sf	293	cf
Infiltration BMP	Existing	8555 TENTH ST	2/14/2014	6524962.328390	6524962.328390	1803501.510410	245119	4680	sf	293	cf
Infiltration BMP	Existing	9356 BUELL ST	2/14/2014	6527425.774610	6527425.774610	1799078.145910	245126	3120	sf	195	cf
Infiltration BMP	Existing	8449 COLE ST	2/14/2014	6520362.597670	6520362.597670	1796910.373080	245115	1560	sf	98	cf

D1.3. City of Lakewood

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Filterra Tree Wells (2)		Paramount & Arbor	33.843398	-118.159673	445521				
Infiltration BMP	Existing	Retention Basin at Cherry Cove Park			33.850296	-118.165478	446014				

D1.4. City of Paramount

Type of BMP	Existing or Planned ?	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioswales	Existing	Landscape Swale	2012	Texaco/Alondra	33.889066	-118.171849	606071	37,500	sf	2109	cf
Bioswales	Existing	Landscape Swale	2012	Orange/Windmill	33.891602	-118.177436	606072	0.6	ac	1470	cf

D1.5. City of Pico Rivera

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Site-Scale Detention Basin	Existing	French drains at Smith Park	2013	6016 Rosemead Blvd				16	ac		
Site-Scale Detention Basin	Existing	French drains at Rio Vista	2013	Coffman Pico Road				7	ac		
Bioswales	Existing	Beverly Boulevard medians	2012	Beverly Blvd				5280	sf		
Permeable Pavement	Existing	Pico Park permeable pavement	2012	9528 Beverly Blvd				12	ac		
Bioswales	Existing	Telegraph Road medians	2013	Telegraph Rd from Rosemead Blvd to Eastside limit				5280	sf		
Bioswales	Planned	Paramount Blvd medians	2016	Paramount Blvd from Whittier Blvd to Mines Ave				5280	sf		
Infiltration BMPs	Planned	Two (2) Filterra Systems	2016	various				1	ac		
Infiltration BMPs	Existing	City of Pico Rivera City Hall	2011	8615 Passons Blvd				2.75	ac		
Infiltration BMPs	Existing	Rivera Park	2012	9530 Shade Lane				16	ac		

D1.6. City of Signal Hill

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration		Palm Drive Business Center	2/19/2008	2445 N Palm Drive	33.801973	-118.157962	775510	1	ac		
Bioretention / Biofiltration		Aragon Townhomes & Duplexes (City View)	3/9/2007	1902 (1890) Oribaza Ave	33.790924	-118.156725	776003	93,780	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2755 California Avenue	33.807881	-118.181769	776011	9,583	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2756 California Avenue	33.807881	-118.181769	776011	17,424	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2757 California Avenue	33.807881	-118.181769	776011	33,106	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2758 California Avenue	33.807881	-118.181769	776011	10,454	sf		
Bioretention / Biofiltration		EDCO Recycling & Transfer		2759 California Avenue	33.807881	-118.181769	776011	78,486	sf		
Bioretention / Biofiltration		2-Story Building and Parking Lot	12/28/2010	2653 Walnut Avenue	33.805754	-118.171978	776012	0.51	ac		
Bioretention / Biofiltration		EDCO Administrative Terminal	8/1/2011	950 27th Street	33.806179	-118.1812	776012	9583	sf	0.06	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/2/2011	951 27th Street	33.806179	-118.1812	776012	17424	sf	0.08	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/3/2011	952 27th Street	33.806179	-118.1812	776012	33106	sf	0.14	cfs
Bioretention / Biofiltration		EDCO Administrative Terminal	8/4/2011	953 27th Street	33.806179	-118.1812	776012	10454	sf	0.08	cfs
Bioretention / Biofiltration		Fantasy Castle	6/30/2009	2801 Walnut Ave	33.808289	118.171777		1,584	sf		
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/16/2010	3300 Atlantic Avenue	33.817504	-118.184643	485510	18,000	sf	931	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/17/2010	3301 Atlantic Avenue	33.817504	-118.184643	485510	120	sf	7	cf
Bioswales	Existing	Fresh and Easy Neighborhood Market	11/18/2010	3302 Atlantic Avenue	33.817504	-118.184643	485510	10,904	sf	542	cf
Bioswales	Existing	Signal Hill Police Station and Emergency Operation	5/26/2011	2745 Walnut Avenue	33.807067	-118.171984	775510	115,870	sf		
Bioswales	Existing	Jack in the Box	10/21/2008	802 Spring Street	33.812049	-118.182595	775510	12,000	sf		
Bioswales		Boiler Tech Warehouse	10/2/2009	2503 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Bioswales		Aragon Townhomes & Duplexes (City View)	3/11/2007	1904 (1890) Oribaza Ave	33.790924	-118.156725	776003	31,100	sf		
Bioswales		Fantasy Castle	6/29/2009	2800 Walnut Ave	33.808289	118.171777		32,883	sf		
Flow-Through Treatment BMP	Existing	Petco, Party City	3/3/2009	3100 Atlantic Ave	33.813946	-118.184789	485510				
Flow-Through Treatment BMP	Existing	Petco, Party City	3/4/2009	3101 Atlantic Ave	33.813946	-118.184789	485510				
Flow-Through Treatment BMP	Existing	The Home Depot		3100 Atlantic Avenue	33.813946	-118.184789	485510	3.65	ac		
Flow-Through Treatment BMP	Existing	The Home Depot		3101 Atlantic Avenue	33.813946	-118.184789	485510	7.99	ac		
Flow-Through Treatment BMP	Existing	The Home Depot		3102 Atlantic Avenue	33.813946	-118.184789	485510	3.28	ac		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	The Home Depot		3103 Atlantic Avenue	33.813946	-118.184789	485510	4.79	ac		
Flow-Through Treatment BMP		Palm Drive Business Center	2/20/2008	2446 N Palm Drive	33.801973	-118.157962	775510	7,000	sf		
Flow-Through Treatment BMP	Existing	Fresh & Easy	11/17/2009	2475 Cherry Avenue	33.802363	-118.168152	775510	0.68	ac		
Flow-Through Treatment BMP	Existing	Fresh & Easy	11/18/2009	2476 Cherry Avenue	33.802363	-118.168152	775510	0.58	ac		
Flow-Through Treatment BMP	Existing	US Bank	9/17/2008	2615 Cherry Ave	33.804856	-118.167999	775510	18732	sf		
Flow-Through Treatment BMP	Existing	Signal Hill Industrial Center		2665-2745 Temple Ave	33.80648	-118.159782	775510	143,312	sf		
Flow-Through Treatment BMP	Existing	Tanker Interior Washing Facility		1710 E 29th Street	33.80935	-118.170824	775510	10,000	sf		
Flow-Through Treatment BMP	Existing	Delius Restaurant	7/14/2006	2951 Cherry Ave	33.81111	-118.168077	775510	32,000	sf		
Flow-Through Treatment BMP	Existing	Jack in the Box	10/20/2008	801 Spring Street	33.812049	-118.182595	775510	12,000	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Target (T-2319)	2/13/2007	950 E 33rd Street	33.816767	-118.181488	775510	178,600	sf		
Flow-Through Treatment BMP	Existing	Hawk Industries	5/8/2007	1245 E. 23rd Street	33.799126	-118.17577	776002	27,322	sf		
Flow-Through Treatment BMP	Existing	Hawk Industries	5/9/2007	1246 E. 23rd Street	33.799126	-118.17577	776002	1575	sf		
Flow-Through Treatment BMP		Boiler Tech Warehouse	9/30/2009	2501 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Flow-Through Treatment BMP	Existing	Las Brisas II Community Housing	1/11/2006	2400-2418 California Ave	33.803504	-118.180639	776002	16,247	sf		
Flow-Through Treatment BMP	Existing	Las Brisas II Community Housing	1/12/2006	2400-2418 California Ave	33.803504	-118.180639	776002	25,047	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/5/2005	2550 Gundry Ave	33.803577	-118.173289	776002	61,000	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/6/2005	2551 Gundry Ave	33.803577	-118.173289	776002	30,492	sf		
Flow-Through Treatment BMP	Existing	Villagio	12/7/2005	2552 Gundry Ave	33.803577	-118.173289	776002	4,356	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP		Aragon Townhomes & Duplexes (City View)	3/6/2007	1899 (1890) Oribaza Ave	33.790924	-118.156725	776003	31,350	sf		
Flow-Through Treatment BMP		Aragon Townhomes & Duplexes (City View)	3/7/2007	1900 (1890) Oribaza Ave	33.790924	-118.156725	776003	63,400	sf		
Flow-Through Treatment BMP		In-N-Out Burger	5/27/2011	799 E. Spring Street	33.812066	-118.183197	776011	65,220	sf		
Flow-Through Treatment BMP		Shoreline Fabricators	8/1/2007	2652 Gundry Ave	33.805493	-118.173804	776012	16,300	sf		
Flow-Through Treatment BMP		Shoreline Fabricators	8/2/2007	2653 Gundry Ave	33.805493	-118.173804	776012	1,395	sf		
Flow-Through Treatment BMP		2-Story Building and Parking Lot	12/29/2010	2654 Walnut Avenue	33.805754	-118.171978	776012				
Flow-Through Treatment BMP		Islamic Center	5/29/2009	996 27th St	33.806216	-118.180729	776012	5000	sf		
Flow-Through Treatment BMP		Crescent Square Development	8/10/2007	1600-1799 Green House Place				136,955	sf		
Infiltration BMPs	Existing	Fresh & Easy	11/19/2009	2477 Cherry Avenue	33.802363	-118.168152	775510	76,143	sf		
Infiltration BMPs	Existing	US Bank	9/19/2008	2617 Cherry Ave	33.804856	-118.167999	775510	18732	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs	Planned	Applebee's	3/12/2013	899 E. Spring Street	33.812089	-118.181855	775510	23,580	sf		
Infiltration BMPs	Existing	Hawk Industries	5/10/2007	1247 E. 23rd Street	33.799126	-118.17577	776002	27,322	sf		
Infiltration BMPs		Boiler Tech Warehouse	10/1/2009	2502 Cerritos Avenue	33.802564	-118.177391	776002	6,754	sf		
Infiltration BMPs		Pacific Walk	1/4/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	100,200	sf		
Infiltration BMPs		Pacific Walk	1/5/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	149,015	sf		
Infiltration BMPs		Pacific Walk	1/6/2011	PCH and Orizaba Avenue	33.789847	-118.156748	776003	1,300	sf		
Infiltration BMPs		Aragon Townhomes & Duplexes (City View)	3/8/2007	1901 (1890) Oribaza Ave	33.790924	-118.156725	776003	94,750	sf		
Infiltration BMPs		Aragon Townhomes & Duplexes (City View)	3/10/2007	1903 (1890) Oribaza Ave	33.790924	-118.156725	776003	93,780	sf		
Infiltration BMPs	Planned	Willow Street Medical Office Building	12/9/2013	845 E. Willow Street	33.804664	-118.182279	776009	22,651	sf	1095	cf
Infiltration BMPs	Planned	Willow Street Medical Office Building	12/10/2013	846 E. Willow Street	33.804664	-118.182279	776009	37,304	sf	1890	cf
Infiltration BMPs		In-N-Out Burger	5/28/2011	800 E. Spring Street	33.812066	-118.183197	776011	65,220	sf	3425	cf
Infiltration BMPs		Shoreline Fabricators	8/3/2007	2654 Gundry Ave	33.805493	-118.173804	776012	16,300	sf		
Infiltration BMPs		Islamic Center	5/28/2009	995 27th St	33.806216	-118.180729	776012	5000	sf		
Infiltration BMPs	Existing	A & A Ready Mix Concrete	8/1/2007	900 E. Patterson	33.806664	-118.182206	776012	2	ac		
Permeable Pavement	Existing	US Bank	9/18/2008	2616 Cherry Ave	33.804856	-118.167999	775510	60	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Permeable Pavement	Existing	Hawk Industries	5/11/2007	1248 E. 23rd Street	33.799126	-118.17577	776002	5,628	sf		

D1.7. City of South Gate

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration		Self Storage	9/15/2008	2405 Southern Ave	33.953436	-118.229363	796034	0.25	ac		
Bioretention / Biofiltration		Hollydale Plaza	3/30/2010	12222 Garfield Avenue	33.915655	-118.168383	796076	15,278	sf		
Bioretention / Biofiltration		Atlantic Avenue Improvements	4/21/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	7.44	ac		
Bioretention / Biofiltration	Planned	azalea	11/25/2012	4641 Firestone Blvd.	33.952413	-118.187909	796084	7,328	sf	0.22	cfs
Bioswales		South Gate McDonald's	9/30/2013	3313 Tweedy Boulevard	33.945113	-118.211464	796034	5,119	sf		
Bioswales		South Gate McDonald's	10/1/2013	3314 Tweedy Boulevard	33.945113	-118.211464	796034	5,545	sf		
Bioswales		Commercial Center	10/4/2010	9200 Califlornia Avenue	33.950805	-118.206221	796034	12,367	sf		
Bioswales		Commercial Center	10/5/2010	9201 Califlornia Avenue	33.950805	-118.206221	796034	4,263	sf		
Bioswales		Hot Mix Asphalt Plant	5/11/2001	5626 Southern Avenue	33.944913	-118.168148	796083	2.7	ac		
Bioswales		Goals Soccer Centers - South Gate	2/9/2010	9599 Pinehurst Avenue	33.945107	-118.182378	796084	53,142	sf		
Flow-Through Treatment BMP	Existing	South Gate McDonald's	9/26/2013	3309 Tweedy Boulevard	33.945113	-118.211464	796034	2,394	sf		
Flow-Through Treatment BMP		South Gate McDonald's	9/28/2013	3311 Tweedy Boulevard	33.945113	-118.211464	796034	2,436	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Walgreens	7/24/2006	9830 Long Beach	33.946082	-118.215937	796034	48,725	sf		
Flow-Through Treatment BMP	Existing	King's Car Wash	11/29/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034	10,461	sf		
Flow-Through Treatment BMP		King's Car Wash	12/1/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034				
Flow-Through Treatment BMP	Existing	Sarina Townhomes	2/12/2007	9321 State Street	33.950368	-118.21325	796034	14,375	sf		
Flow-Through Treatment BMP		Commercial Center	10/6/2010	9202 Califlornia Avenue	33.950805	-118.206221	796034	16,630	sf		
Flow-Through Treatment BMP		Office Bldg	12/20/2007	3830 Firestone Blvd	33.953324	-118.201934	796034	1,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/21/2007	3831 Firestone Blvd	33.953324	-118.201934	796034	112,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/20/2007	3800 Firestone Blvd	33.95348	-118.202386	796034	1,000	sf		
Flow-Through Treatment BMP		Office Bldg	12/21/2007	3801 Firestone Blvd	33.95348	-118.202386	796034	112,000	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Planned	Calden Court Appartments	9/27/2013	8901 Calden Avenue	33.95515	-118.228736	796034	219,543	sf		
Flow-Through Treatment BMP		Hollydale Plaza	3/31/2010	12223 Garfield Avenue	33.915655	-118.168383	796076	27,381	sf		
Flow-Through Treatment BMP	Existing	Sherwin Inc	4/10/2007	5530 Borwick Ave	33.925749	-118.172611	796082	7,892	sf		
Flow-Through Treatment BMP		Hot Mix Asphalt Plant	5/10/2001	5625 Southern Avenue	33.944913	-118.168148	796083	9.5	ac		
Flow-Through Treatment BMP		Atlantic Avenue Improvements	4/22/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	13.32	ac		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/11/2010	9601 Pinehurst Avenue	33.945107	-118.182378	796084	70,036	sf		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/12/2010	9602 Pinehurst Avenue	33.945107	-118.182378	796084	37,897	sf		
Flow-Through Treatment BMP		Goals Soccer Centers - South Gate	2/13/2010	9603 Pinehurst Avenue	33.945107	-118.182378	796084	63,400	sf		
Flow-Through Treatment BMP	Planned	azalea	11/24/2012	4640 Firestone Blvd.	33.952413	-118.187909	796084	1,583,819	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Flow-Through Treatment BMP	Existing	Interior Removal Specialist Demolition	5/21/2007	9309 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/22/2007	9310 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/23/2007	9311 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Interior Removal Specialist Demolition	5/24/2007	9312 Rayo Ave	33.949331	-118.17896	796089				
Flow-Through Treatment BMP		Petrochem Manufacturing	12/18/2006	8401 Quartz	33.957949	-118.191835	796090	162,305	sf		
Flow-Through Treatment BMP		Petrochem Manufacturing	12/19/2006	8402 Quartz	33.957949	-118.191835	796090	51,401	sf		
Infiltration BMPs		South Gate McDonald's	9/27/2013	3310 Tweedy Boulevard	33.945113	-118.211464	796034	2,394	sf		
Infiltration BMPs		South Gate McDonald's	9/29/2013	3312 Tweedy Boulevard	33.945113	-118.211464	796034	2,436	sf		
Infiltration BMPs		South Gate McDonald's	10/4/2013	3317 Tweedy Boulevard	33.945113	-118.211464	796034	3,743	sf		
Infiltration BMPs		King's Car Wash	11/30/2006	9801-9807 Long Beach Blvd	33.946452	-118.216775	796034	3,047	sf		
Infiltration BMPs		Sarina Townhomes	2/13/2007	9322 State Street	33.950368	-118.21325	796034	17,519	sf		

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs		Office Bldg	12/22/2007	3832 Firestone Blvd	33.953324	-118.201934	796034	112,000	sf		
Infiltration BMPs		Office Bldg	12/22/2007	3802 Firestone Blvd	33.95348	-118.202386	796034	112,000	sf		
Infiltration BMPs	Existing	Family Dollar	10/8/2012	3610 Firestone	33.95374	-118.204546	796034		sf		
Infiltration BMPs	Planned	Calden Court Appartments	9/28/2013	8902 Calden Avenue	33.95515	-118.228736	796034	219,543	sf		
Infiltration BMPs		South Gate Ward Building New Parking Lot	10/15/2010	2771 Liberty Boulevard	33.961969	-118.220918	796034	14,811	sf		
Infiltration BMPs		Sherwin Inc	4/11/2007	5531 Borwick Ave	33.925749	-118.172611	796082	7,892	sf		
Infiltration BMPs		Atlantic Avenue Improvements	4/23/2010	Atlantice from Abbott to Firestone	33.943066	-118.181112	796084	22,400	sf		
Infiltration BMPs		Batting Cages	11/4/2010	9599 Pinehurst Avenue	33.945107	-118.182378	796084	7,953	sf		
Infiltration BMPs		Goals Soccer Centers - South Gate	2/10/2010	9600 Pinehurst Avenue	33.945107	-118.182378	796084	113	sf		
Infiltration BMPs		Goals Soccer Centers - South Gate	2/14/2010	9604 Pinehurst Avenue	33.945107	-118.182378	796084	171,333	sf		
Infiltration BMPs	Planned	azalea	11/19/2012	4635 Firestone Blvd.	33.952413	-118.187909	796084	444,636	sf	31,365	cf
Infiltration BMPs	Planned	azalea	11/20/2012	4636 Firestone Blvd.	33.952413	-118.187909	796084	110,869	sf	12,946	cf
Infiltration BMPs	Planned	azalea	11/21/2012	4637 Firestone Blvd.	33.952413	-118.187909	796084	582,860	sf	72,234	cf
Infiltration BMPs	Planned	azalea	11/22/2012	4638 Firestone Blvd.	33.952413	-118.187909	796084	222,727	sf	25,348	cf
Infiltration BMPs	Planned	azalea	11/23/2012	4639 Firestone Blvd.	33.952413	-118.187909	796084	222,727	sf	64,314	cf

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Infiltration BMPs	Existing	New South Central Properties, LLC	5/28/2009	8600 Rheem Ave	33.955566	-118.192042	796084	20,960	sf		
Infiltration BMPs		LA Water	8/4/2010	9415 Burtis	33.947369	-118.176109	796350	154,538	sf		
Permeable Pavement		South Gate McDonald's	10/2/2013	3315 Tweedy Boulevard	33.945113	-118.211464	796034	8,697	sf		
Permeable Pavement		South Gate McDonald's	10/3/2013	3316 Tweedy Boulevard	33.945113	-118.211464	796034	3,550	sf		

D1.8. City of Whittier

Type of BMP	Existing or Planned	BMP Name	Year Constructed or Planned	Location (Lat/long, or cross streets)	Latitude	Longitude	Sub-watershed	Contributing Area	Unit	Total Capture Volume or Flow Rate	Unit
Bioretention / Biofiltration	Planned	GWT Biolswale	2014	Greenway Trail from to	33.972121	-118.044253	895098				
Bioretention / Biofiltration	Planned	Whittier Blvd Widening and Bioswale	2017	Whittier Blvd from to							
Green Streets (Describe)	Planned	Lower Uptown reverse drains	2014	Milton, Newlin, Comstock from La Cuarta to Walnut	33.970199	-118.039721	895098		TBD		TBD
Site-Scale Detention Basin	Existing	Police Building and City Hall Storm Drainage	2010	13230 Penn St	33.974748	-118.03371	895098				

Attachment E: SUPPORTING CALIBRATION DATA

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

Tetra Tech
9444 Balboa Ave., Suite 215
San Diego, CA 92123

January 15, 2015

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1. Lower San Gabriel River

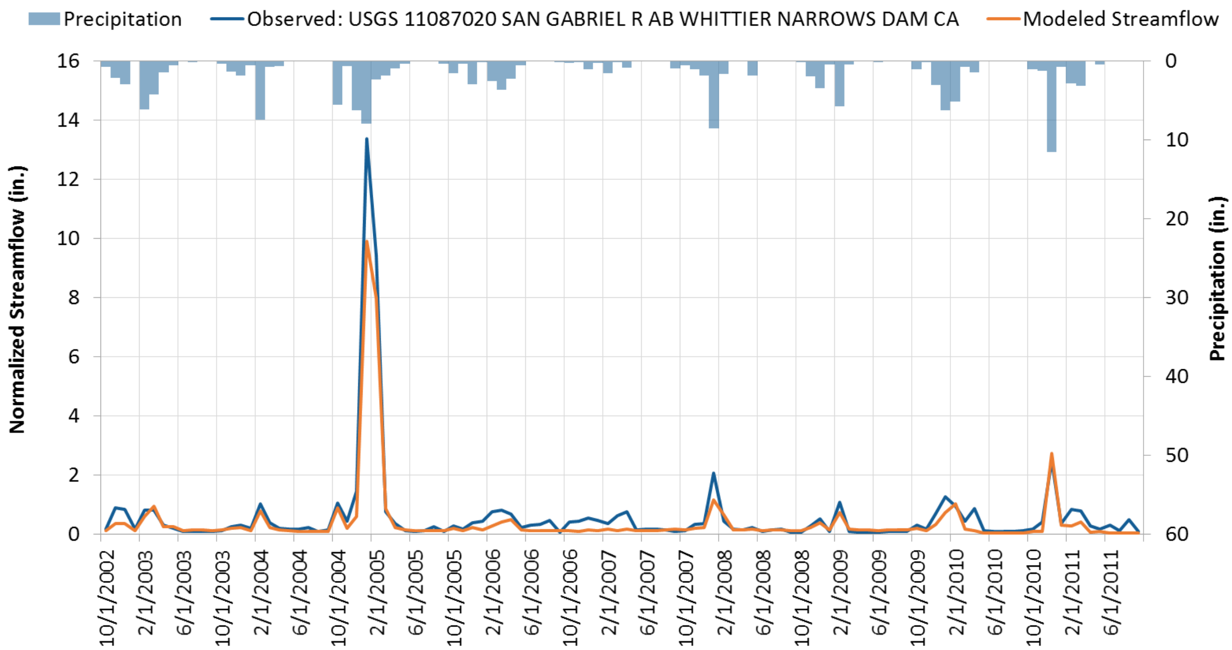


Figure 1. Monthly hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

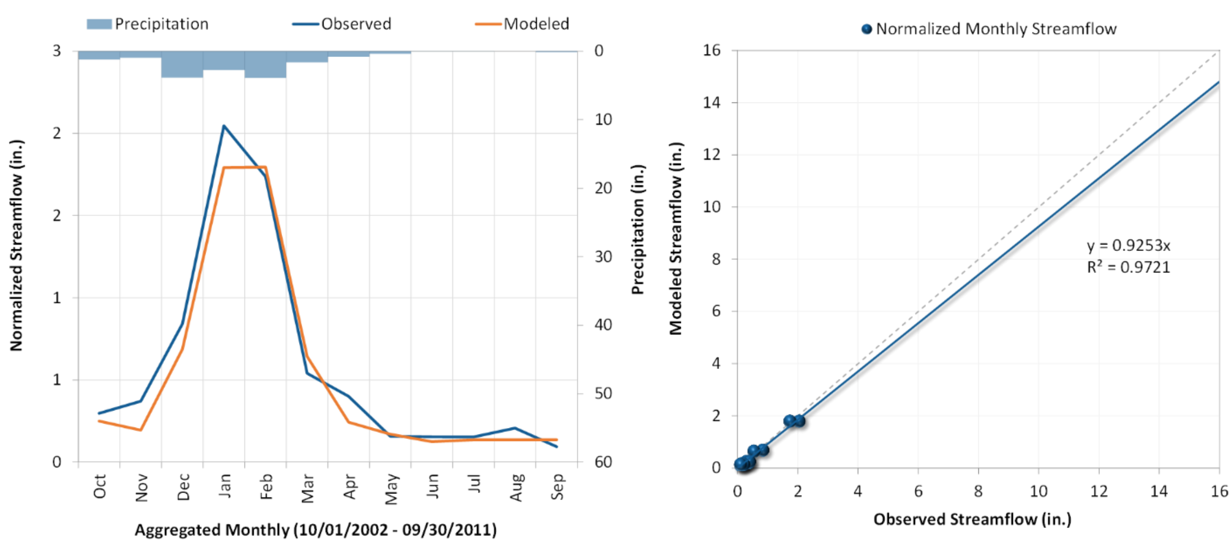


Figure 2. Aggregated monthly hydrograph for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

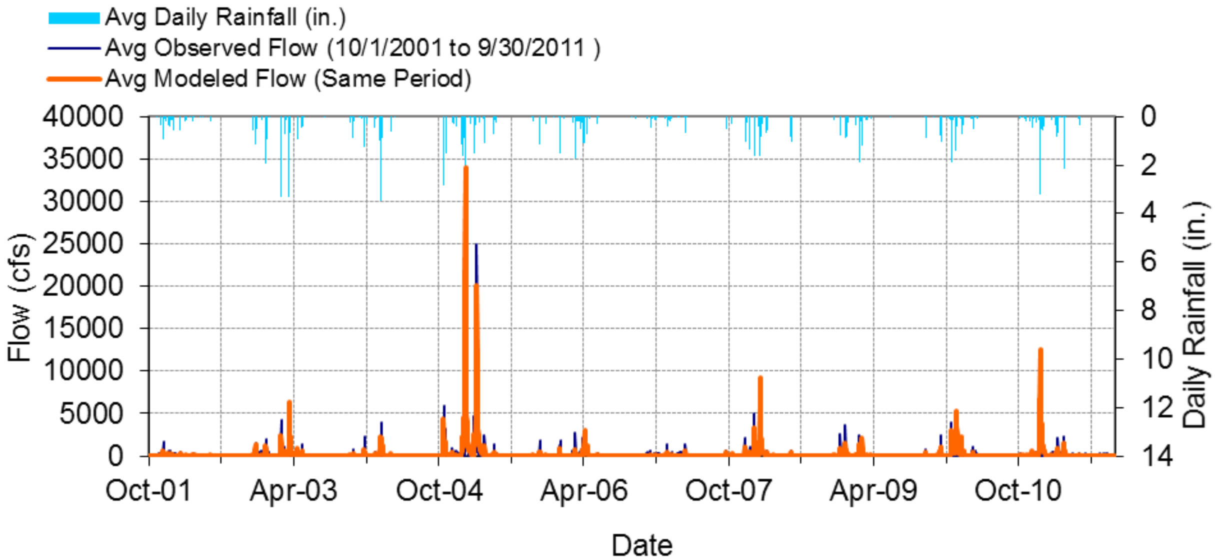


Figure 3. Mean daily flow for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

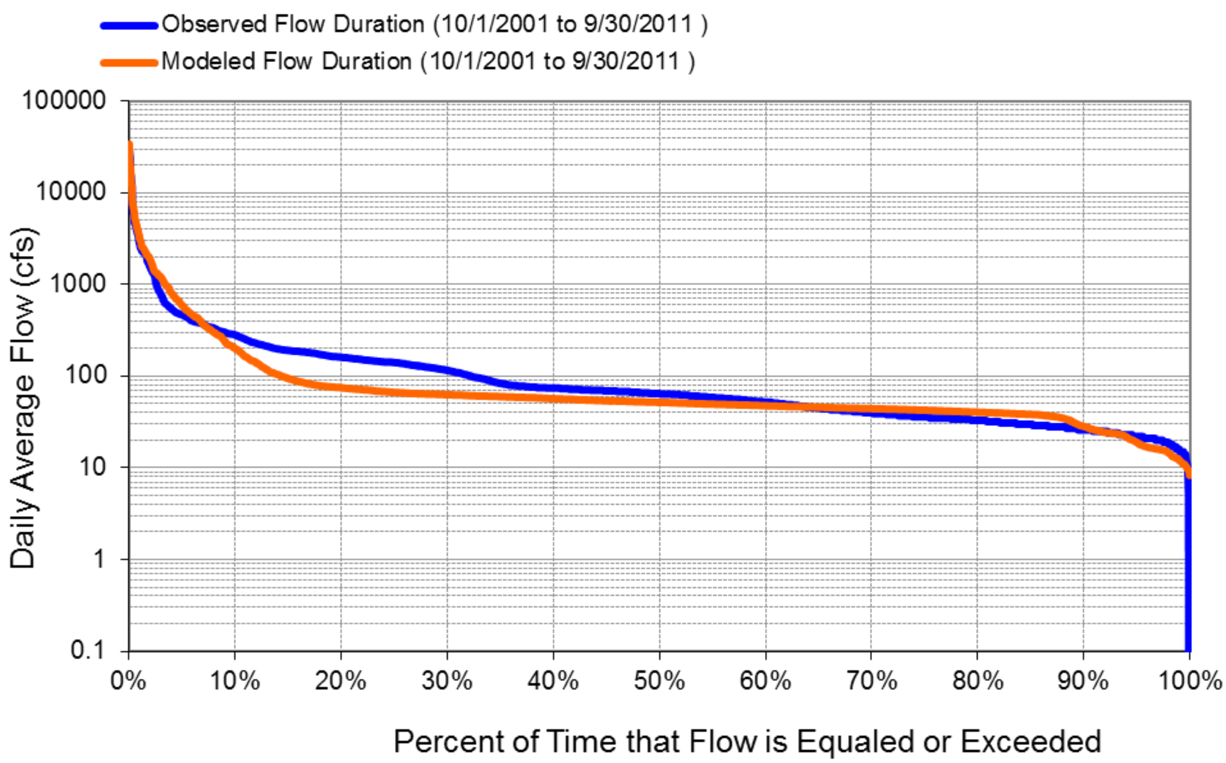


Figure 4. Daily flow exceedance for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

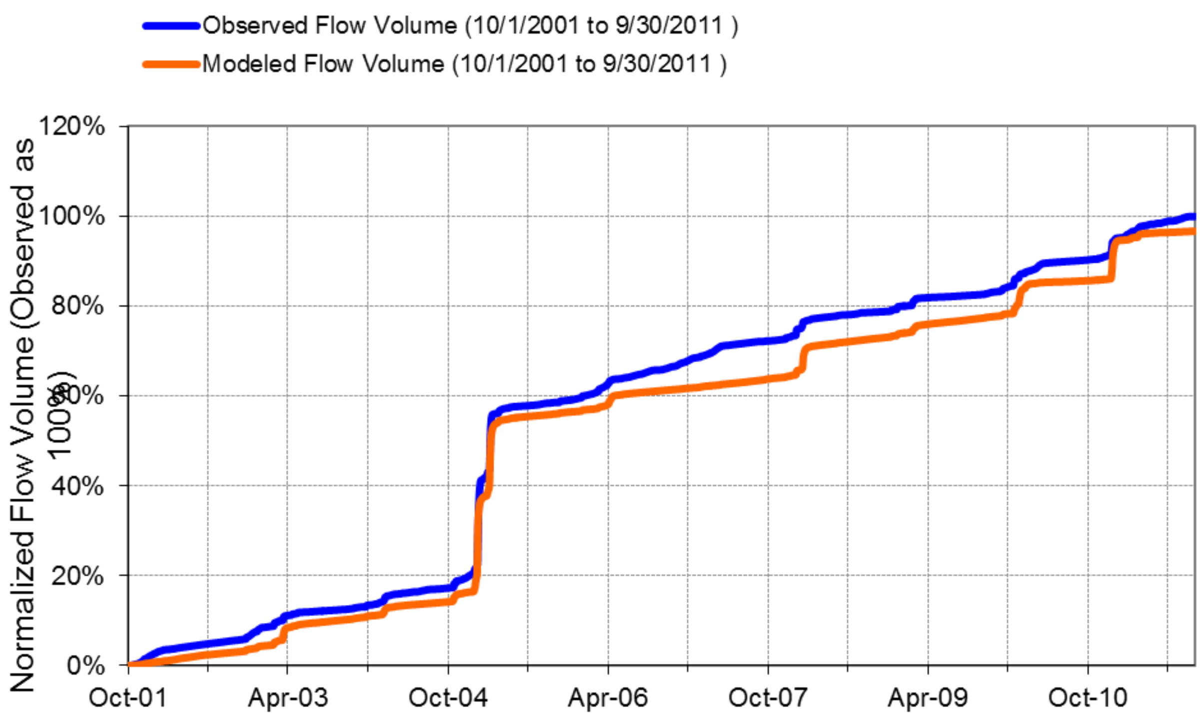


Figure 5. Flow accumulation for USGS 11087020 SAN GABRIEL R AB WHITTIER NARROWS DAM CA (10/1/2002 – 9/30/2011).

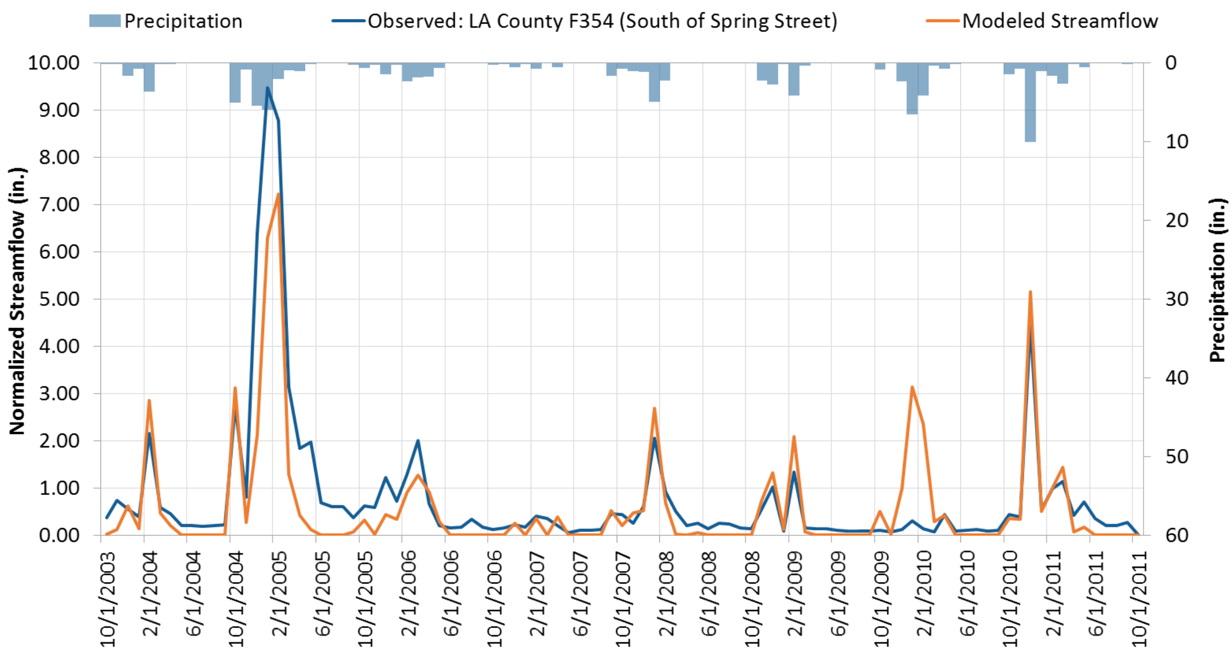
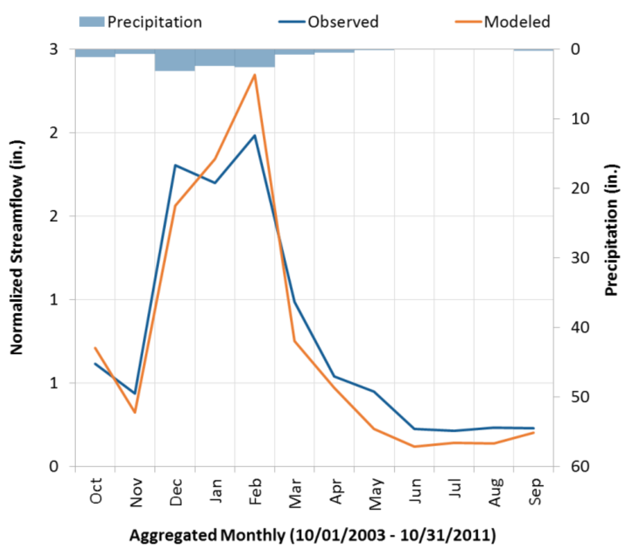


Figure 6. Monthly hydrograph for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.



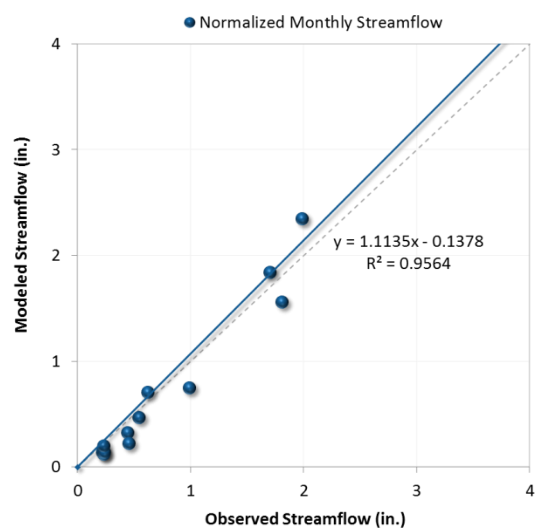


Figure 7. Aggregated monthly hydrograph for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

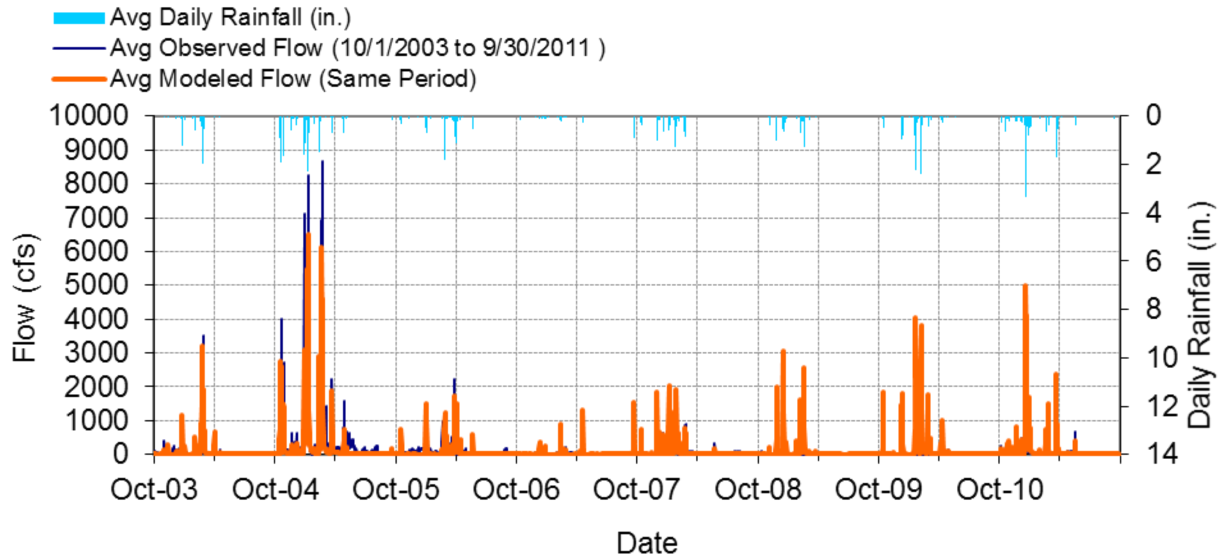


Figure 8. Mean daily flow for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

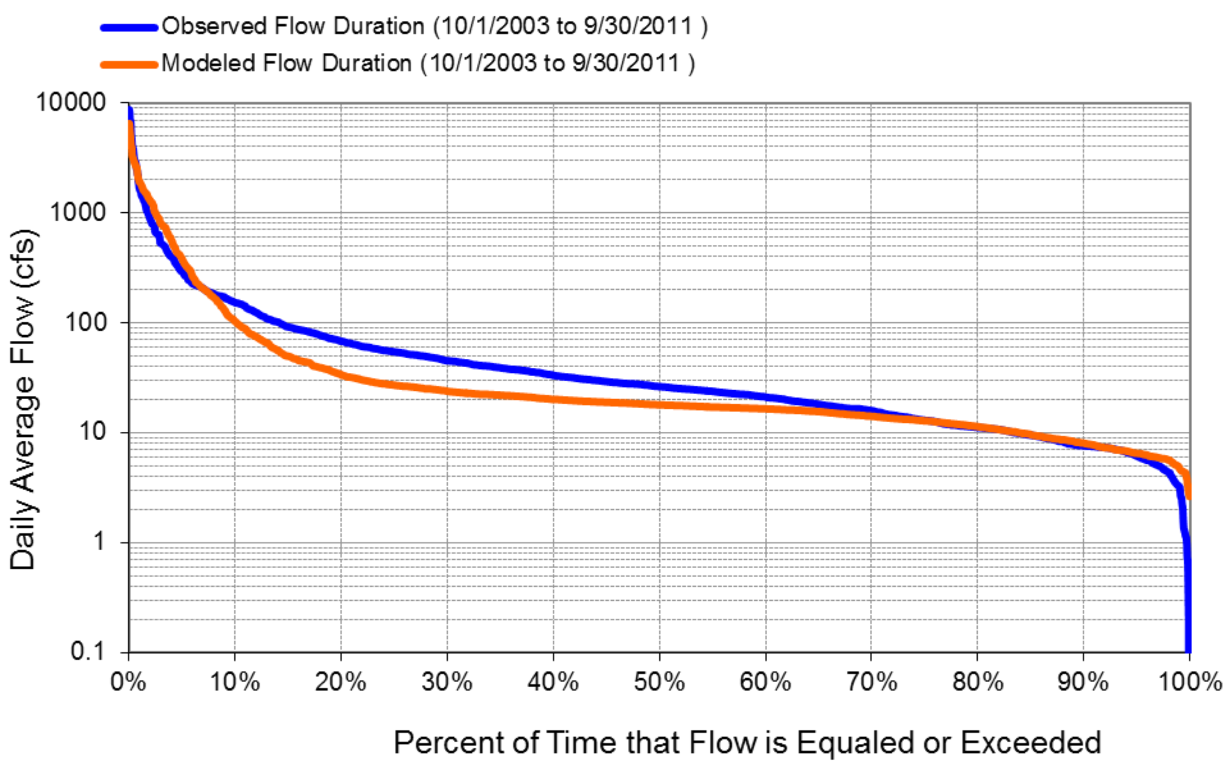


Figure 9. Daily flow exceedance for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

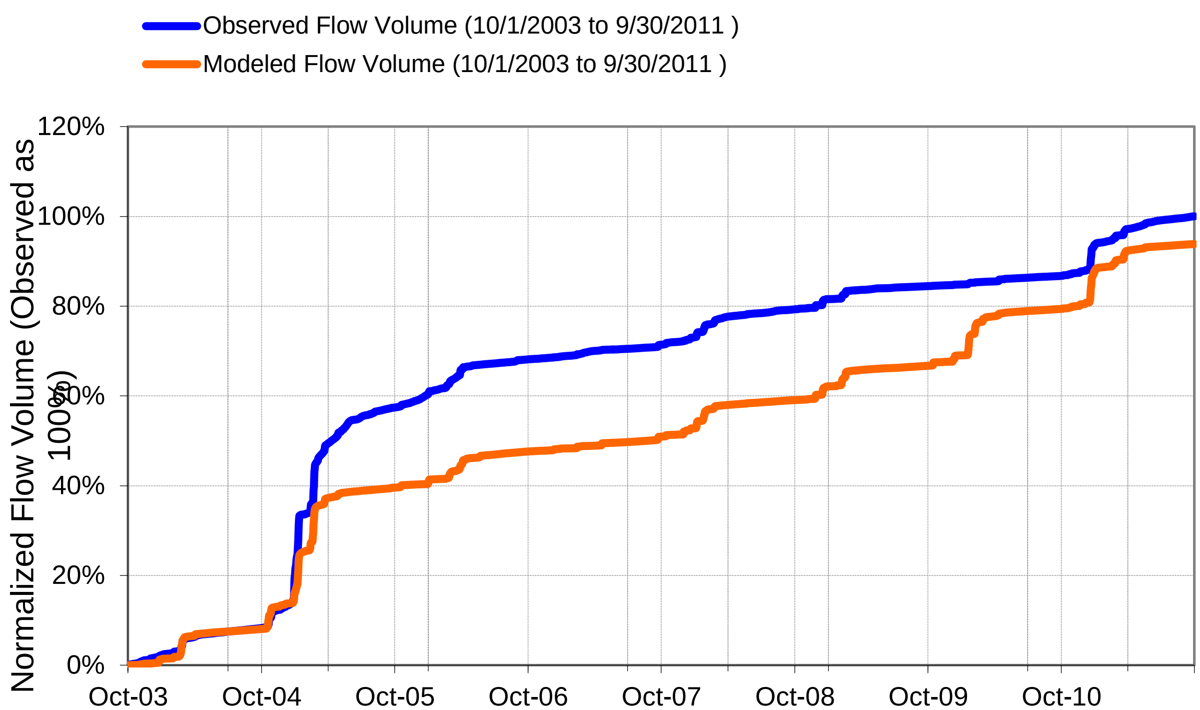


Figure 10. Flow accumulation for USGS 11089200 COYOTE C NR BUENA PARK CA (10/1/2003 – 9/30/2011.

Table 1. Summary of water quality data evaluated for the Lower San Gabriel River

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
S14	Total Copper (ug/l)	5.0	10.5	13.1	23.9	81.4
S13	Total Copper (ug/l)	0.5	11.8	28.1	48.3	351.0
S14	Total Lead (ug/l)	0.7	1.4	2.9	8.2	56.0
S13	Total Lead (ug/l)	0.2	1.1	10.2	19.2	147.0
S14	TSS (mg/L)	5.0	16.8	38.0	169.8	1258.0
S13	TSS (mg/L)	1.0	48.0	97.0	230.5	1556.0
S14	Total Zinc (ug/l)	19.8	36.6	61.0	86.9	440.0
S13	Total Zinc (ug/l)	1.0	62.0	135.0	241.5	2010.0
S14	Fecal Coliform (MPN/100mL)	20	300	1,300	50,000	16,000,000
S13	FC (MPN/100mL)	20	1,300	16,000	90,000	2,200,000
S14	Total Nitrogen (mg/l)	-	-	-	-	-
S13	Total Nitrogen (mg/l)	-	-	-	-	-
S14	Total Phosphorous (mg/l)	0.05	0.11	0.18	0.41	0.86
S13	Total Phosphorous (mg/l)	-	-	-	-	-

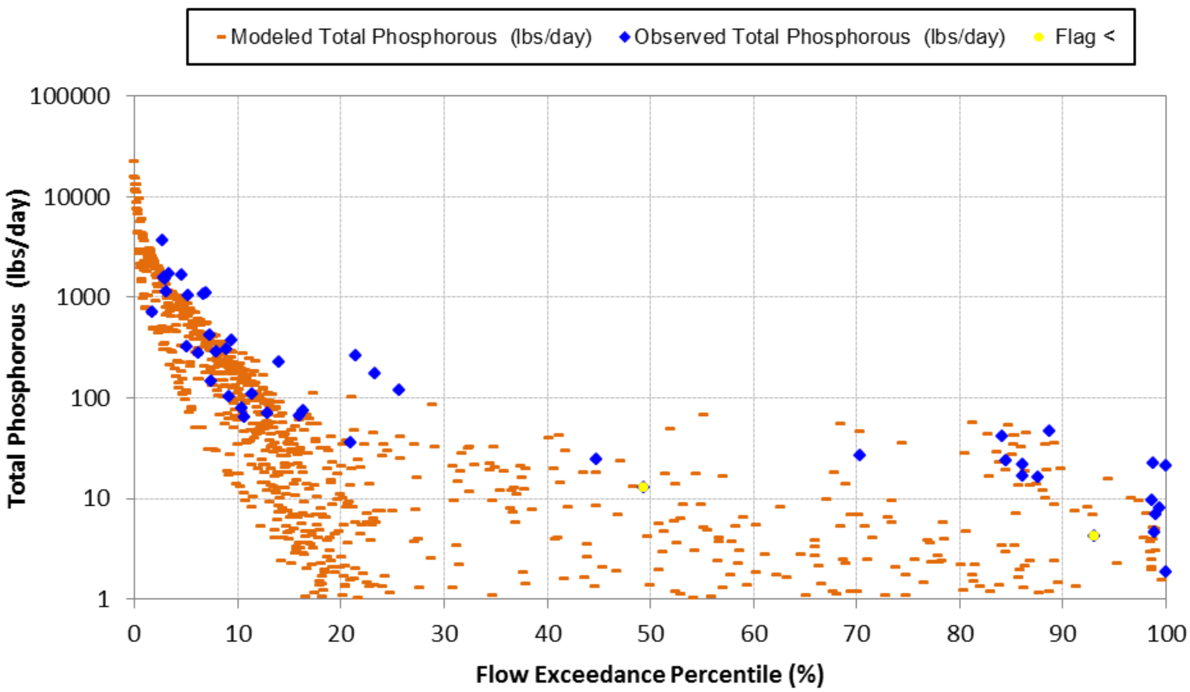


Figure 11. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

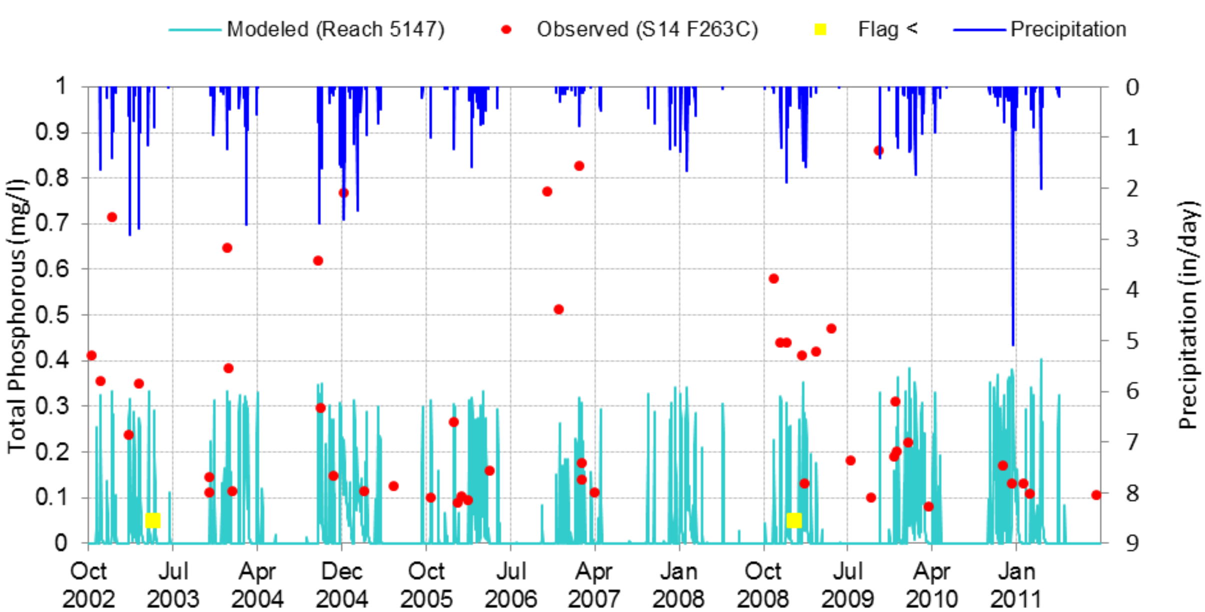


Figure 12. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

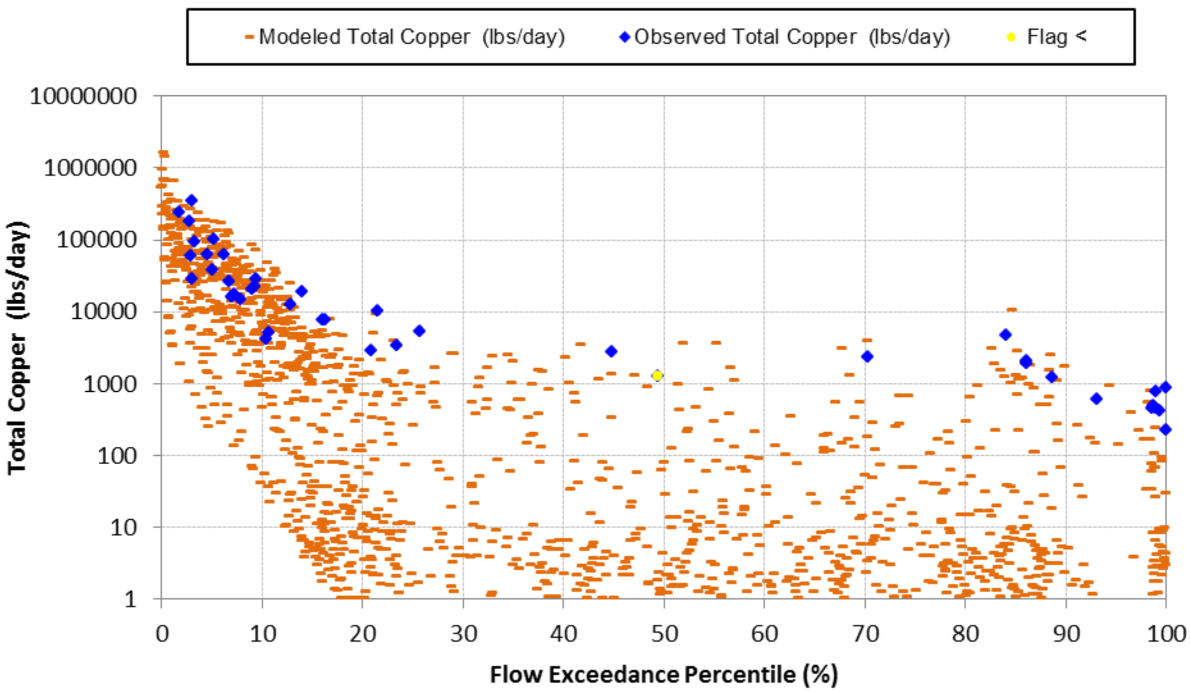


Figure 13. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

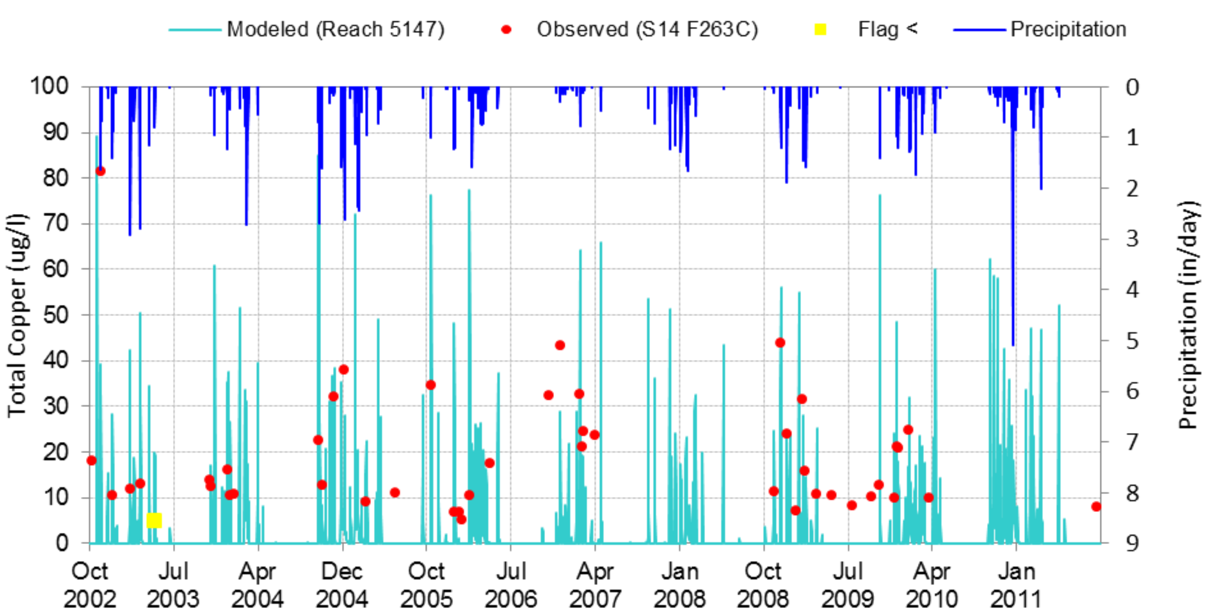


Figure 14. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

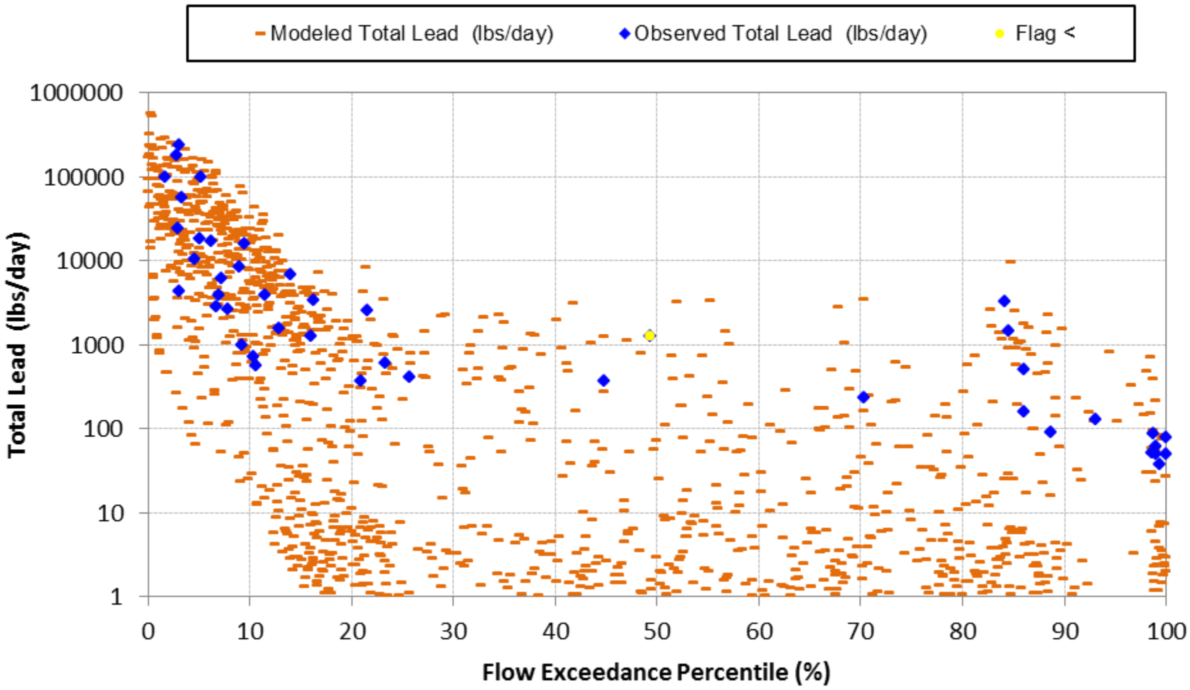


Figure 15. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

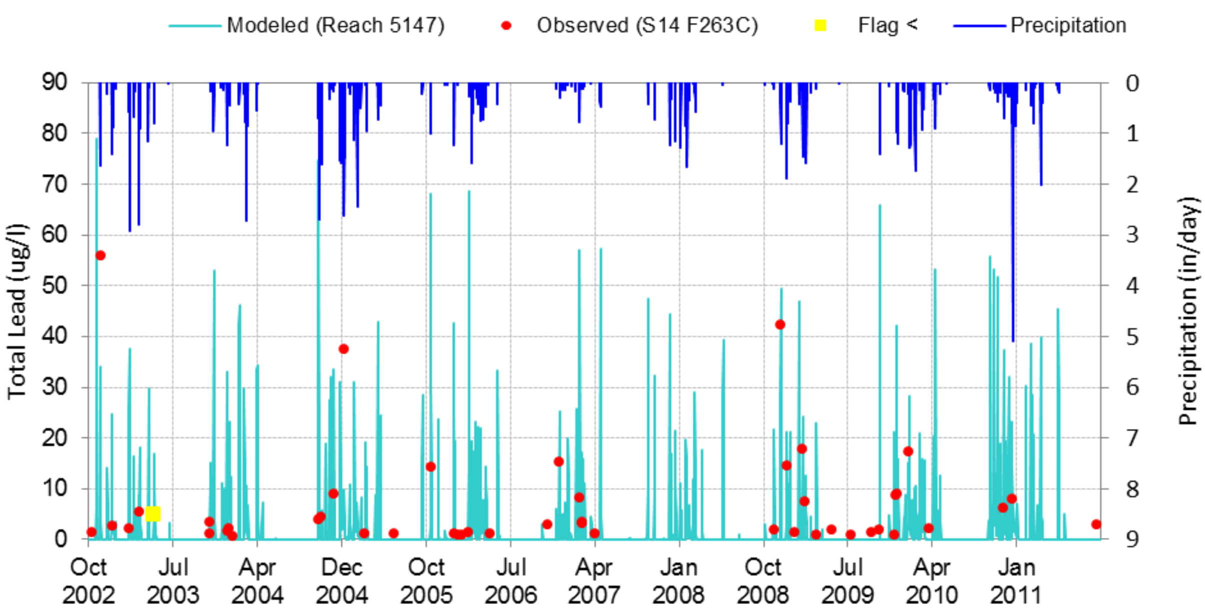


Figure 16. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

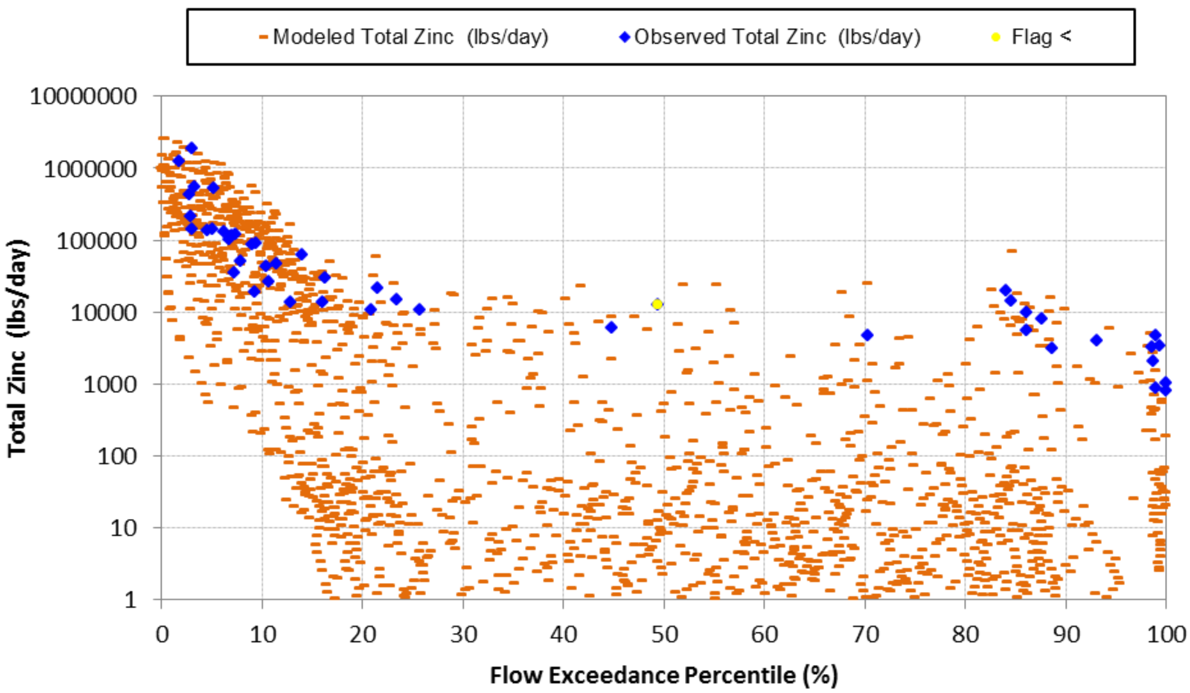


Figure 17. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

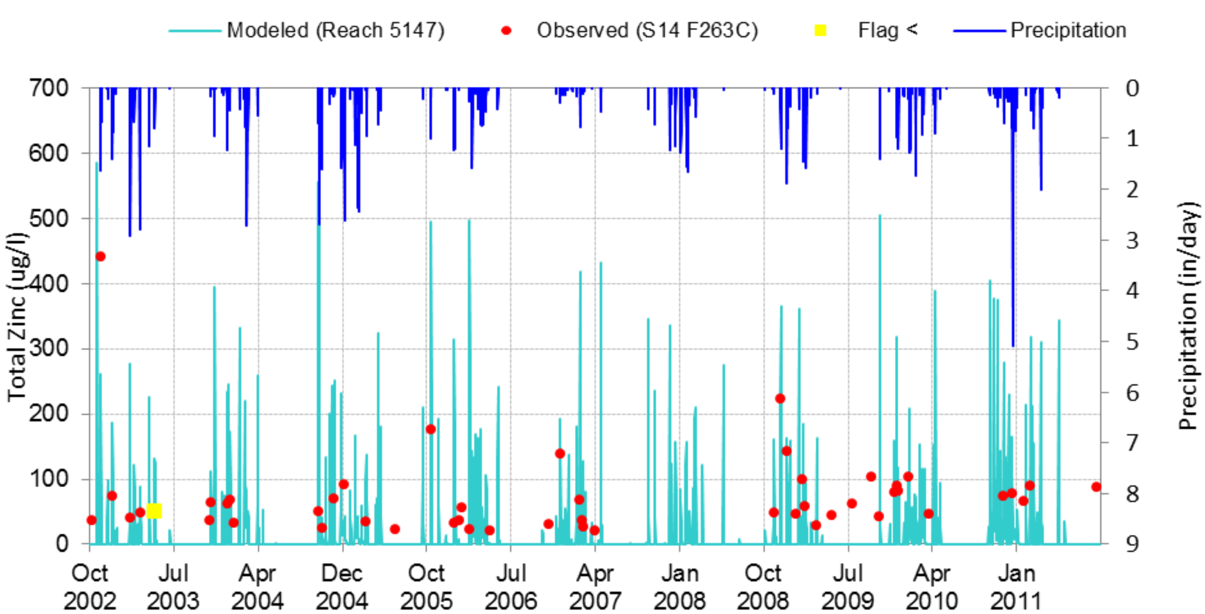


Figure 18. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

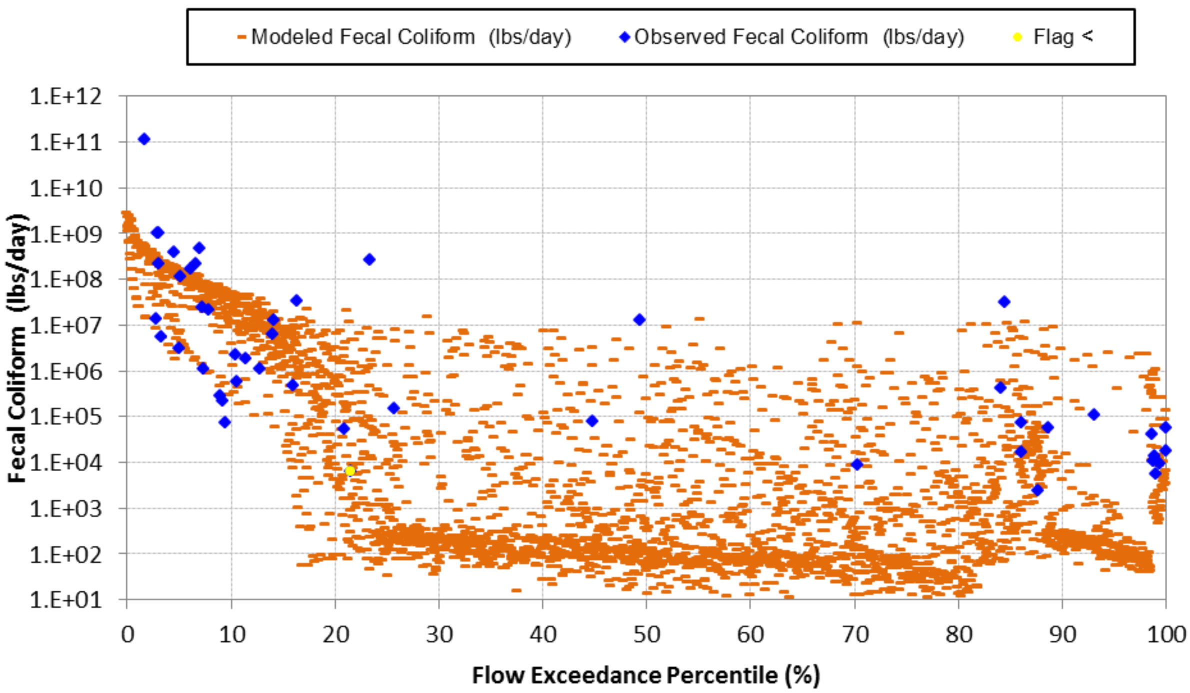


Figure 19. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011).

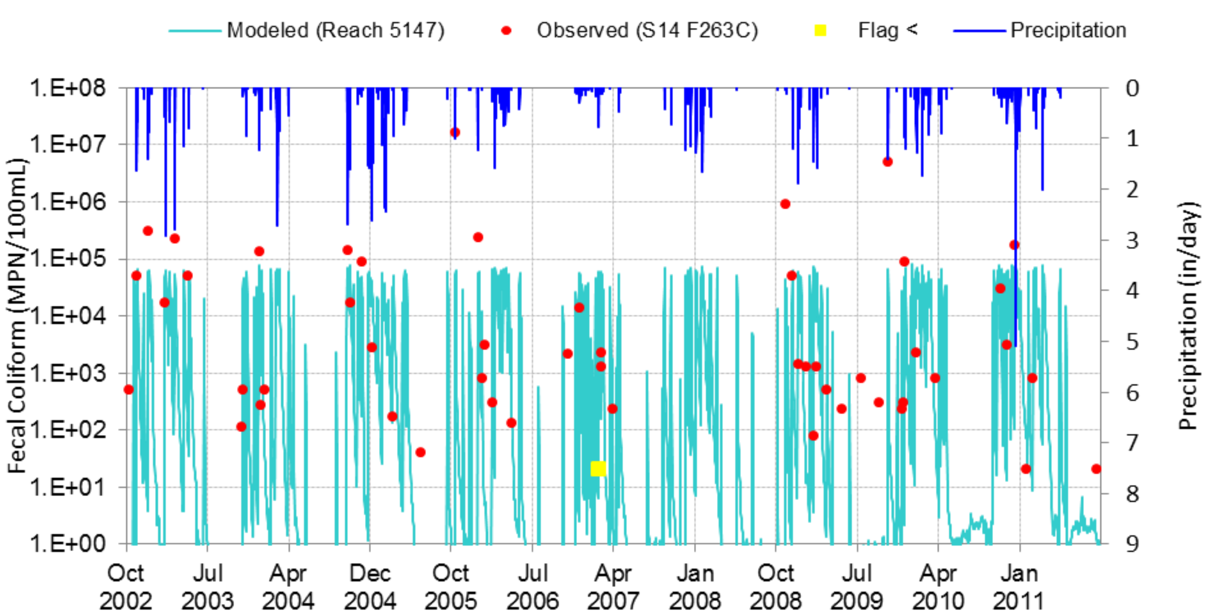


Figure 20. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011).

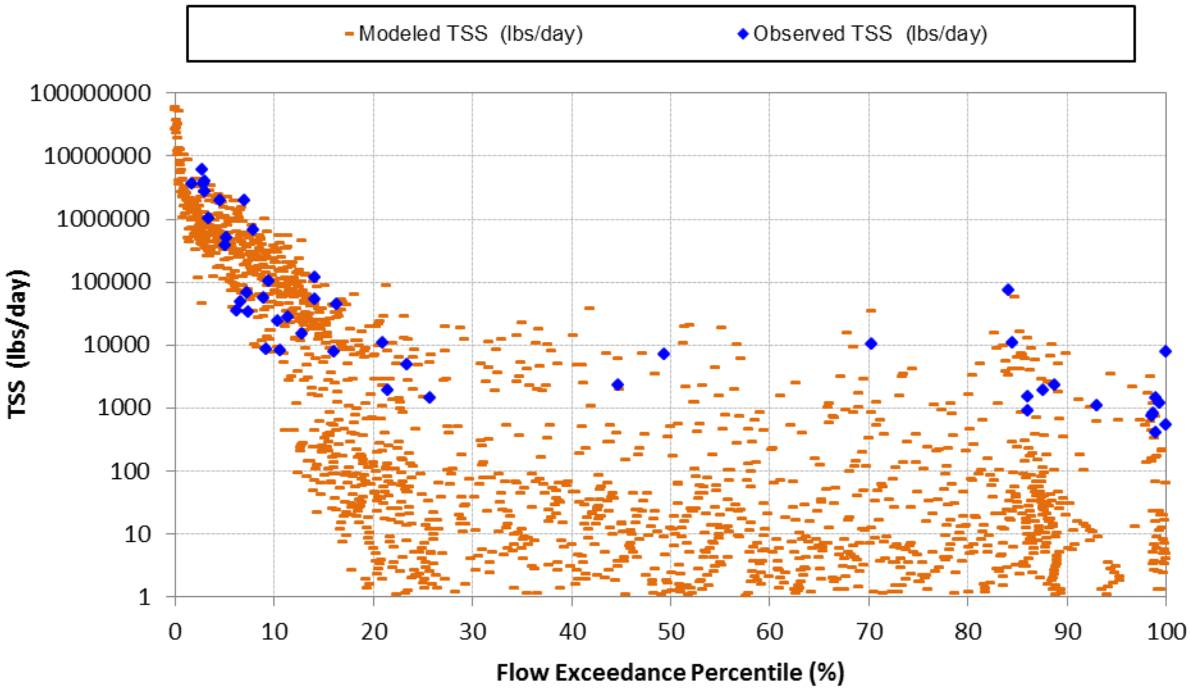


Figure 21. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011).

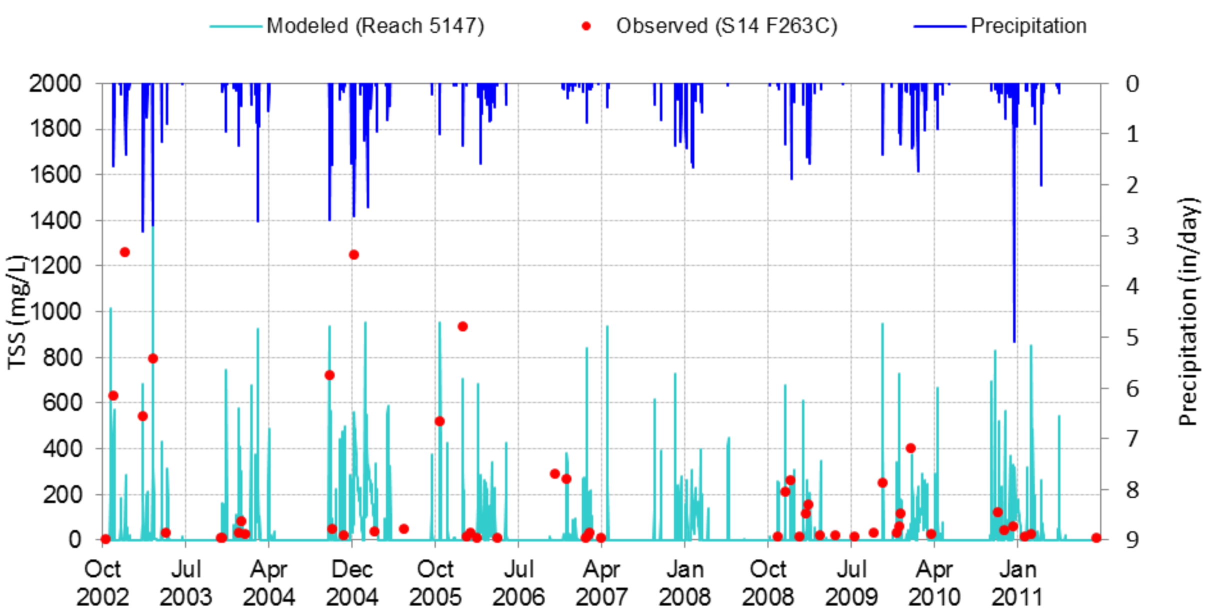


Figure 22. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011).

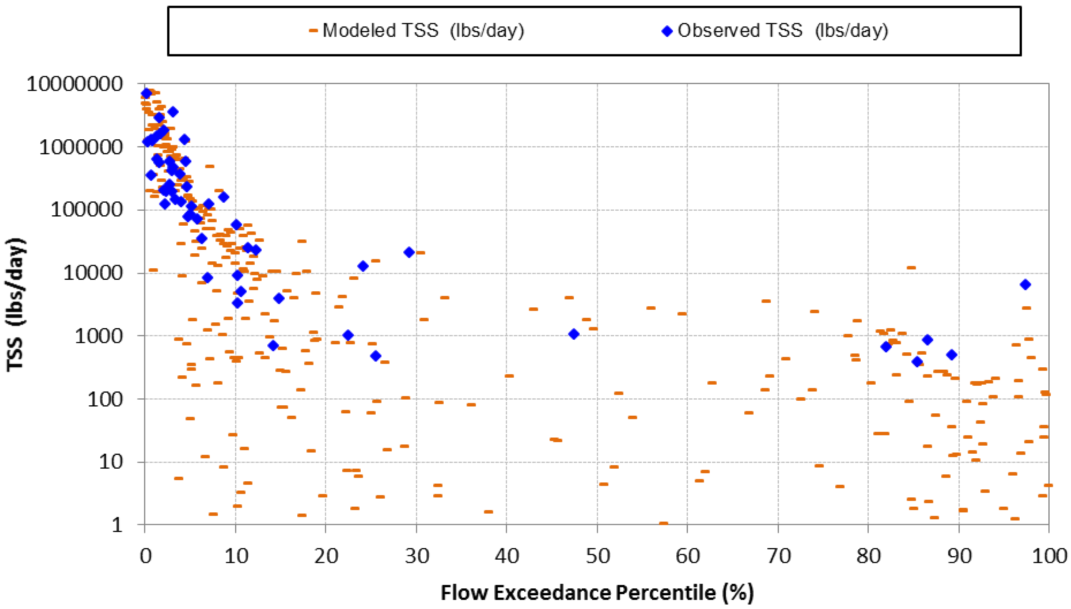


Figure 23. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Coyote Creek mass emission station S13.

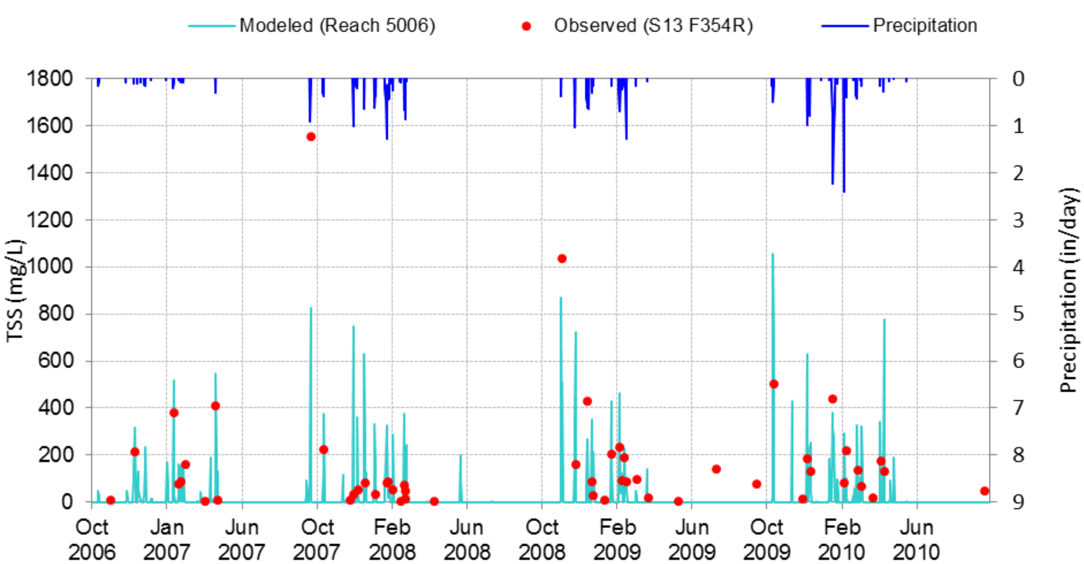


Figure 24. Simulated vs. observed timeseries plots for Total Sediment (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

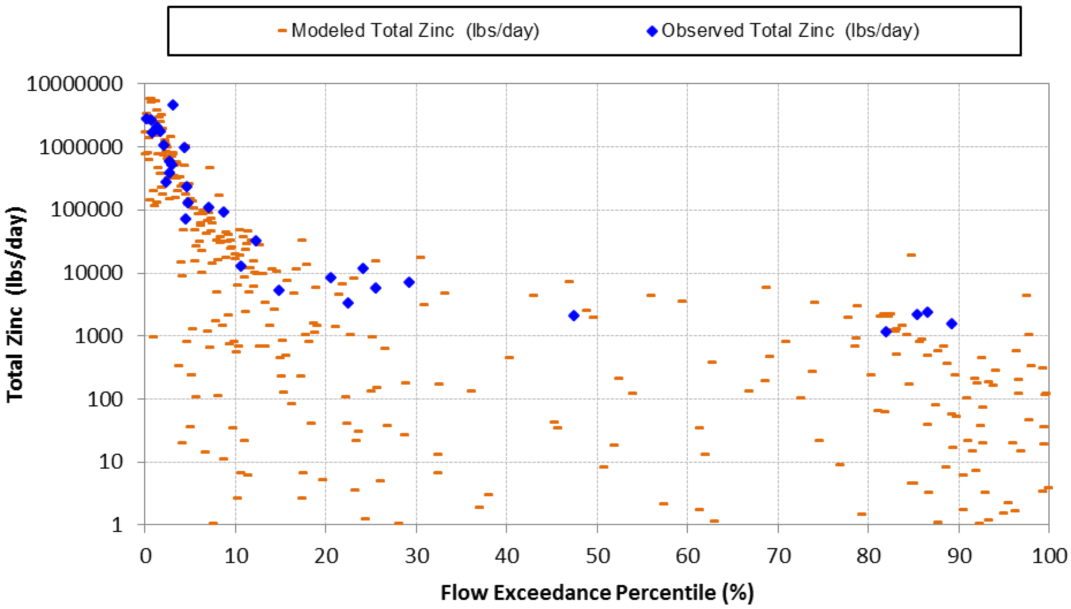


Figure 25. Simulated vs. observed load duration plots for Total Zinc (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

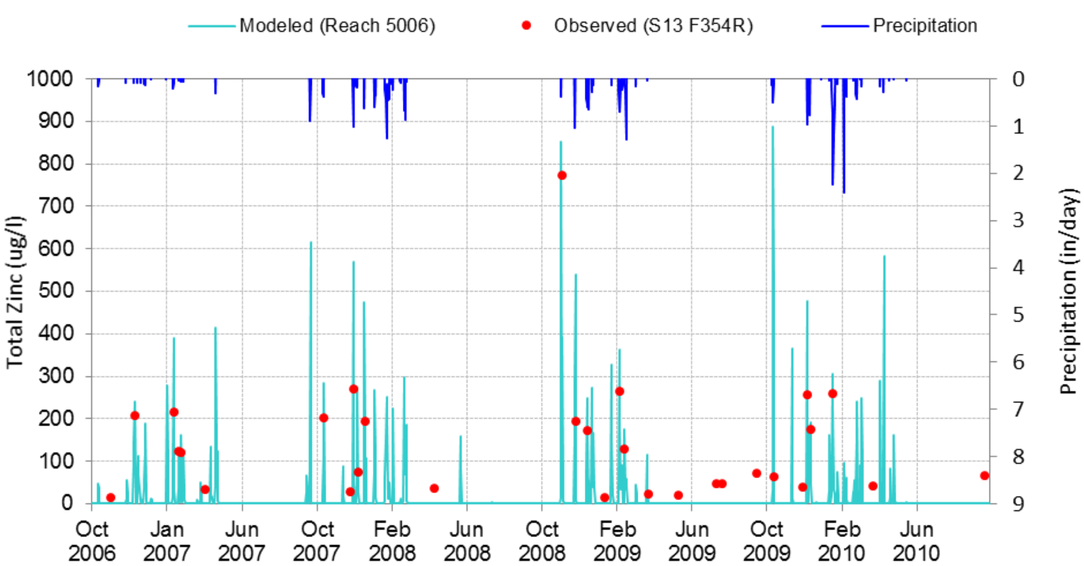


Figure 26. Simulated vs. observed timeseries plots for Total Zinc (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

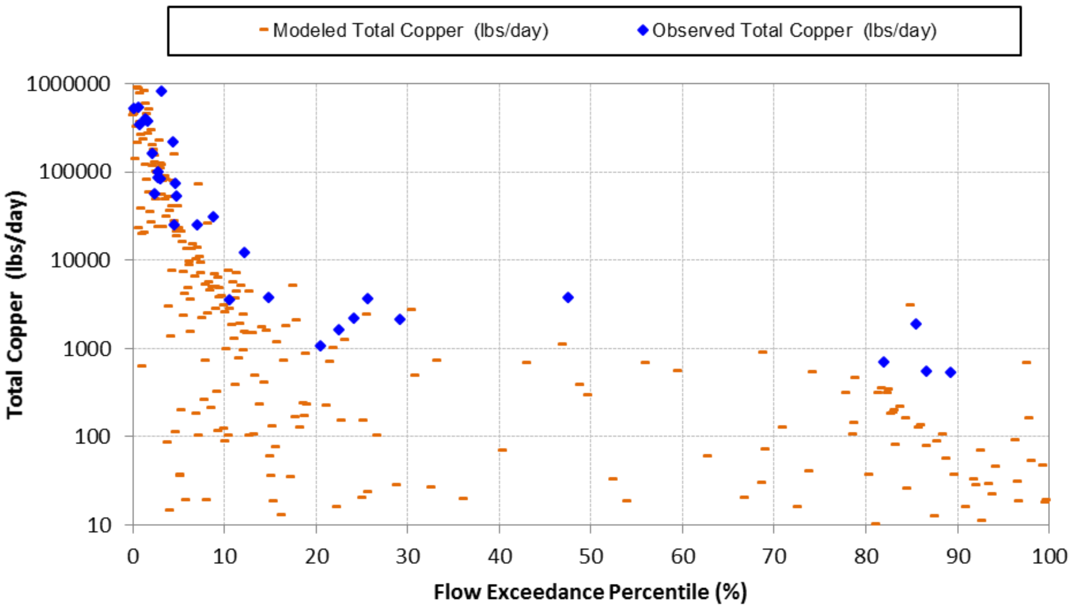


Figure 27. Simulated vs. observed load duration plots for Total Copper (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

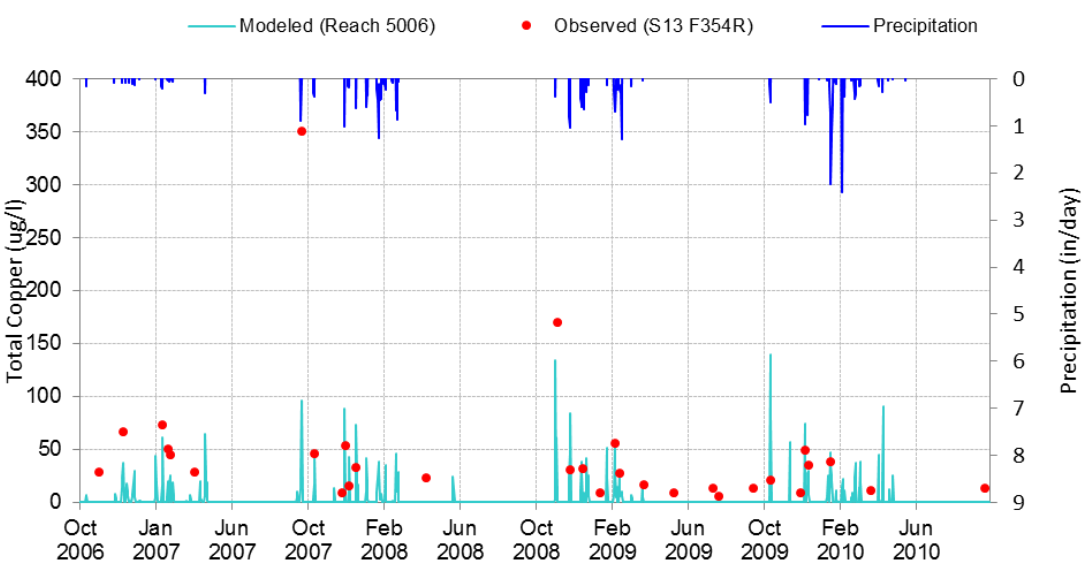


Figure 28. Simulated vs. observed timeseries plots for Total Copper (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

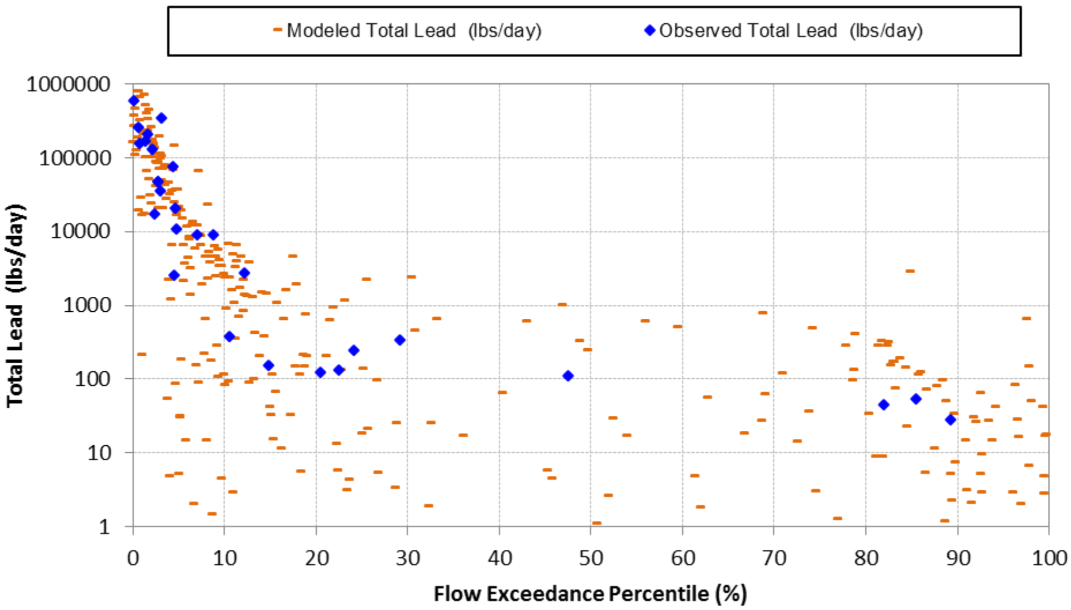


Figure 29 Simulated vs. observed load duration plots for Total Lead (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

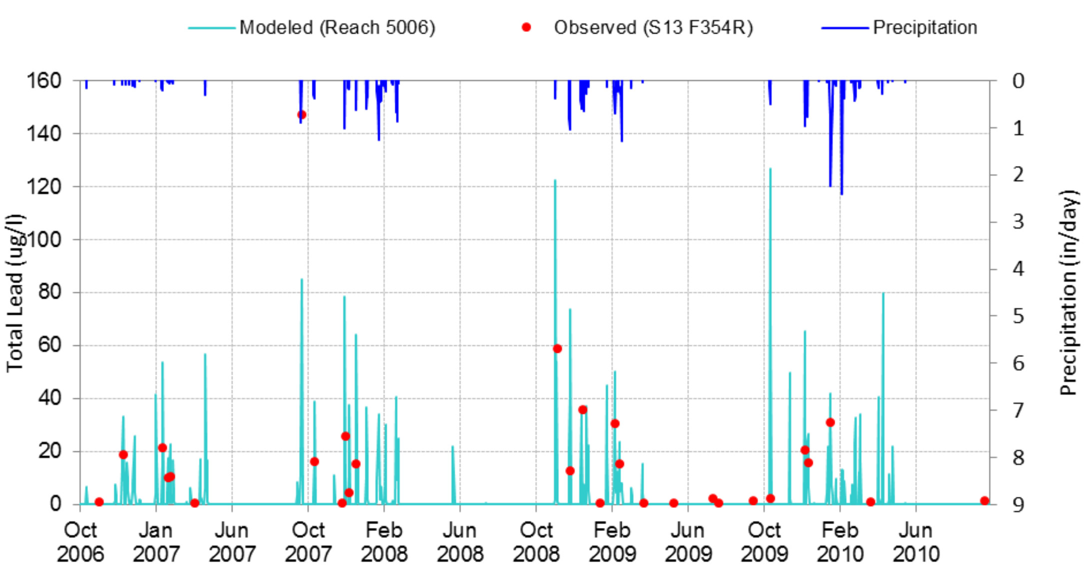


Figure 30. Simulated vs. observed timeseries plots for Total Lead (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

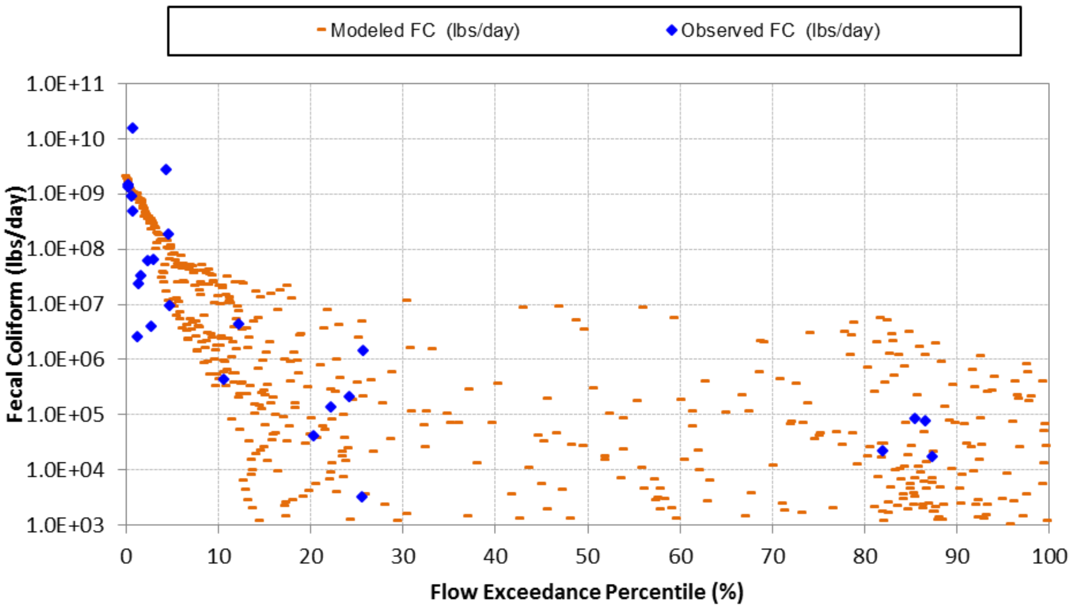


Figure 31. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

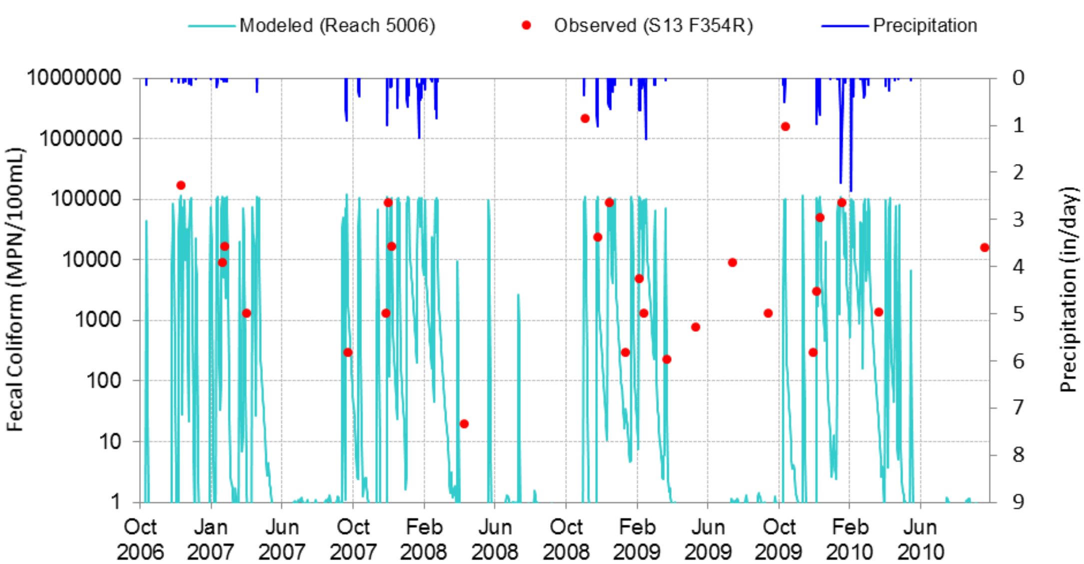


Figure 32. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2006 through 9/30/2010) at Coyote Creek mass emission station S13.

2. Lower Los Angeles River

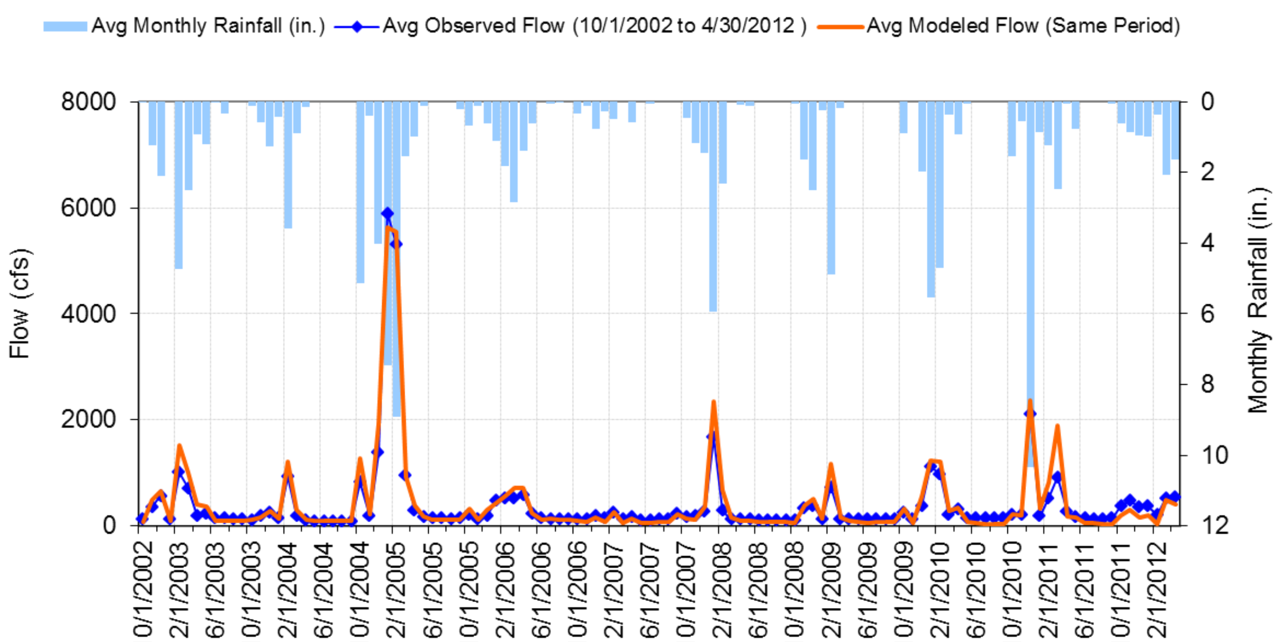


Figure 33. Monthly hydrograph for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

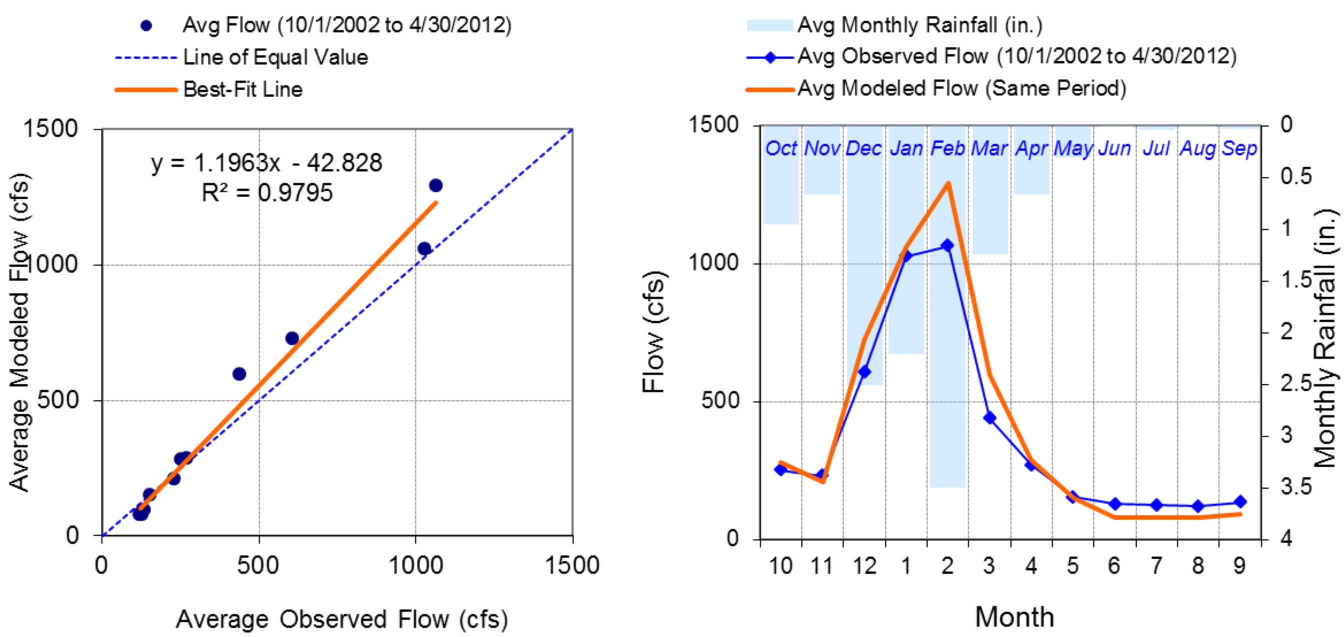


Figure 34. Aggregated monthly hydrograph for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

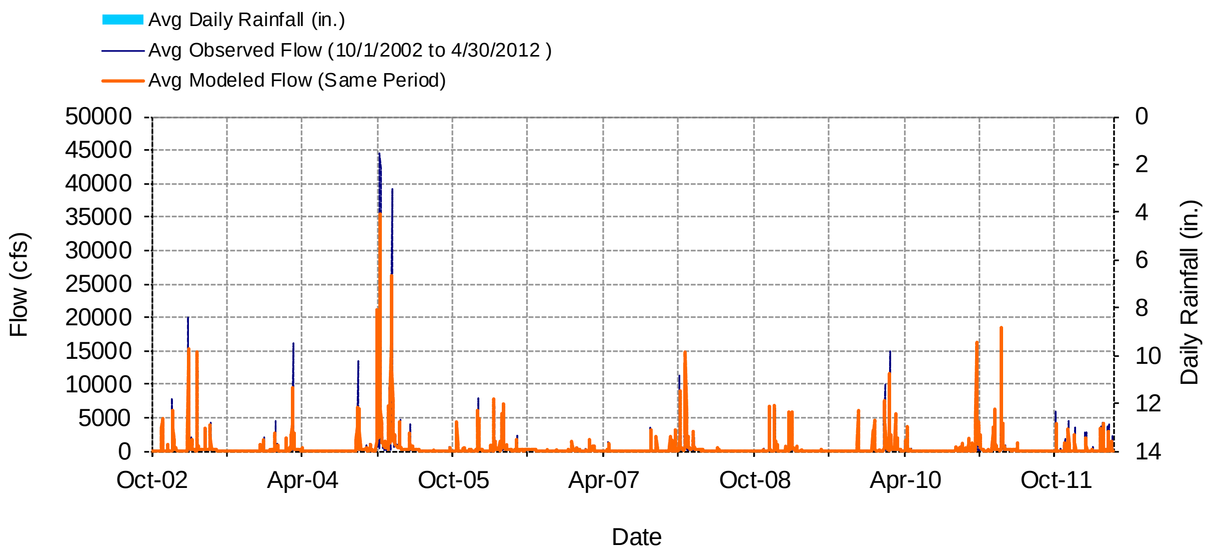


Figure 35. Mean daily flow for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

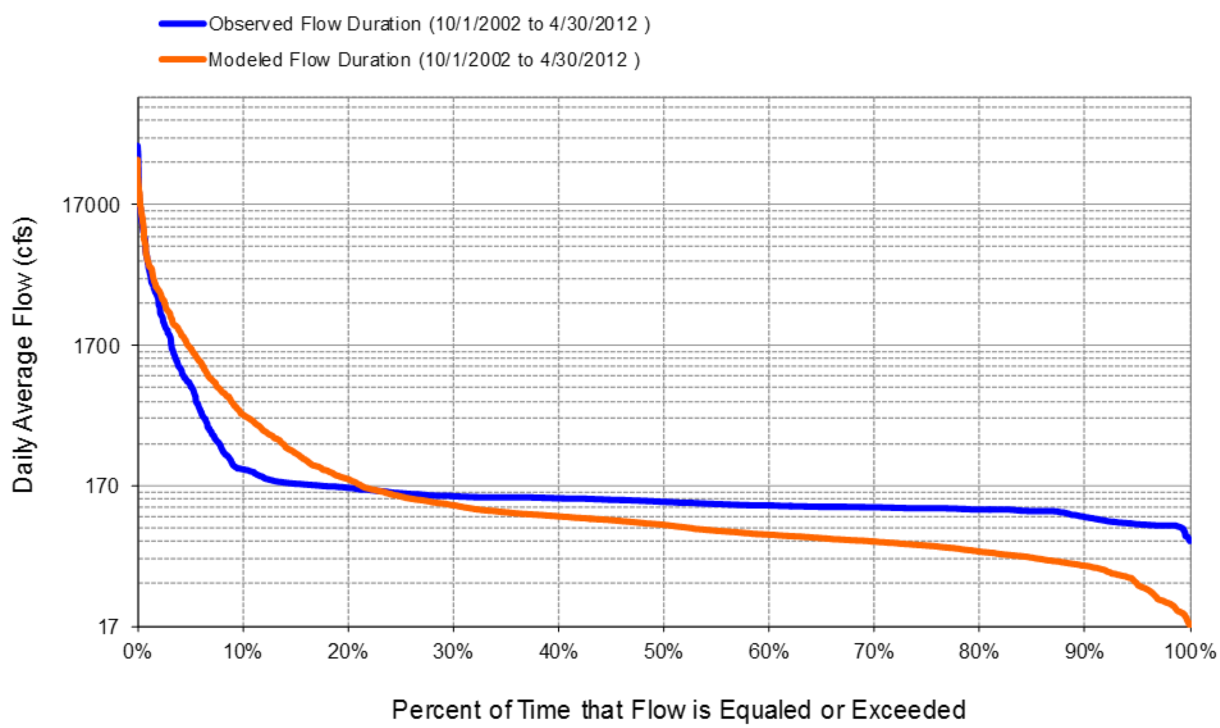


Figure 36. Daily flow exceedance for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

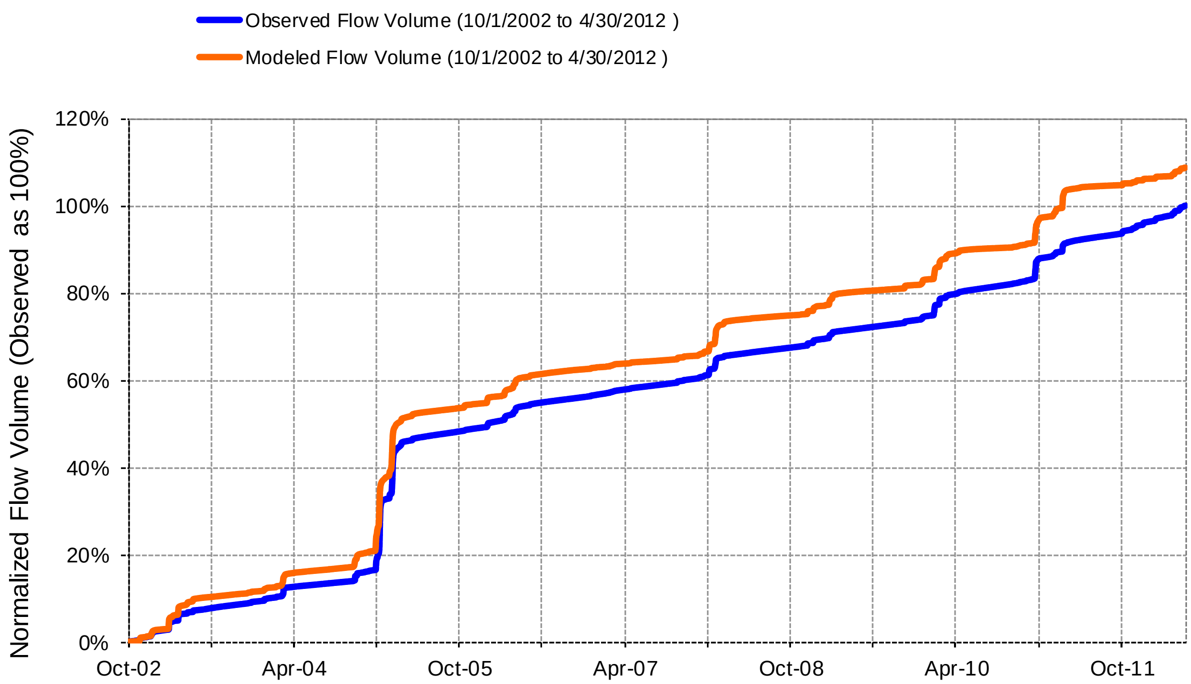


Figure 37. Flow accumulation for LA DPW Los Angeles River below Wardlow Road (10/1/2002 – 9/30/2011).

Table 2. Summary of water quality data evaluated for the Lower Los Angeles River

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
S10	Total Copper (ug/l)	0.5	12.975	25.8	49.55	424
S10	Total Lead (ug/l)	0.2	2.45	15.6	35.775	1070
S10	TSS (mg/L)	1	63	142.5	295	2280
S10	Total Zinc (ug/l)	22.3	63.85	124	261.75	2590
S10	Fecal Coliform (MPN/100mL)	20	500	24000	240000	24000000
S10	Total Nitrogen (mg/l)	0.03	0.60245	1.064	1.725	6.75
S10	Total Phosphorous (mg/l)	0.05	0.24	0.3785	0.538	8.24

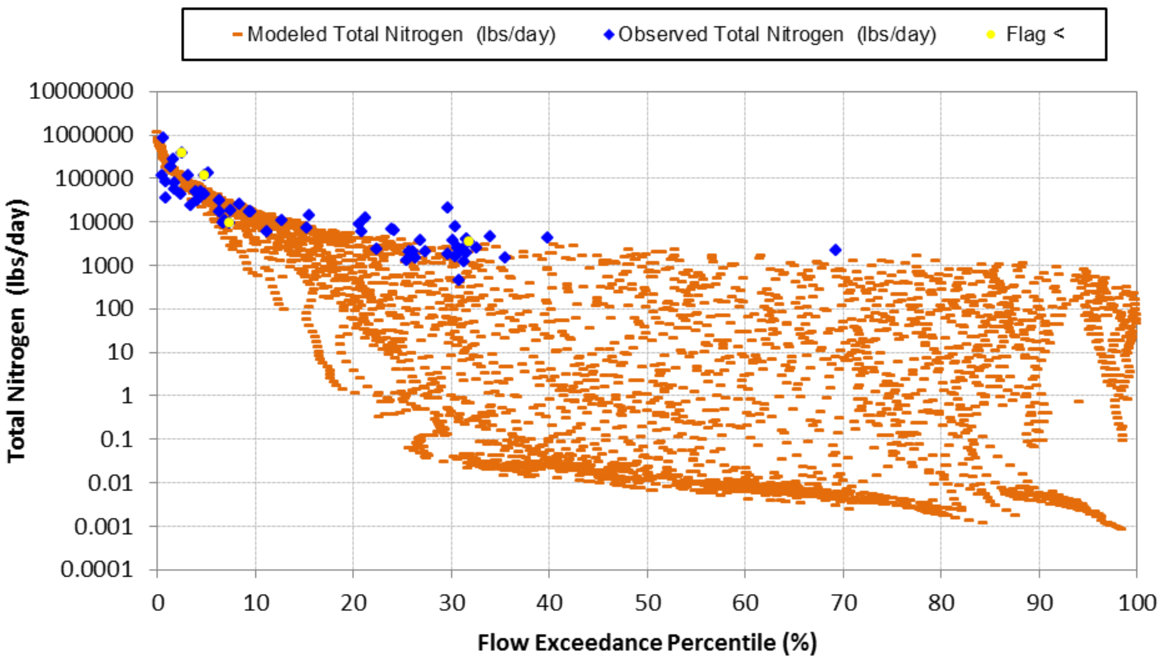


Figure 38. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

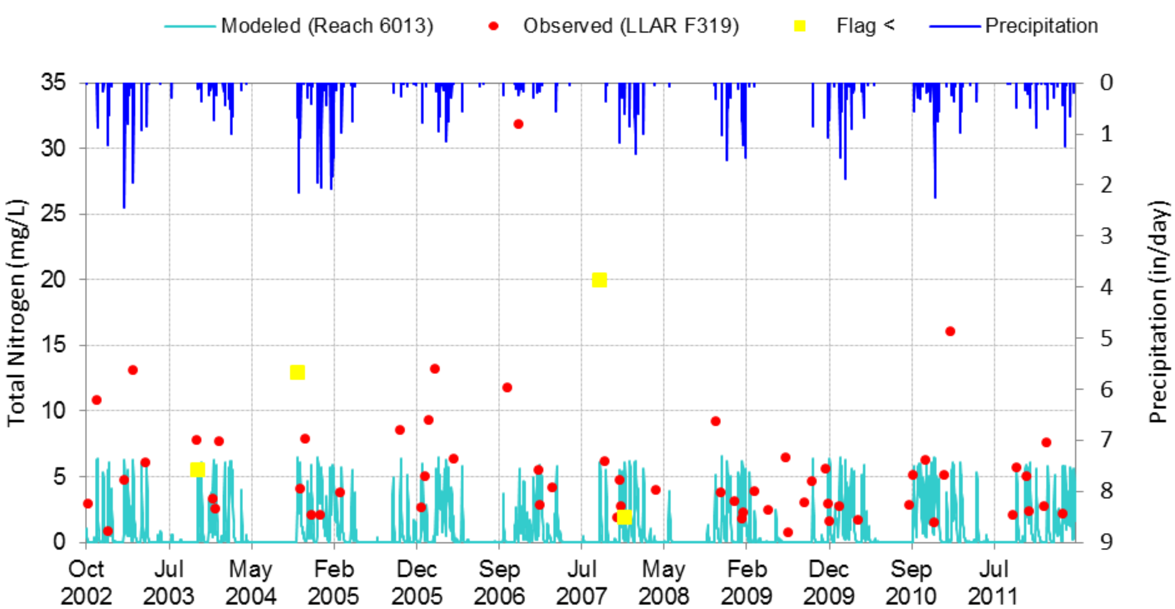


Figure 39. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

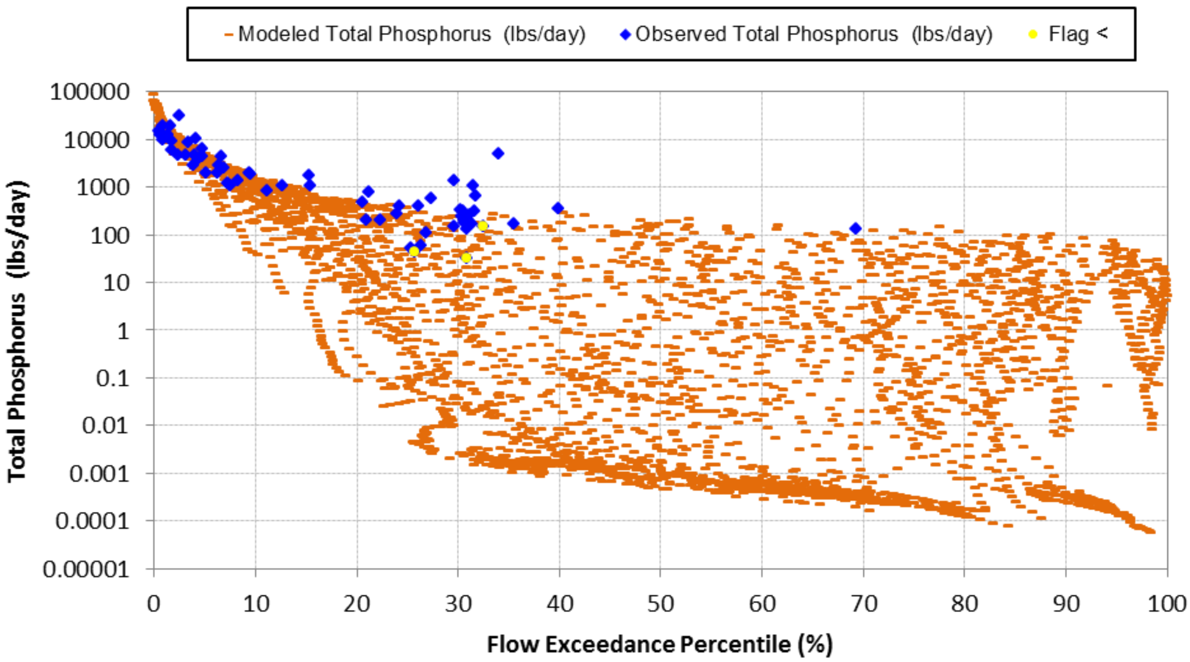


Figure 40. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

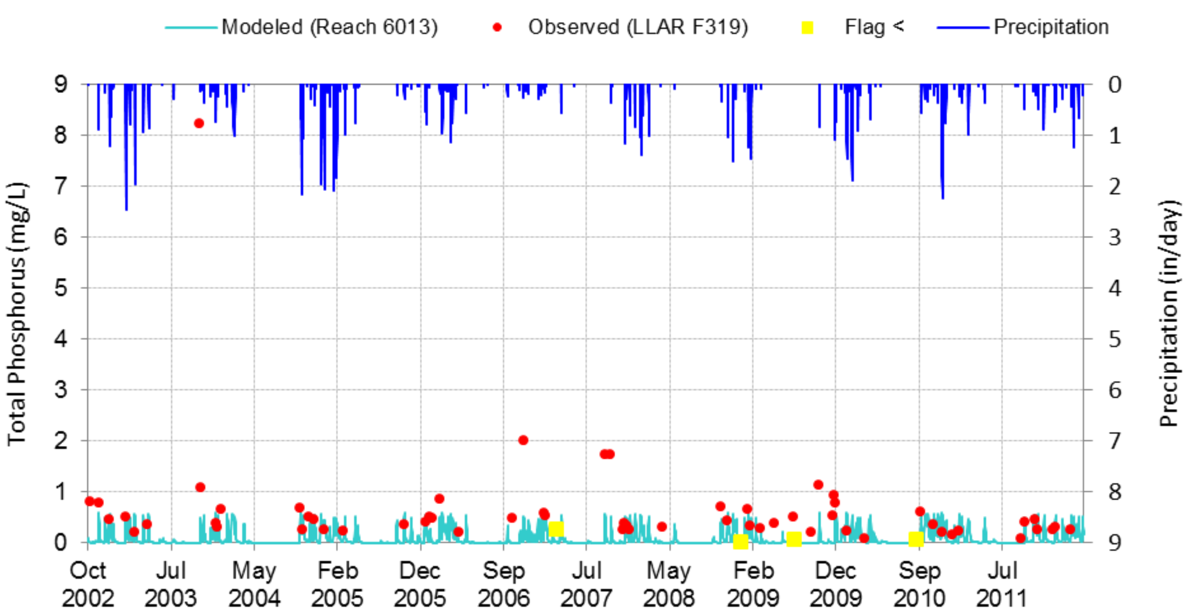


Figure 41. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

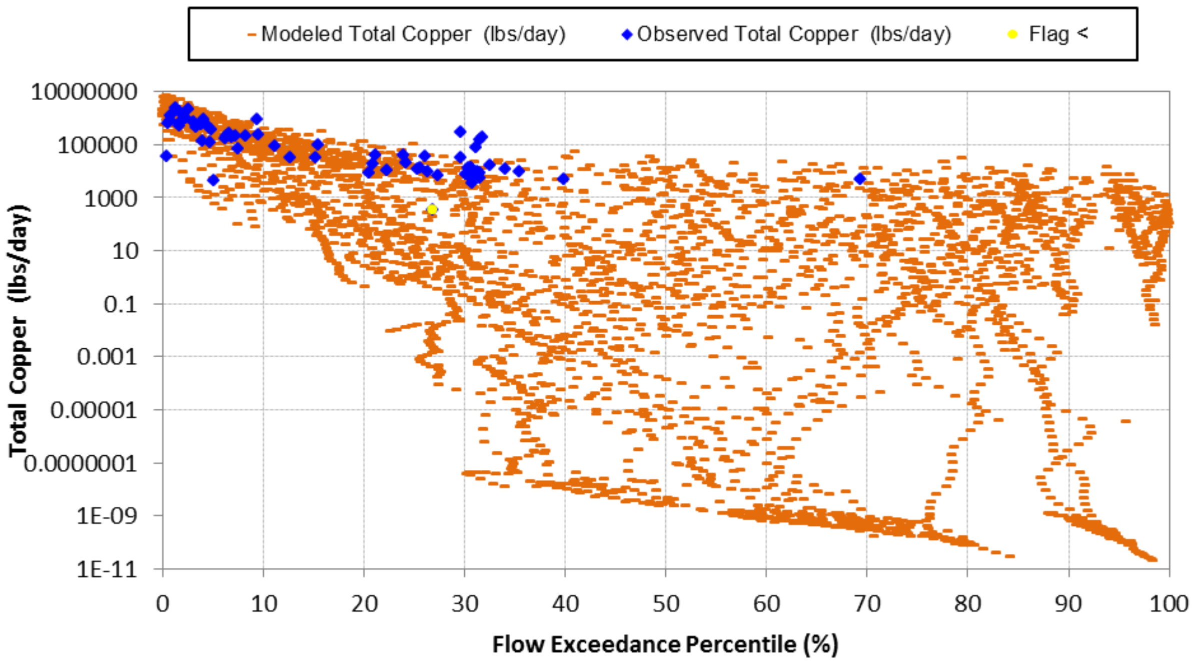


Figure 42. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

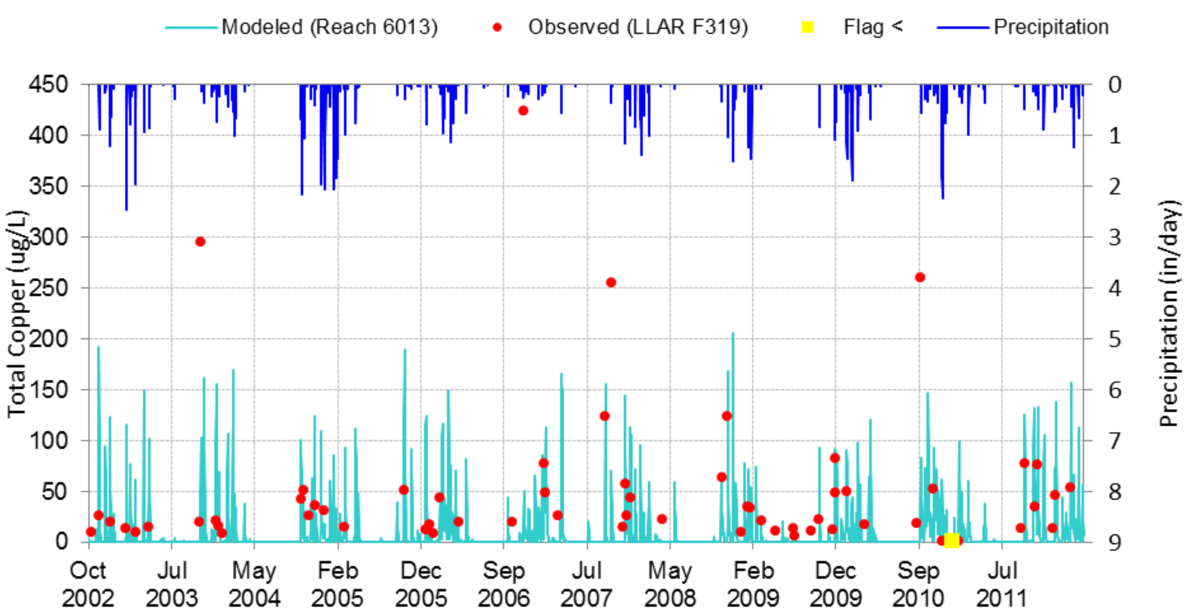


Figure 43. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

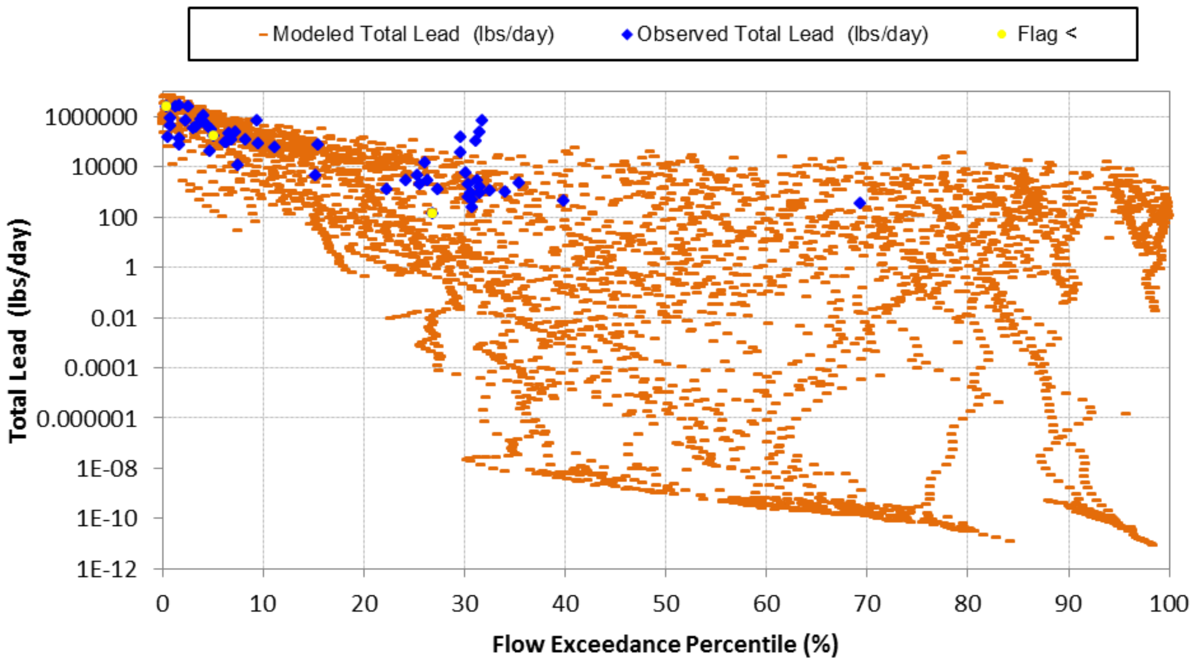


Figure 44. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

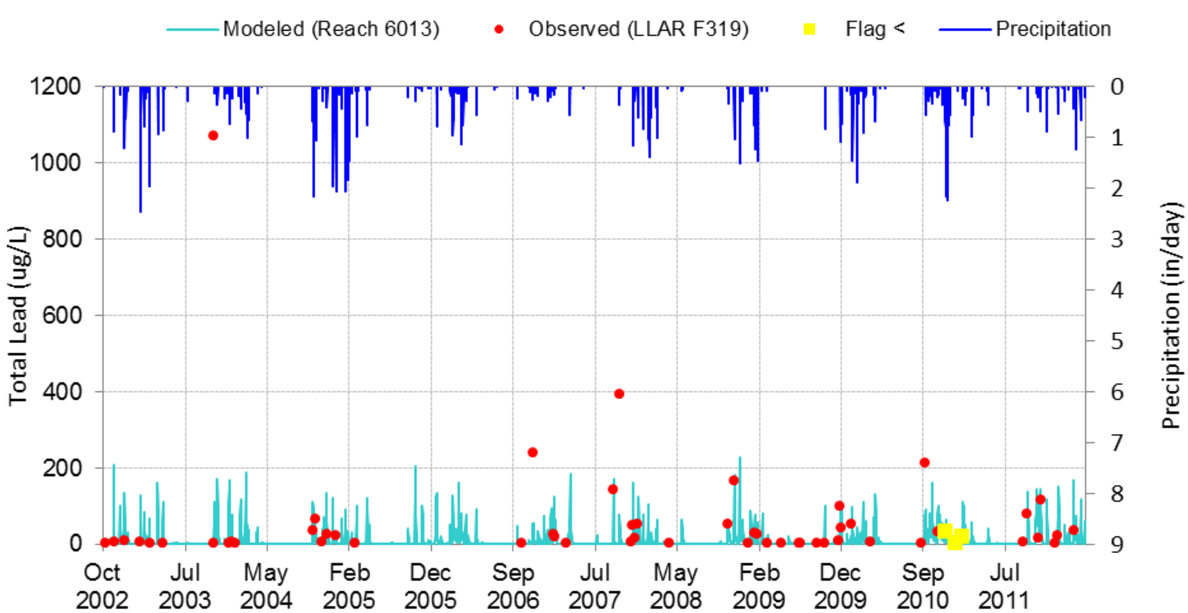


Figure 45. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

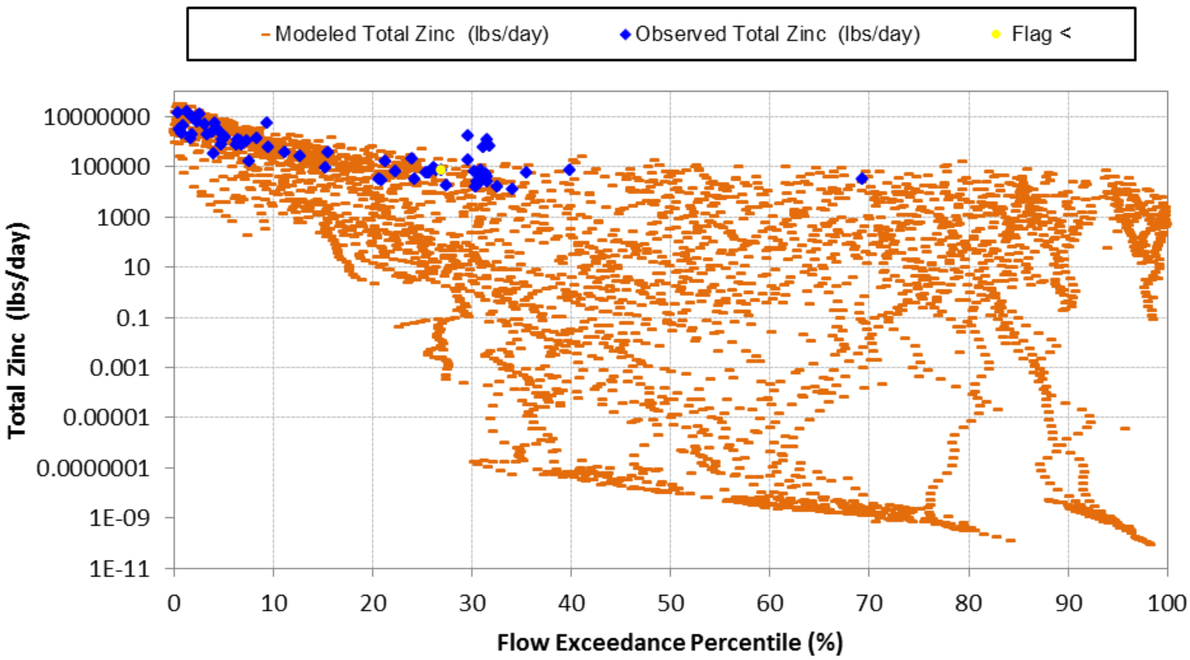


Figure 46. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

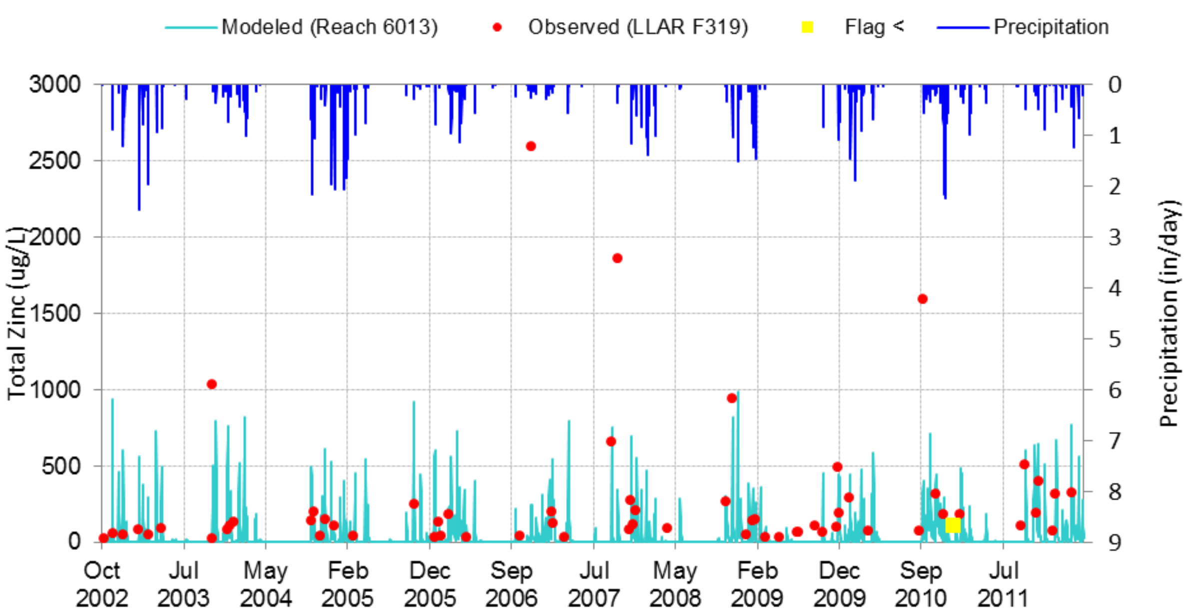


Figure 47. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

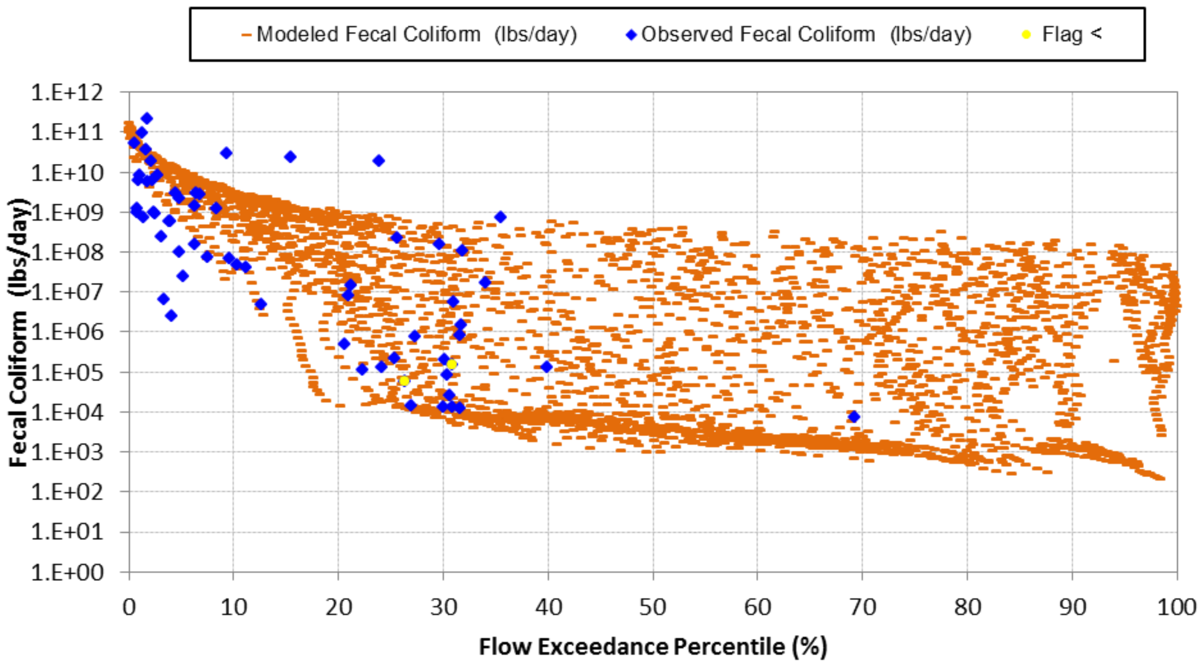


Figure 48. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

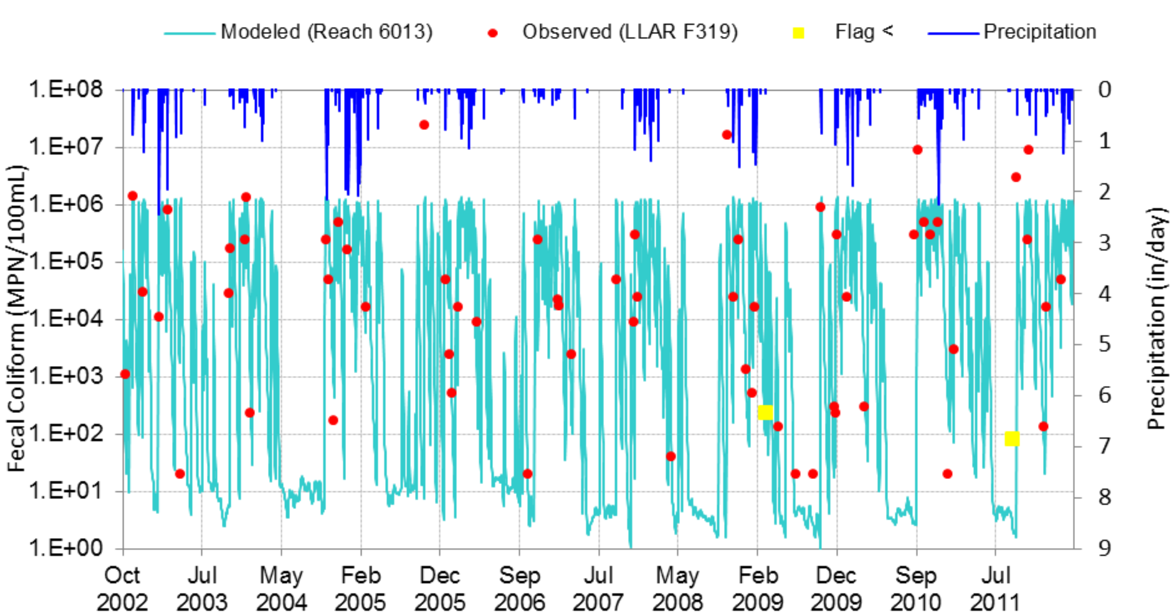


Figure 49. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

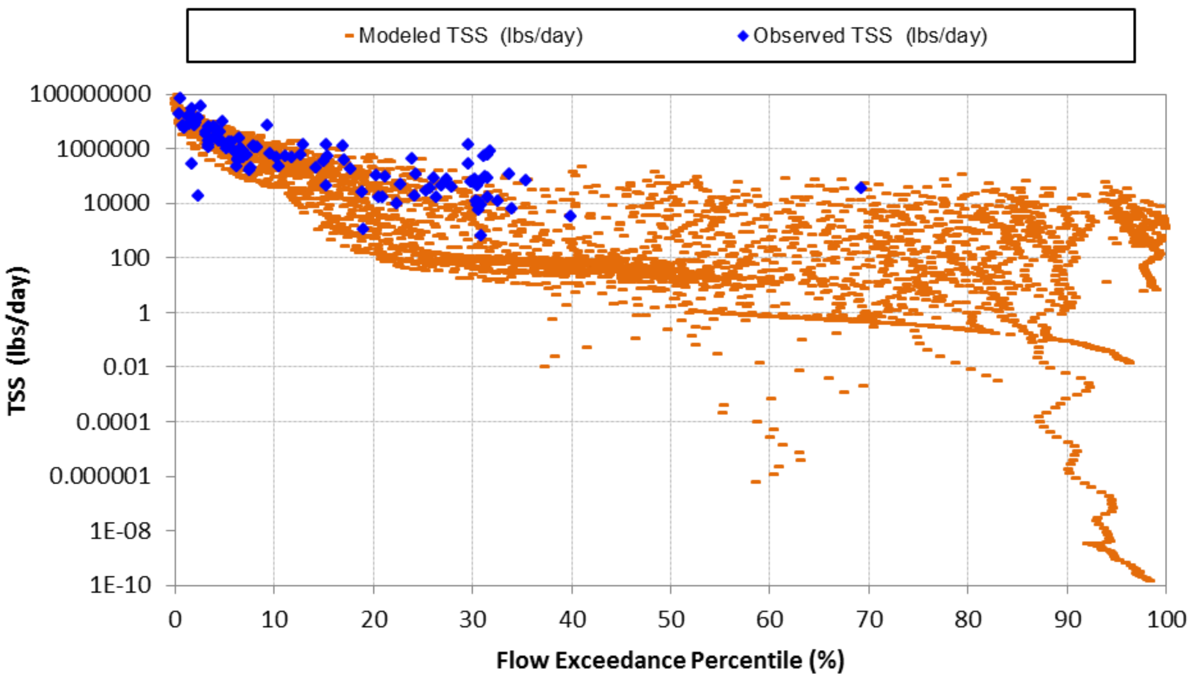


Figure 50. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

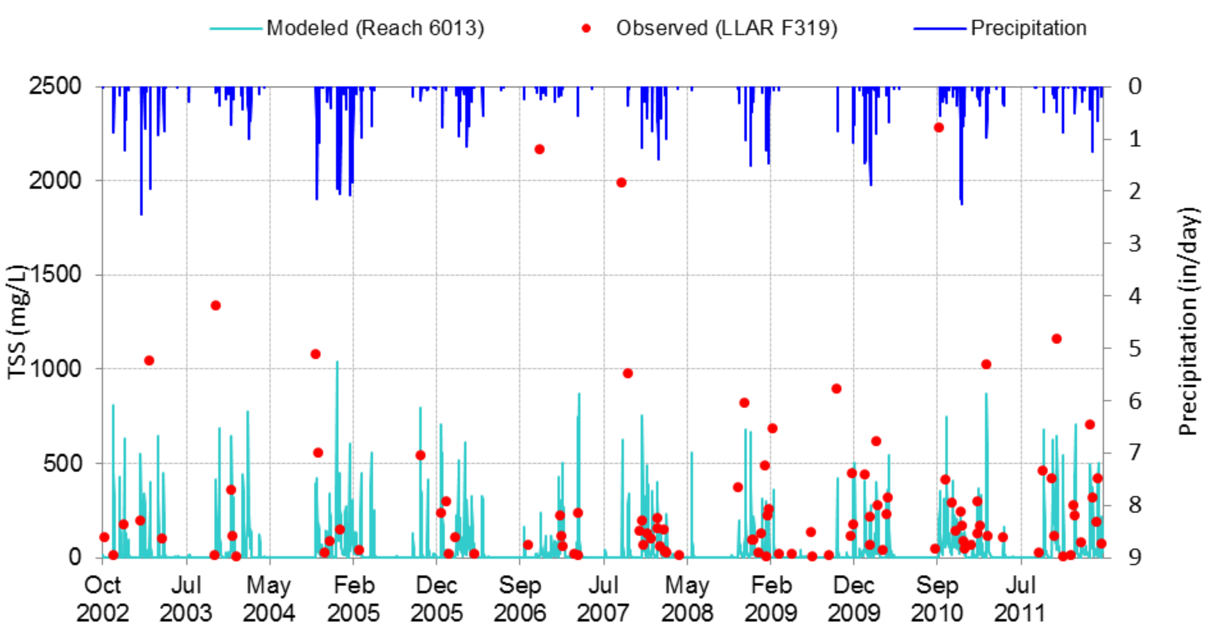


Figure 51. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

3. Los Cerritos Channel

Table 3. Summary of water quality data evaluated for Los Cerritos Channel

Gage	Constituent	Minimum	Q1	Median	Q3	Maximum
Stearns St.	Total Copper (ug/l)	8.4	17.25	25	43.5	240
Stearns St.	Total Lead (ug/l)	0.78	3.025	17	41.75	370
Stearns St.	TSS (mg/L)	2	52.5	110	210	1700
Stearns St.	Total Zinc (ug/l)	9.5	33	180	390	2600
Stearns St.	Fecal Coliform (MPN/100mL)	18	2275	8000	28500	1600000
Stearns St.	Total Nitrogen (mg/l)	0.9	2.147	3.292	4.532	23.7
Stearns St.	Total Phosphorous (mg/l)	0.083	0.22	0.53	0.91	6.2

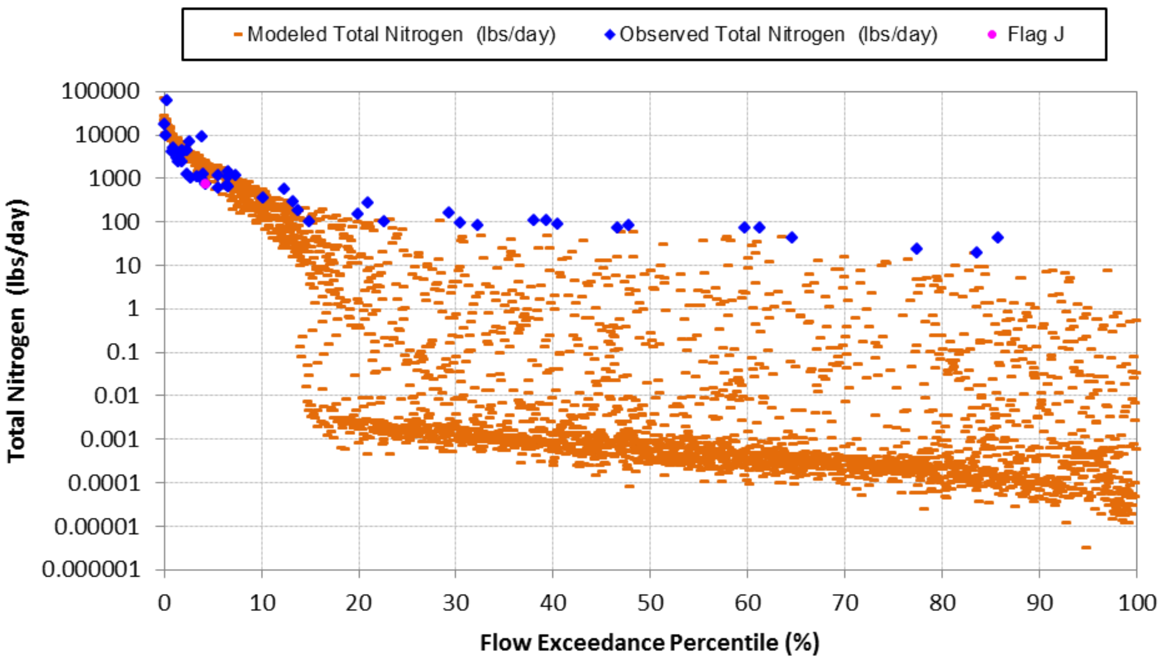


Figure 52. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

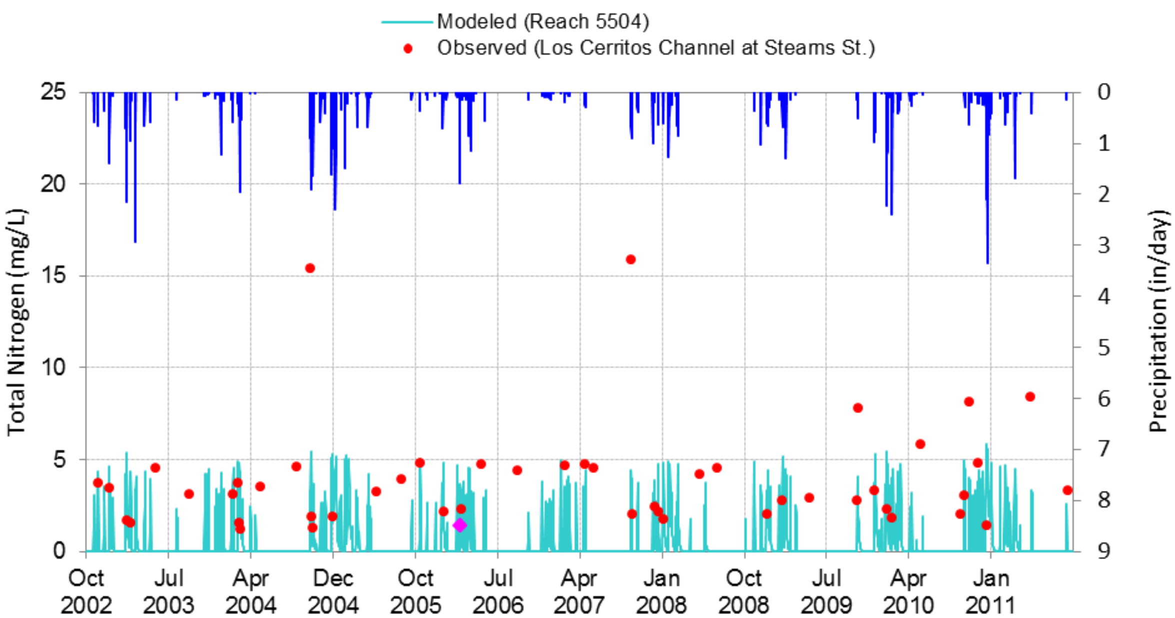


Figure 53. Simulated vs. observed time series plots for Total Nitrogen (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

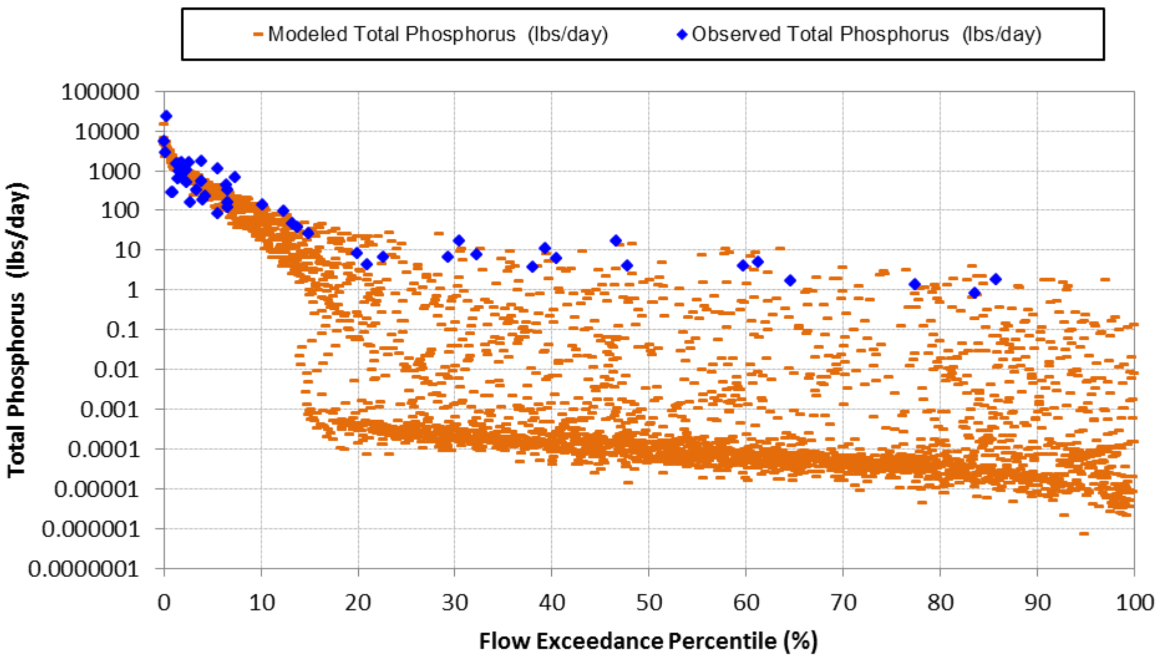


Figure 54. Simulated vs. observed load duration plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

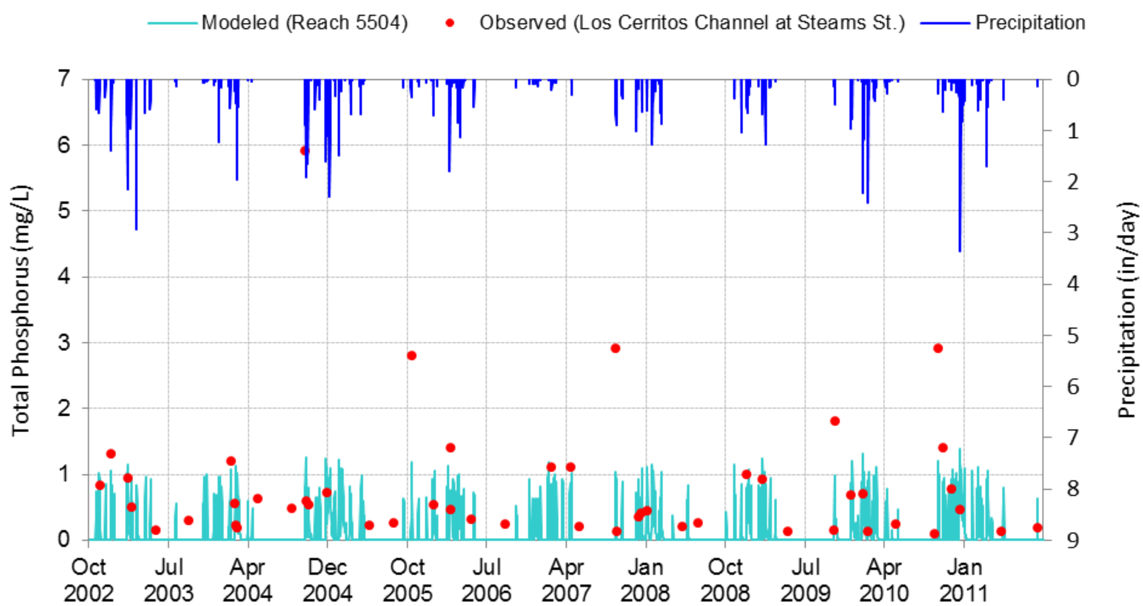


Figure 55. Simulated vs. observed time series plots for Total Phosphorous (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

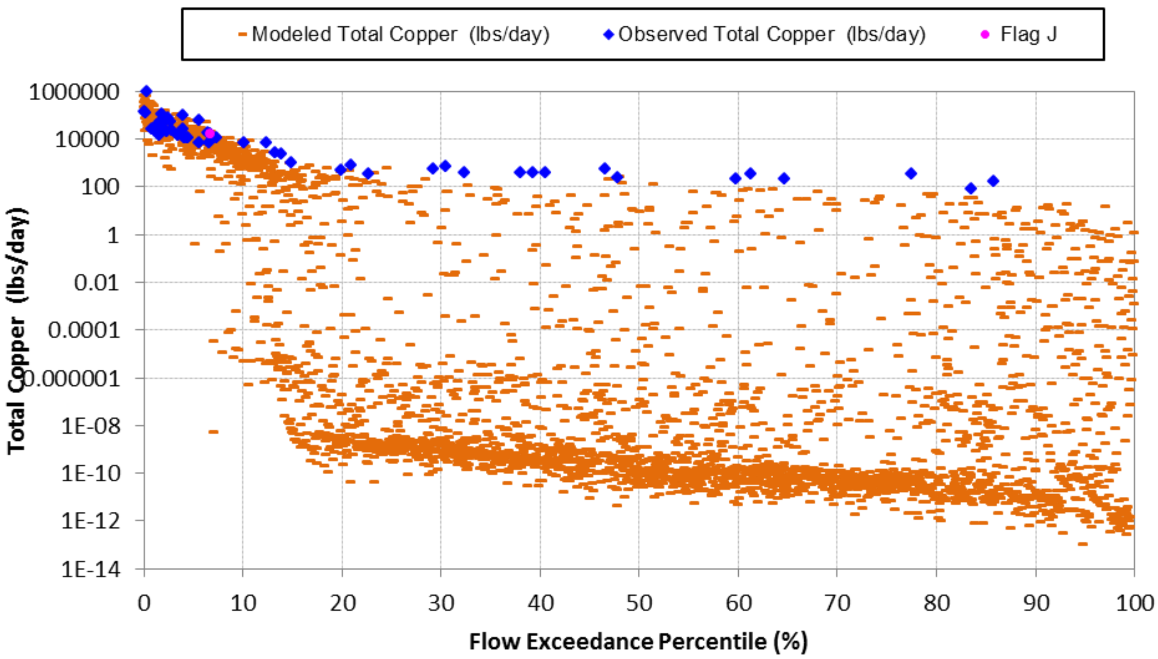


Figure 56. Simulated vs. observed load duration plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

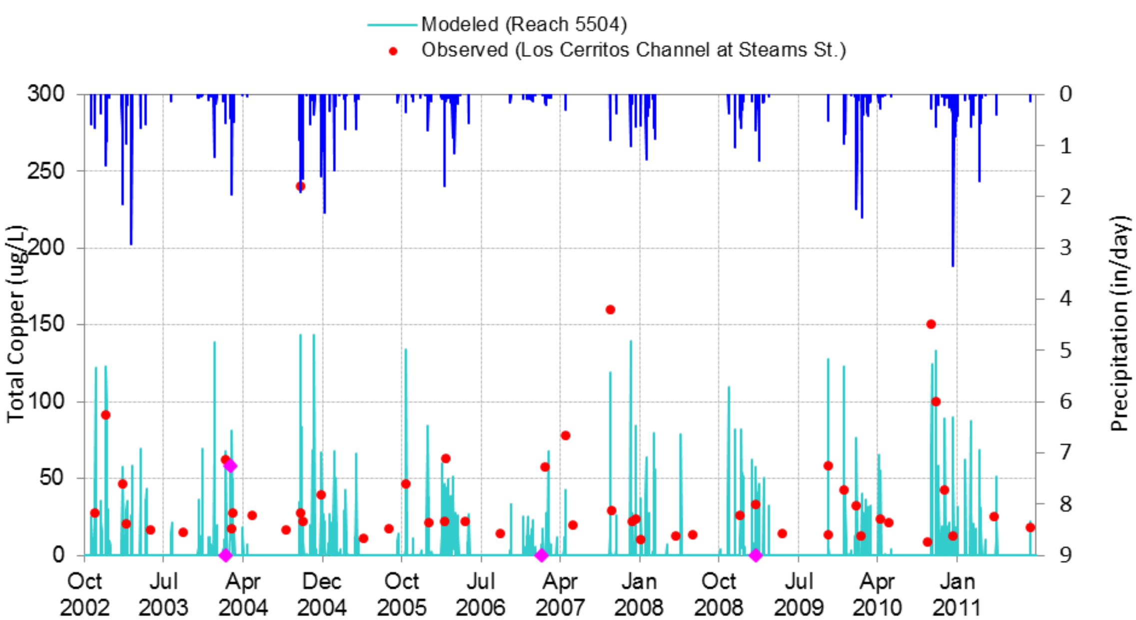


Figure 57. Simulated vs. observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

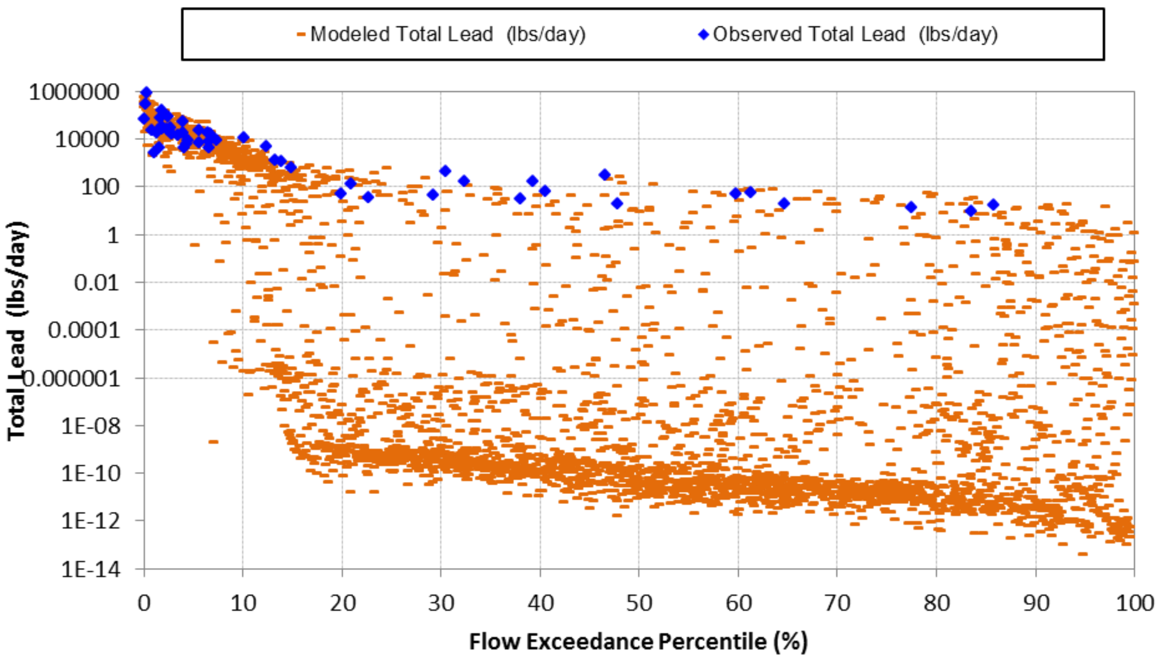


Figure 58. Simulated vs. observed load duration plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

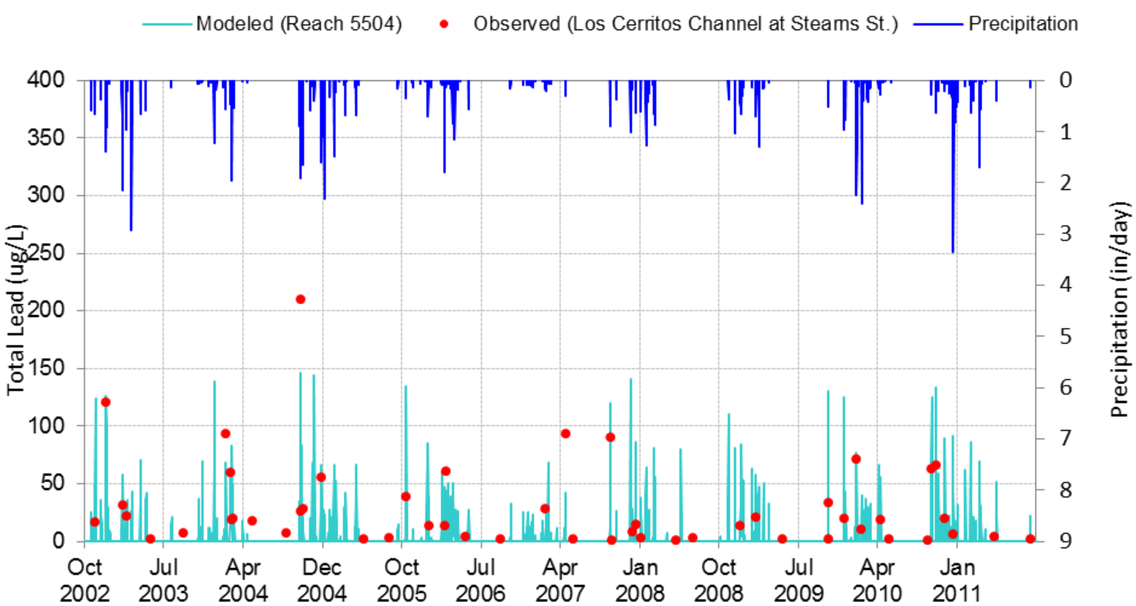


Figure 59. Simulated vs. observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

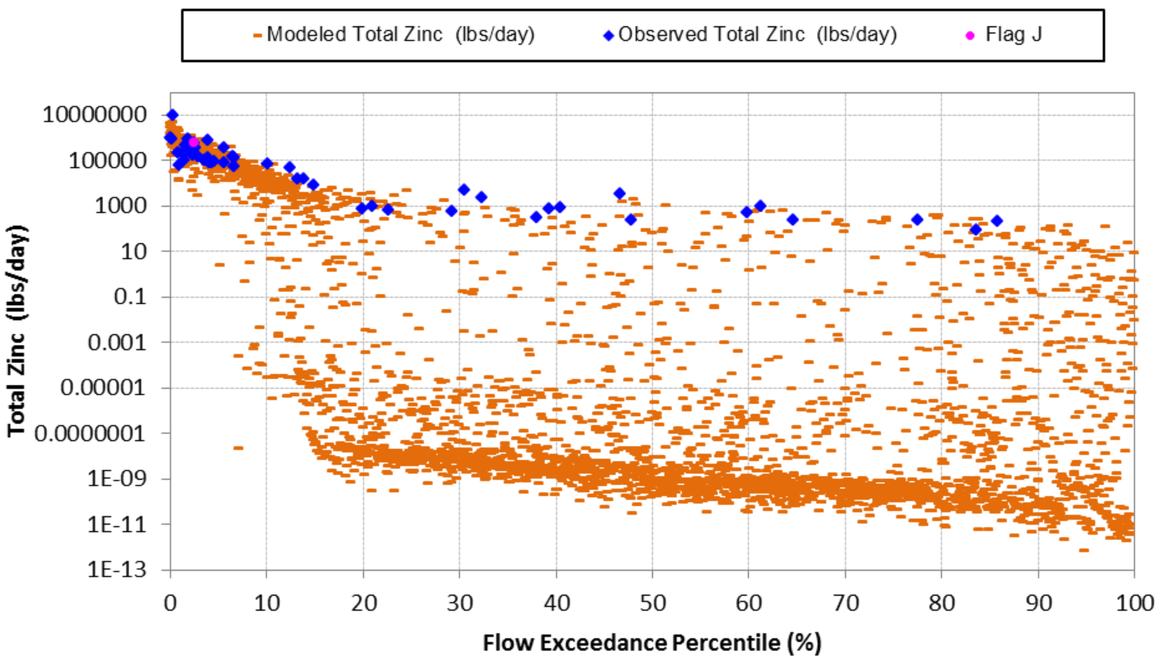


Figure 60. Simulated vs. observed load duration plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

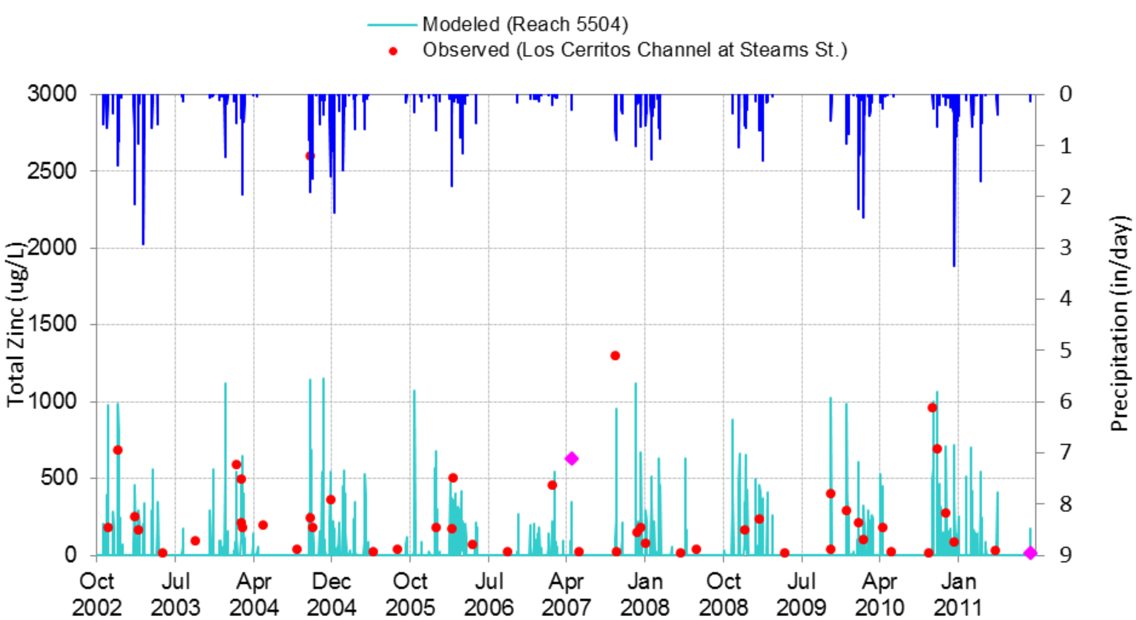


Figure 61. Simulated vs. observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

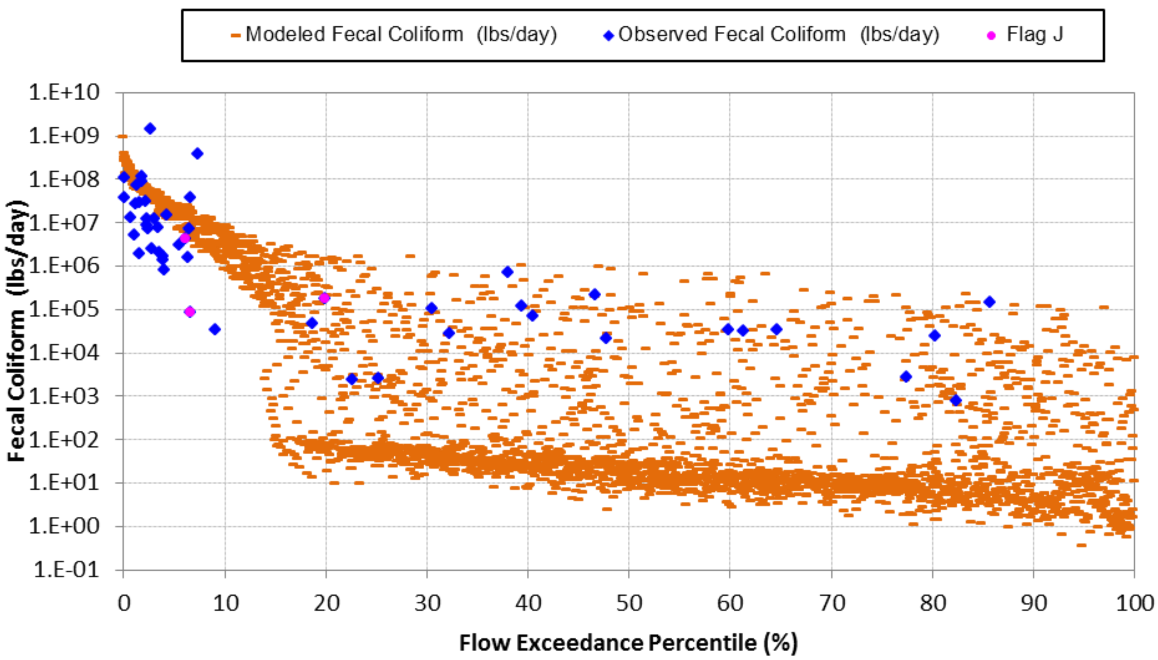


Figure 62. Simulated vs. observed load duration plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

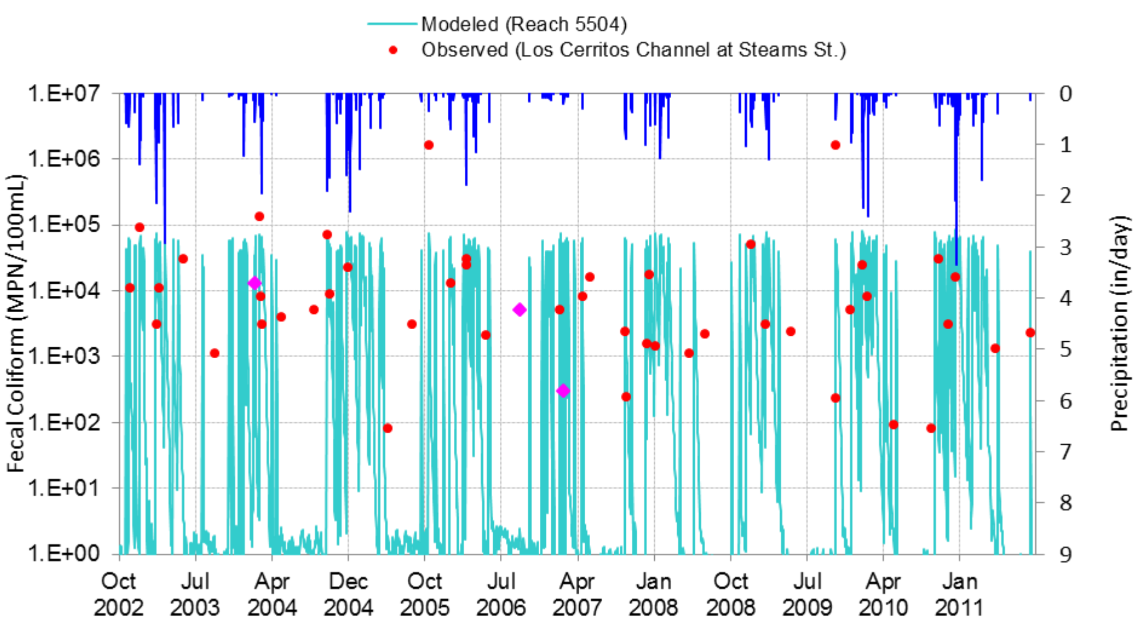


Figure 63. Simulated vs. observed timeseries plots for Fecal Coliform (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

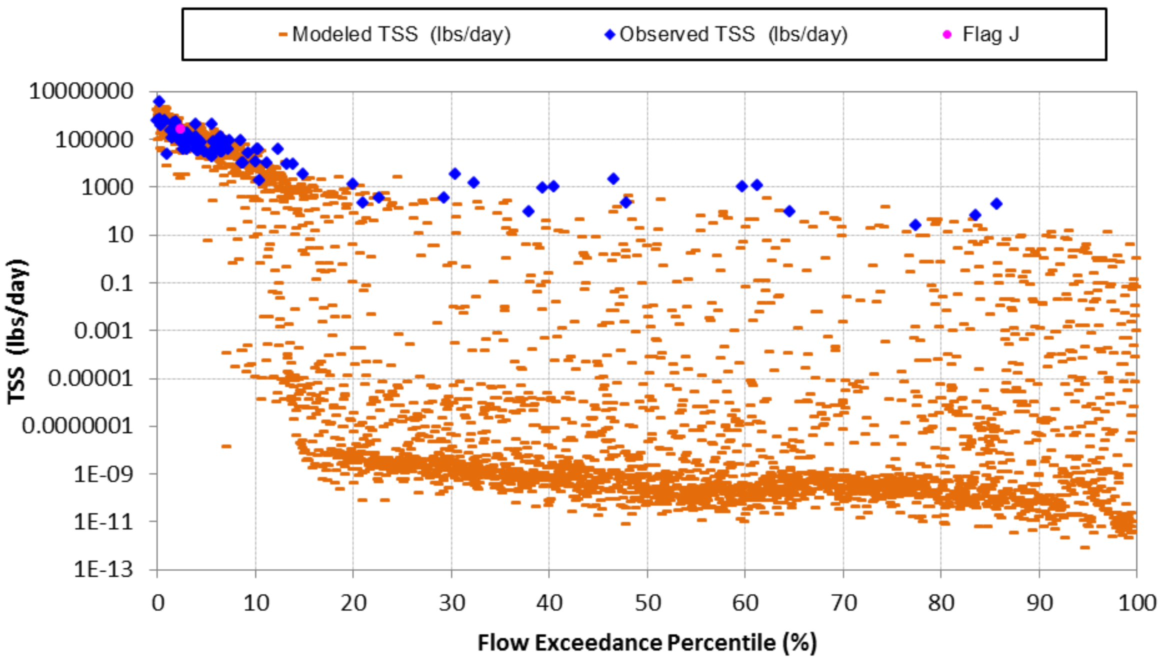


Figure 64. Simulated vs. observed load duration plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

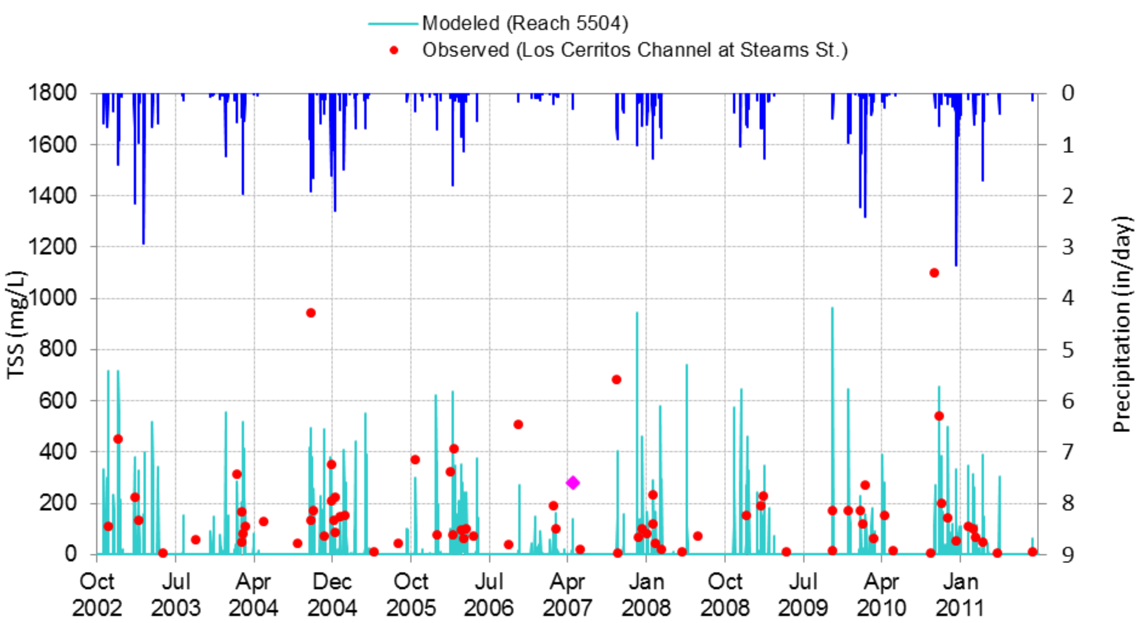


Figure 65. Simulated vs. observed time series plots for Total Sediment (10/1/2002 through 9/30/2011) at Los Cerritos Channel LA DPW Stearns Street monitoring station.

Attachment F: Modeled Existing Versus Allowable Pollutant Loadings Plots

Submitted to:

LLAR WMP Group LCC WMP Group LSGR WMP Group

Submitted by:

Tetra Tech

9444 Balboa Ave., Suite 215

San Diego, CA 92123

January 15, 2015

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1. Lower San Gabriel River

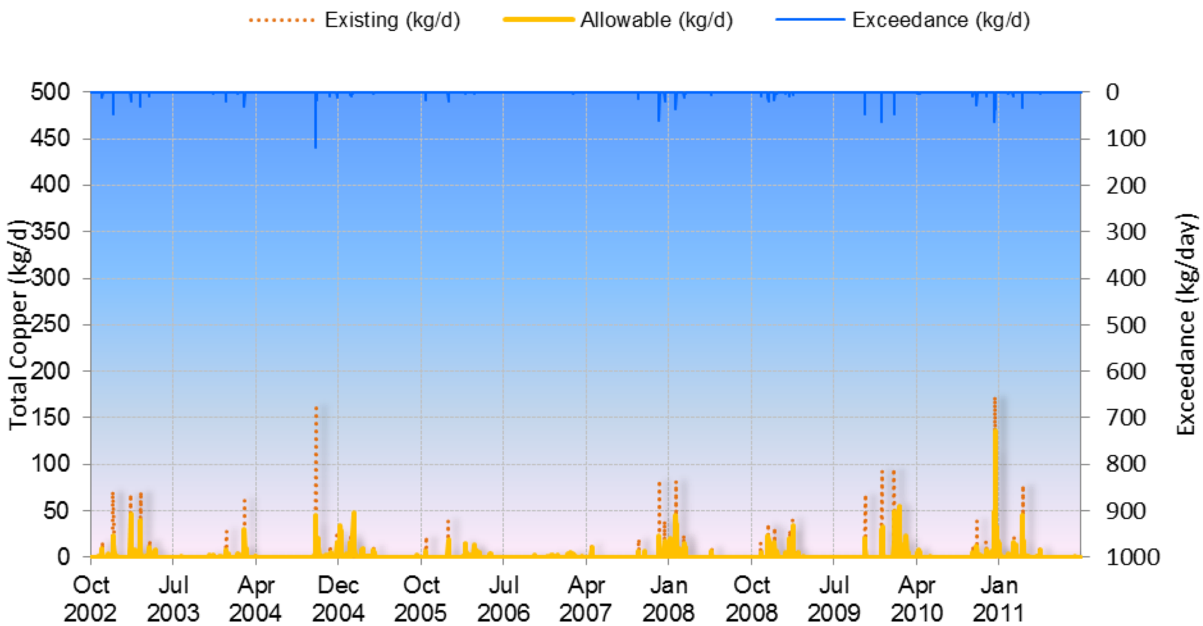

Figure 1. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

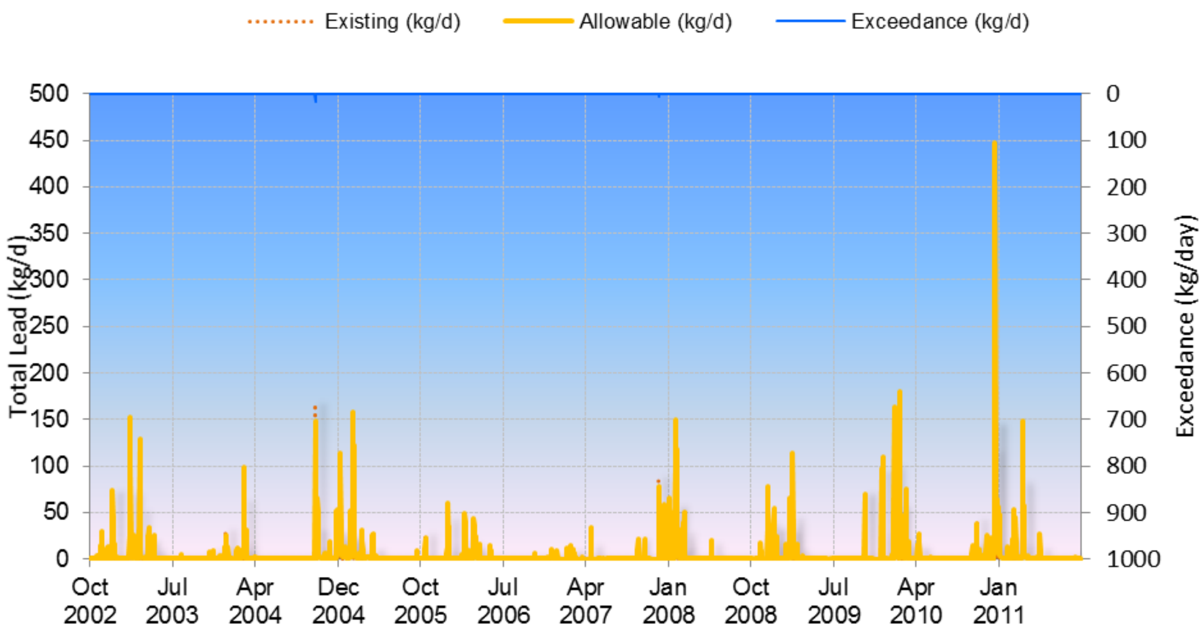

Figure 2. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

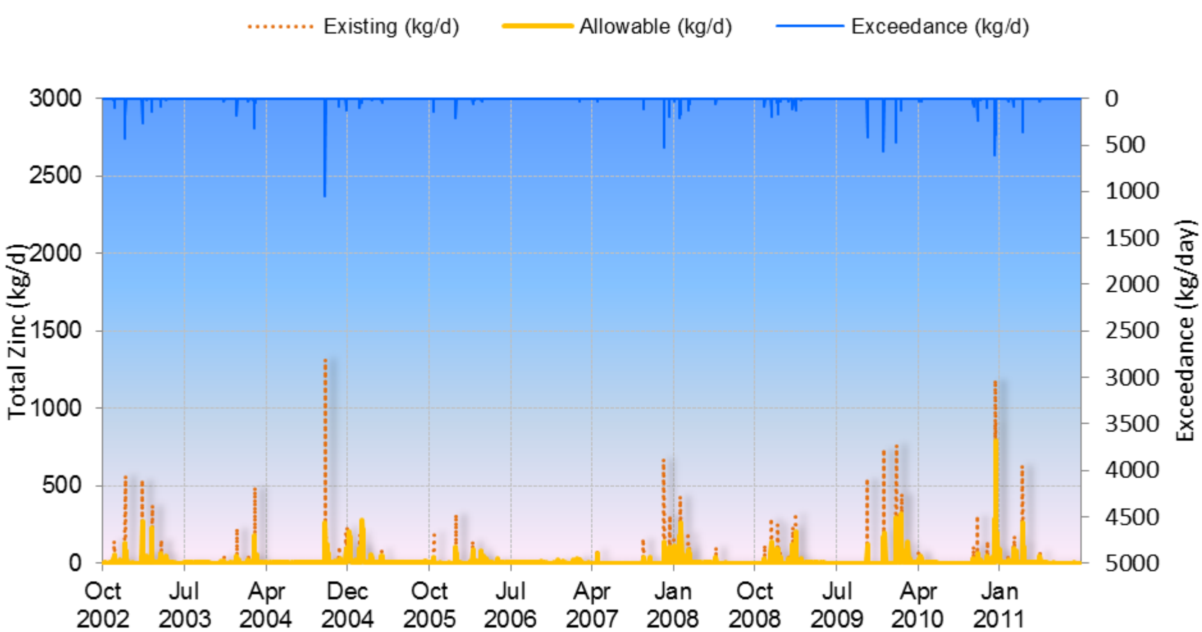

Figure 3. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at San Gabriel River mass emission station S14.

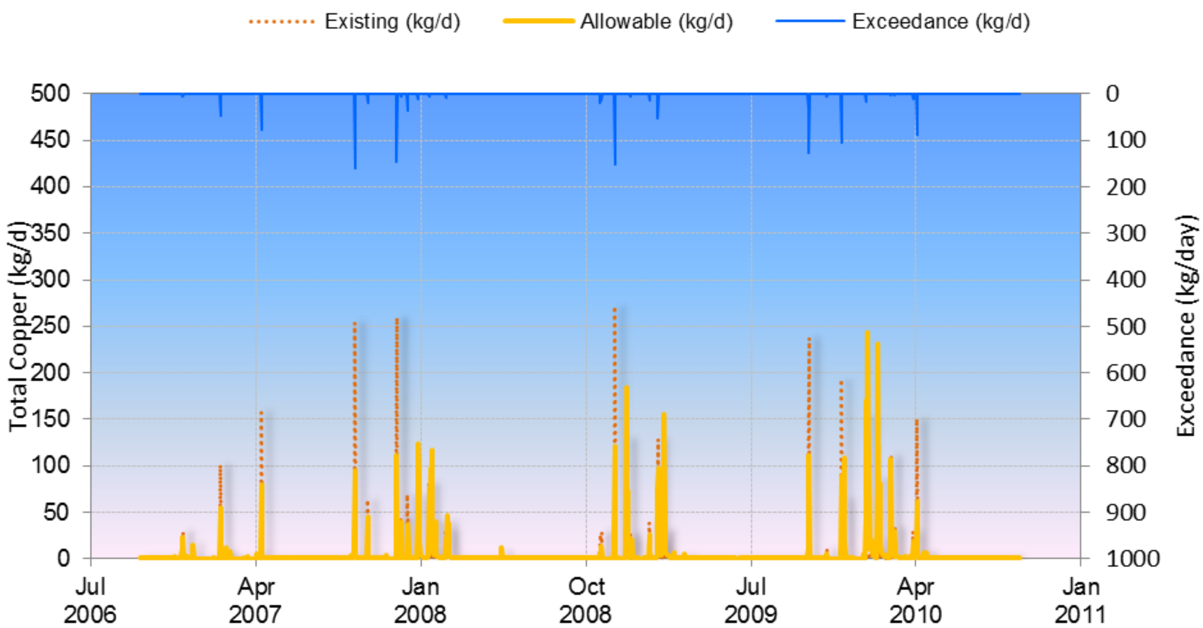

Figure 4. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2006 through 9/30/2011) at Coyote Creek mass emission station S13.

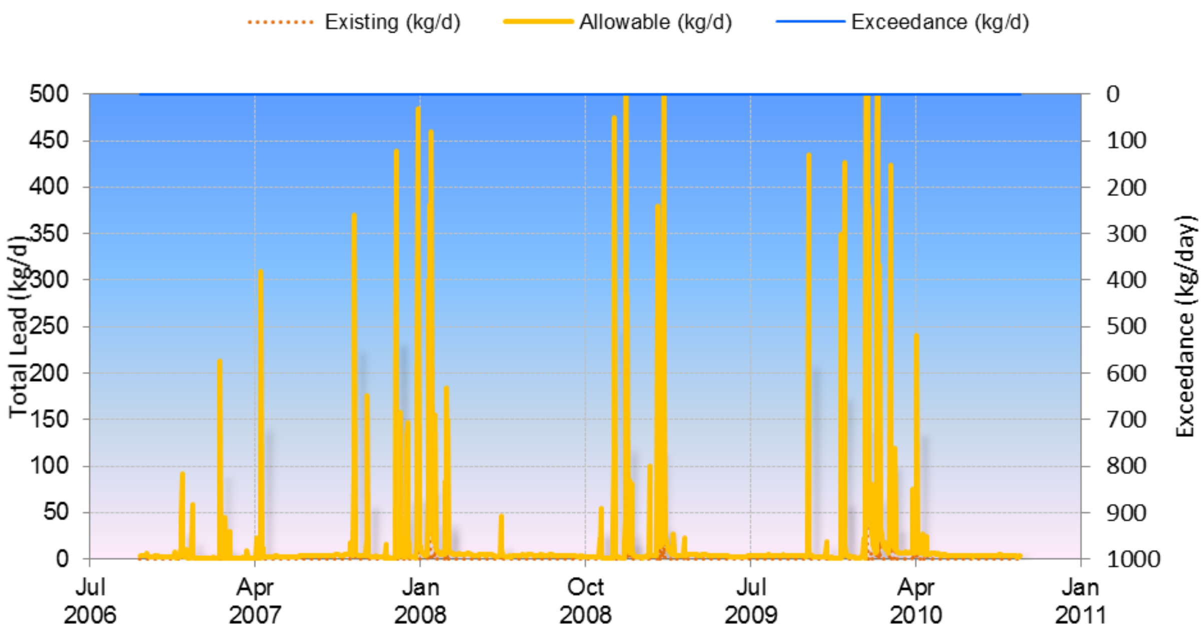

Figure 5. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2006 through 9/30/2011) at Coyote Creek mass emission station S13.

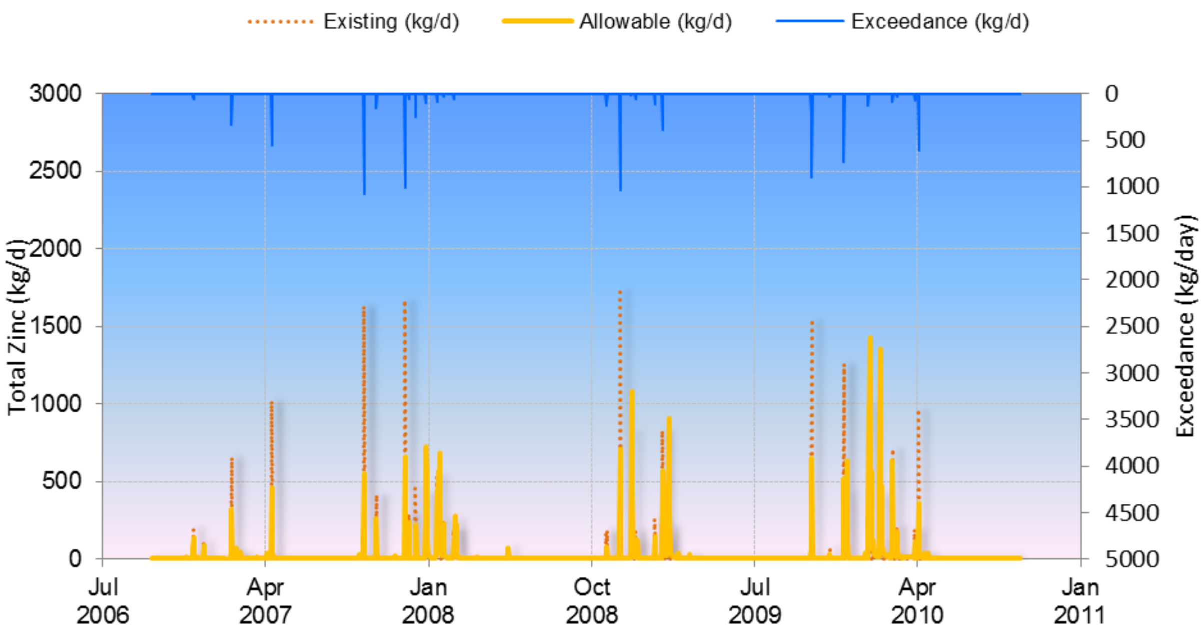

Figure 6. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2006 through 9/30/2011) at Coyote Creek mass emission station S13.

2. Lower Los Angeles River

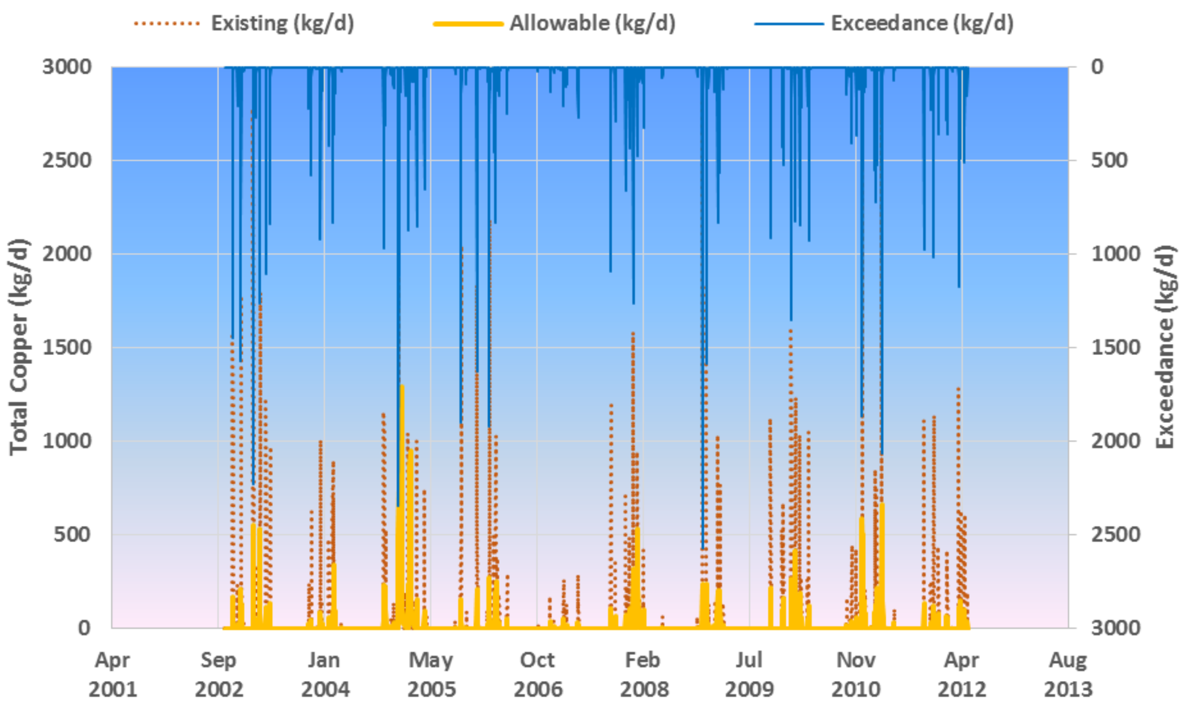

Figure 7. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

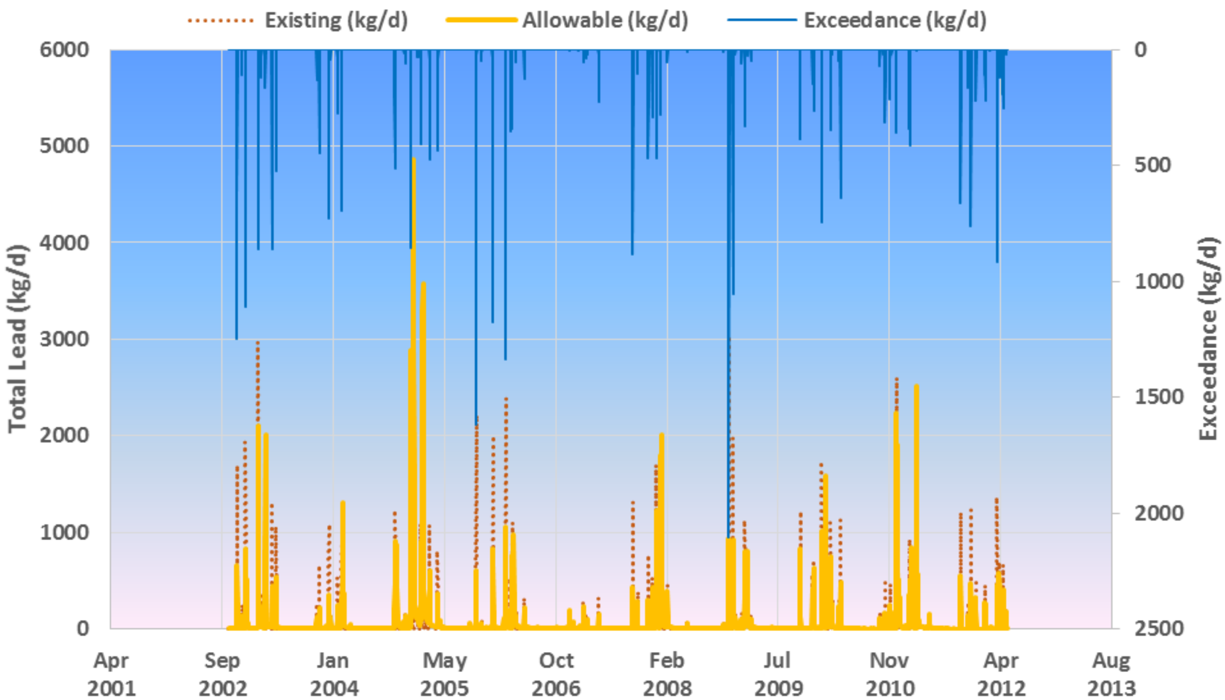

Figure 8. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

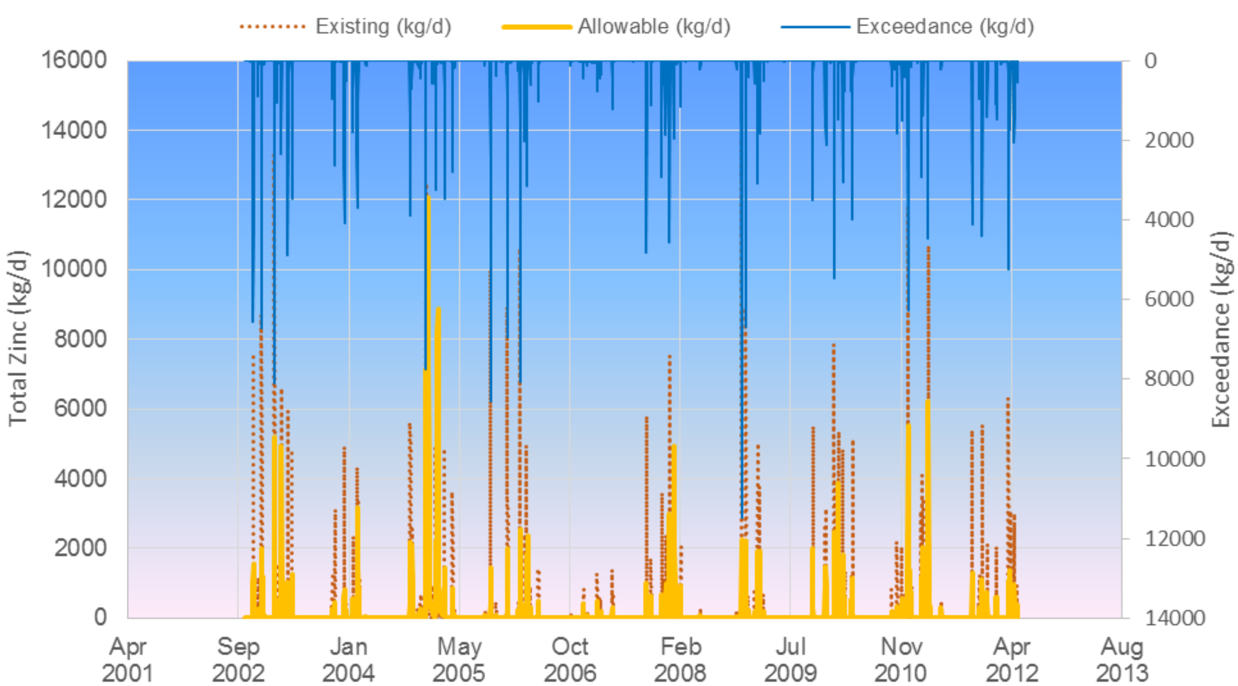

Figure 9. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Angeles River mass emission station S10.

3. Los Cerritos Channel

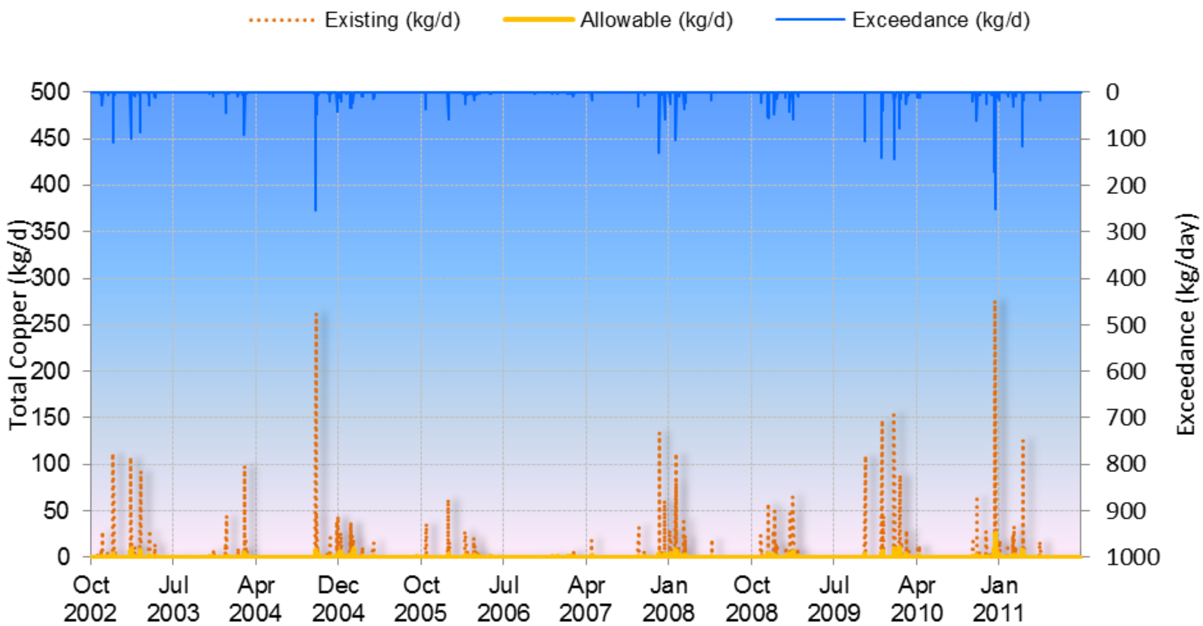

Figure 10. Modeled existing vs. allowable observed timeseries plots for Total Copper (10/1/2002 through 9/30/2011) at Los Cerritos Channel City of Long Beach Stearns Street monitoring station.

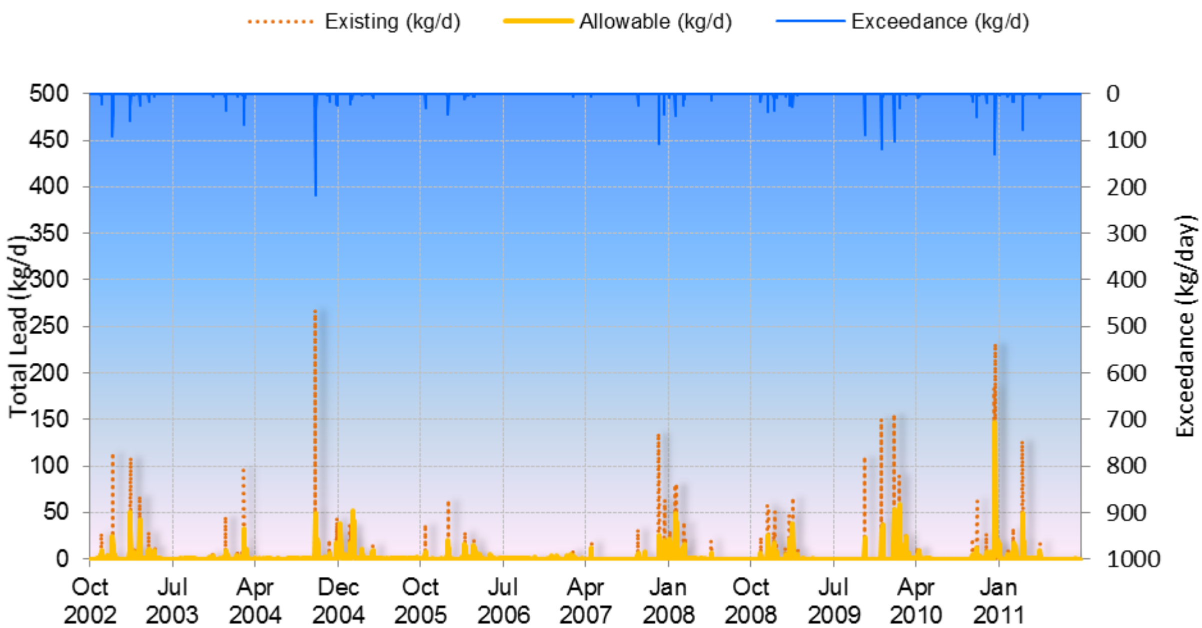

Figure 11. Modeled existing vs. allowable observed timeseries plots for Total Lead (10/1/2002 through 9/30/2011) at Los Cerritos Channel City of Long Beach Stearns Street monitoring station.

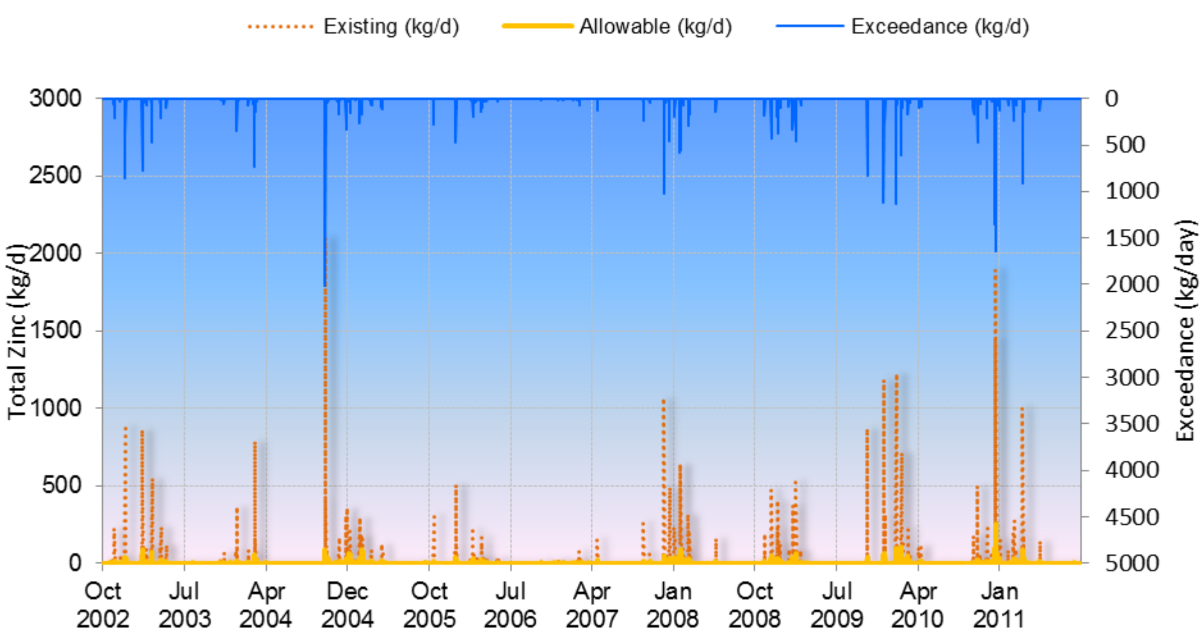

Figure 12. Modeled existing vs. allowable observed timeseries plots for Total Zinc (10/1/2002 through 9/30/2011) at Los Cerritos Channel City of Long Beach Stearns Street monitoring station.

Watershed Management Program Appendix 7

A-7-1 Legal Authority Letters

RICHARDS | WATSON | GERSHON
ATTORNEYS AT LAW – A PROFESSIONAL CORPORATION
355 South Grand Avenue, 40th Floor, Los Angeles, California 90071-3101
Telephone 213.626.8484 Facsimile 213.626.0078

December 9, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of Artesia to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of Artesia (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Title 6, Chapter 7 of the Artesia Municipal Code ("AMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (AMC § 6-7.09--Requirements for industrial/commercial and construction activities);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (AMC § 6-7.06--Prohibited activities; AMC § 6-7.08--Good housekeeping provisions);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (AMC § 6-7.06--Prohibited activities);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (AMC § 6-7.06--Prohibited activities; AMC § 6-7.08--Good housekeeping provisions; AMC § 6-7.11--Enforcement);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or

orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (AMC § 6-7.11--Enforcement);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (AMC § 6-7.11--Enforcement);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (AMC § 6-7.06--Prohibited activities; AMC § 6-7.11--Enforcement);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (AMC § 6-7.06--Prohibited activities; AMC § 6-7.11--Enforcement);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects; AMC § 6-7.08--Good housekeeping provisions);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (AMC § 6-7.10--Standard urban stormwater mitigation plan (SUSMP) requirements for specified new development and redevelopment projects)); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4 (MBMC §

5.84.100--Adoption urban stormwater mitigation plan (SUSMP); AMC § 6-7.08--Good housekeeping provisions; AMC § 6-7.11--Enforcement).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (MBMC Chapter 5.84) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges).
- Administrative Penalties and Citations (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations; AMC Title 1, Chapter 7—Administrative Citations).

B. Nuisance Remedies

- Public nuisance under State law.

- City nuisance abatement procedures (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations; AMC Title 1, Chapter 7—Administrative Citations).

C. Criminal Remedies

- Misdemeanor citations/prosecution (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, Chapter 4—Citations).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (AMC Title 1, Chapter 2—Penalty Provisions and Judicial Challenges; AMC Title 1, AMC Title 1, Chapter 7—Administrative Citations).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

Kevin G. Ennis
City Attorney

cc: Mayor and Members of the City Council
William Rawlings, City Manager
Justine Menzel, Deputy Executive Director
Candice K. Lee, Esq.
Andrew Brady, Esq.

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December 6, 2013

Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013-1105

Re: Statement of Legal Authority

Dear Mr. Unger:

This letter is provided to serve as the Statement of Legal Authority for the City of Bellflower (the "City") that must be submitted with its Annual Report pursuant to Part VI.A.2.b. of Order No. R4-2012-0175 for NPDES Permit No. CAS004001. As legal counsel for the City, it is my considered legal opinion the City has all the necessary legal authority to implement and enforce the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order during the reporting period of July 1, 2012 through June 30, 2013, to the extent permitted by State and Federal law, subject to the limitations on municipal action under the California and United States Constitutions.

Per the requirement in Part VI.A.2.b.i., here are citations to the Bellflower Municipal Code ("BMC") for each of the following requirements found in Part VI.A.2.a:

i. *Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.*

BMC Sections: 13.20.090 Control of Pollutants from Industrial and Commercial Facilities, 13.20.100 Control of Pollutants from Industrial Activities, 13.20.110 Control of Pollutants from Construction Activities Requiring General Construction Activity Stormwater Permit, and 13.20.120 Control of Pollutants from Other Construction Activities

ii. *Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

iii. *Prohibit and eliminate illicit discharges and illicit connections to the MS4.*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.070 Illicit Connections

iv. *Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.*

BMC Section: 13.20.060 Illegal Disposal/Dumping

v. *Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);*

BMC Section: 13.20.140 Violation, Inspection, Enforcement

vi. *Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.*

BMC Section: 13.20.140 Violation, Inspection, Enforcement

vii. *Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Co-permittees;*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

viii. *Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation;*

BMC Sections: 13.20.050 Illicit Discharges and Nonstormwater Discharges and 13.20.080 Reduction of Pollutants in Runoff

ix. *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters.*

This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4;

BMC Section: 13.20.140 Violation, Inspection, Enforcement

x. *Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations;*

BMC Sections: 13.20.090 Control of Pollutants from Industrial and Commercial Facilities and 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

xi. *Require that structural BMPs are properly operated and maintained;*

BMC Section: 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

xii. *Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.*

BMC Section: 13.20.130 Control of Pollutants from New Development/Redevelopment Projects

Per the requirement in Part VI.A.2.b.ii., the City's legal procedures available to mandate compliance with applicable municipal ordinances identified in the above section, and therefore with the conditions of the Order, can be found in BMC Section 13.20.140 Violation, Inspection, Enforcement. Here is the relevant text of that provision:

13.20.140 Violation, Inspection, Enforcement.

A. Violation of any provision of this chapter, any stormwater pollution prevention plan or any permit issued pursuant to this chapter shall be a violation per Chapter 1.08.

B. The Director of Community Development, or the Director's designees, may issue notices of violation and administrative orders to achieve compliance with the provisions of this chapter. Failure to comply with the terms and conditions of such a notice of violation or an administrative order shall constitute a violation of this chapter.

C. The violation of any provision of this chapter is hereby declared to be a nuisance, and may be abated by the City in accordance with its authority to abate nuisances.

D. The remedies listed in this chapter are not exclusive of any other remedies available to the City under any applicable Federal, State or local law and it is within the discretion of the City to seek cumulative remedies.

[...]

F. The Director of Community Development, or the Director's designees, may issue notice of violation and administrative orders to any other person who has failed to comply with either a notice of violation or other administrative order an invoice for costs (invoice of cost) for reimbursement of the City's actual costs incurred in issuing and enforcement of any provision of this chapter.

G. The Director of Community Development, or the Director's designees, may require that any person engaged in any activity and/or owning or operating any facility which may cause or contribute to stormwater pollution or contamination, illicit discharges and/or discharge of nonstormwater to the stormwater system, undertake such monitoring activities and/or analysis and furnish such reports as the officer may specify. The burden, including costs, of these activities, analysis and reports shall bear a reasonable relationship to the need for the monitoring, analysis and the benefits to be obtained.

Thus, enforcement actions can be completed administratively or judicially if necessary.

Please contact the undersigned if you have any questions.

Sincerely,

ALESHIRE & WYNDER, LLP

Joseph W. Pannone
City Attorney for the City of Bellflower

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December 3, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013-1105

Re: Statement of Legal Authority

Dear Mr. Unger:

This letter is provided to serve as the Statement of Legal Authority for the City of Cerritos (the "City") that must be submitted with its Annual Report pursuant to Part VI.A.2.b. of Order No. R4-2012-0175 for NPDES Permit No. CAS004001. As legal counsel for the City, I have determined that it has all the necessary legal authority to implement and enforce the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order during the reporting period of July 1, 2012 through June 30, 2013, to the extent permitted by State and Federal law, subject to the limitations on municipal action under the California and United States Constitutions.

Per the requirement in Part VI.A.2.b.i., here are citations to the City's Municipal Code for each of the following requirements found in Part VI.A.2.a:

i. *Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.*

   Municipal Code Sections: 6.32.050 Construction sites requiring building permit and/or grading plan and 6.32.060 Industrial activity sites

ii. *Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.*

   Municipal Code Section: 6.32.030 Illicit discharges and connections

iii. *Prohibit and eliminate illicit discharges and illicit connections to the MS4.*

Municipal Code Section: 6.32.030 Illicit discharges and connections

iv. *Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.*

Municipal Code Sections: 6.32.030 Illicit discharges and connections and 6.32.040 Illicit disposal

v. *Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);*

Municipal Code Sections: 6.32.010 Purpose and 6.32.080 Violation—Penalty

vi. *Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.*

Municipal Code Section: 6.32.080 Violation—Penalty

vii. *Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Co-permittees;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

viii. *Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

ix. *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4;*

Municipal Code Section: 6.32.080 Violation—Penalty, subsection (D)

x. *Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations;*

Municipal Code Section: 6.32.030 Illicit discharges and connections

xi. *Require that structural BMPs are properly operated and maintained;*

Municipal Code Section: 6.32.055 Urban runoff mitigation plan for new development

xii. *Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.*

Municipal Code Section: 6.32.055 Urban runoff mitigation plan for new development

Per the requirement in Part VI.A.2.b.ii., the City's legal procedures available to mandate compliance with applicable municipal ordinances identified in the above section, and therefore with the conditions of the Order, can be found in Municipal Code Section 6.32.080 Violation—Penalty. Here is the relevant text of that provision:

6.32.080 Violation—Penalty.

(A) The violation of any provision of this chapter, or failure to comply with any of the requirements of this chapter, shall constitute a misdemeanor; except that notwithstanding any other provision of this chapter, any such violation constituting a misdemeanor under this chapter may, at the sole discretion of the authorized enforcement officer, by charged and prosecuted as an infraction.

(B) In addition to the penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to the public health, safety and welfare, is declared and deemed a nuisance, may be summarily abated and/or restored by the authorized enforcement officer, and/or civil action to abate, enjoin or otherwise compel the cessation of such nuisance.

(1) The cost of such abatement and restoration shall be borne by the owner of the property and the cost thereof shall be invoiced to the owner of the property. If the invoice is not paid with sixty days, a lien shall be placed upon and against the property. If the lien is not satisfied within three months, the property may be sold in satisfaction thereof in a like manner as other real property is sold under execution.

(2) If any violation of this chapter constitutes a seasonal recurrent nuisance, the authorized enforcement officer shall so declare. Thereafter such seasonal and recurrent nuisance shall be abated every year without the necessity of any further hearing.

(3) In any administrative or civil proceeding under this chapter in which the city prevails, the city shall be awarded all costs of investigation, administrative overhead, out-of-pocket expenses, costs of suit and reasonable attorney fees.

(C) Penalties for Failure to Comply with BMPs. The authorized enforcement officer shall enforce this chapter as follows:

(1) For the first failure to comply with any provision of this chapter, the authorized enforcement officer shall issue to the affected person or business a written notice which includes the following information:

(a) A statement specifying the violation committed;

(b) A specified time period within which the affected person or business must correct the failure or file a written notice disputing the notice of failure to comply;

(c) A statement of the penalty for continued noncompliance.

(2) For each subsequent failure to comply with any provision of this chapter, following written notice issued pursuant to subsection (C)(1) of this section, the authorized enforcement officer may levy a penalty of one hundred dollars each day during which a person or business fails to comply with the provisions of this chapter. Each day following written notice shall constitute a separate offense. Said penalty shall be set by the city council resolution.

[...]

Thus, enforcement actions can be completed administratively or judicially if necessary.

Please contact the undersigned if you have any questions.

Sincerely,

ALESHIRE & WYNDER, LLP

Mark W. Steres

Mark W. Steres
City Attorney for the City of Cerritos

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WOODRUFF, SPRADLIN & SMART
A Professional Corporation

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December 4, 2013

VIA FIRST CLASS MAIL

Mr. Samuel Unger
Executive Officer
Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Re: Legal Authority Certification for the City of Diamond Bar

Dear Mr. Unger:

The City of Diamond Bar ("City"), through its City Attorney, submits this statement in its capacity as a Permittee pursuant to Part VI.A.2 of RWQCB Order R4-2012-0175 ("Order").

1. Legal Authority Statement

The undersigned City Attorney for the City of Diamond Bar does hereby state that in my opinion the City has or will timely obtain adequate legal authority to comply with the legal requirements imposed upon the City set forth in the regulations to the Clean Water Act, 40 CFR [Code of Federal Regulations] 122.26(d)(2)(i)(A-F), and to the extent permitted by State and Federal law and subject to the limitations on municipal action under the California and United States Constitutions. The City has the authority under the Constitution and statutes of the State of California to enact and enforce ordinances. The City has enacted ordinances to implement and enforce a stormwater control program. These ordinances contain specific enforcement provisions such as the suspension and revocation of permits and stop work orders and/or are enforceable under the generally applicable enforcement provisions of the City's Municipal Code (misdemeanors or infractions; suspension or revocation of permits and stop work orders; and nuisance abatement and recovery of abatement expenses).

2. Status of Implementation

The City has recently amended its ordinances regulating stormwater discharges to ensure that it has the adequate legal authority to implement and enforce its stormwater control program as directed by the "Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)", hereafter the "NPDES Permit". The City

anticipates one additional cleanup amendment will be brought to the City Council this month or in early December of this year.

3. City Departments

The City's Public Works Department, Community Development Department and Code Enforcement Officers are all involved with the regulation of stormwater runoff and runoff related activities, including grading, water quality, erosion control, and litter. One or more of these City departments or department directors are authorized and directed to take the actions contemplated by the regulations, *e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc. The City Attorney has authority under the ordinances and state law to bring criminal and civil enforcement actions.

Please do not hesitate to contact the undersigned should you have any questions or need any additional information.

Sincerely,

WOODRUFF, SPRADLIN & SMART
A Professional Corporation

DAVID A. DEBERRY
City Attorney, City of Diamond Bar

cc: James DeStefano, City Manager
David Liu, Public Works Director
Kimberly Young, Associate Engineer

City of Downey

FUTURE UNLIMITED

YVETTE M. ABICH GARCIA
City Attorney

December 12, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

RE: Legal Authority Certification for the City of Downey

Dear Mr. Unger:

As the City Attorney for the City of Downey, I have reviewed the City's existing ordinances, applicable statutes, and/or applicable contracts and have determined that as of the date of this letter, the City can operate pursuant to the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI.A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001] (the "2012 NPDES Permit"). Enforcement of the City's storm water ordinances can be completed administratively or, if necessary, through the judicial system.

This letter is limited to the matters contained herein, and should not be read as expressing any opinion on any other matter except on the matters expressly set forth herein.

Please call the undersigned if you have any questions.

Sincerely,

CITY OF DOWNEY

Yvette M. Abich Garcia
City Attorney

cc: John L. Hunter & Associates

"*Our Youth - Our Future*"

CITY OF HAWAIIAN GARDENS

December 15, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

RE: Legal Authority Certification for the City of Hawaiian Gardens

Dear Mr. Unger:

As legal counsel for the City of Hawaiian Gardens, I have reviewed its existing ordinances, applicable statutes, and/or existing contracts and have determined that the City has enacted the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI.A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001].

Please call the undersigned if you have any questions, or you may contact me by e-mail at osandoval@wss-law.com.

Sincerely,

Omar Sandoval

Omar Sandoval, Esq.
Woodruff, Spradlin & Smart
555 Anton Boulevard, Suite 1200
Costa Mesa, California 92626
Main:(714) 558-7000
Fax: (714) 835-7787

cc: John L. Hunter & Associates

COUNTY OF LOS ANGELES
OFFICE OF THE COUNTY COUNSEL
648 KENNETH HAHN HALL OF ADMINISTRATION
500 WEST TEMPLE STREET
LOS ANGELES, CALIFORNIA 90012-2713

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December 16, 2013

Mr. Samuel Unger, P.E., Executive Officer
California Regional Water Quality Control Board – Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013-2343

Attention: Mr. Ivar Ridgeway

Re: Certification By Legal Counsel For Los Angeles County Flood Control District's Annual Report

Dear Mr. Unger:

Pursuant to the requirements of Part VI(A)(2)(b) of Order No. R4-2012-0175 (the "Order"), the Office of the County Counsel of the County of Los Angeles makes the following certification in support of the Annual Report of the Los Angeles County Flood Control District ("LACFCD"):

Certification Pursuant To Order Part VI(A)(2)(b)

"*Each Permittee must submit a statement certified by its chief legal counsel that the Permittee has the legal authority within its jurisdiction to implement and enforce the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and this Order.*"

LACFCD has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and the Order.

Order Part VI(A)(2)(b)(i)

"*Citation of applicable municipal ordinances or other appropriate legal authorities and their relationship to the requirements of 40 CFR §122.26(d)(2)(i)(A-F) and this Order*"

Citations Of Applicable Ordinances Or Other Legal Authorities

Although many portions of State law, the Charter of the County of Los Angeles, the Los Angeles County Code and LACFCD's Flood Control District Code ("Code") are potentially applicable to the implementation and enforcement of these requirements, the primary applicable laws and ordinances are as follows:

Los Angeles County Code, Title 12, Chapter 12.80 STORMWATER AND RUNOFF POLLUTION CONTROL, including:

§12.80.010 - §12.80.360 Definitions

§12.80.370 Short title.

§12.80.380 Purpose and intent.

§12.80.390 Applicability of this chapter.

§12.80.400 Standards, guidelines and criteria.

§12.80.410 Illicit discharges prohibited.

§12.80.420 Installation or use of illicit connections prohibited.

§12.80.430 Removal of illicit connection from the storm drain system.

§12.80.440 Littering and other discharge of polluting or damaging substances prohibited.

§12.80.450 Stormwater and runoff pollution mitigation for construction activity.

§12.80.460 Prohibited discharges from industrial or commercial activity.

§12.80.470 Industrial/commercial facility sources required to obtain a NPDES permit.

§12.80.480 Public facility sources required to obtain a NPDES permit.

§12.80.490 Notification of uncontrolled discharges required.

§12.80.500 Good housekeeping provisions.

§12.80.510 Best management practices for construction activity.

§12.80.520 Best management practices for industrial and commercial facilities.

§12.80.530 Installation of structural BMPs.

§12.80.540 BMPs to be consistent with environmental goals.

§12.80.550 Enforcement—Director's powers and duties.

§12.80.560 Identification for inspectors and maintenance personnel.

§12.80.570 Obstructing access to facilities prohibited.

§12.80.580 Inspection to ascertain compliance—Access required.

§12.80.590 Interference with inspector prohibited.

§12.80.600 Notice to correct violations—Director may take action.

§12.80.610 Violation a public nuisance.

§12.80.620 Nuisance abatement—Director to perform work when—Costs.

§12.80.630 Violation—Penalty.

§12.80.635 Administrative fines.

§12.80.640 Penalties not exclusive.

§12.80.650 Conflicts with other code sections.

§12.80.660 Severability.

§12.80.700 Purpose.

§12.80.710 Applicability.

§12.80.720 Registration required.

§12.80.730 Exempt facilities.

§12.80.740 Certificate of inspection—Issuance by the director.

§12.80.750 Certificate of inspection—Suspension or revocation.

§12.80.760 Certificate of inspection—Termination.

§12.80.770 Service fees.

§12.80.780 Fee schedule.

§12.80.790 Credit for overlapping inspection programs.

§12.80.800 Annual review of fees.

Los Angeles County Code, Title 12, Chapter 12.84 LOW IMPACT DEVELOPMENT STANDARDS, including:

§12.84.410 Purpose.

§12.84.420 Definitions.

§12.84.430 Applicability.

§12.84.440 Low Impact Development Standards.

§12.84.445 Hydromodification Control.

§12.84.450 LID Plan Review.

§12.84.460 Additional Requirements.

Los Angeles County Code, Title 22 PLANNING AND ZONING, Part 6 ENFORCEMENT PROCEDURES, including:

§22.60.330 General prohibitions.

§22.60.340 Violations.

§22.60.350 Public nuisance.

§22.60.360 Infractions.

§22.60.370 Injunction.

§22.60.380 Enforcement.

§22.60.390 Zoning enforcement order and noncompliance fee.

Los Angeles County Code, Title 26 BUILDING CODE, including:

§26.103 Violations And Penalties

§26.104 Organization And Enforcement

§26.105 Appeals Boards

§26.106 Permits

§26.107 Fees

§26.108 Inspections

LACFCD Code Chapter 21 - STORMWATER AND RUNOFF POLLUTION CONTROL including:

§21.01 Purpose and Intent

§21.03 Definitions

§21.05 Standards, Guidelines, and Criteria

§21.07 Prohibited Discharges

§21.09 Installation or Use of Illicit Connections Prohibited

§21.11 Littering Prohibited

§21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity

§21.15 Notification of Uncontrolled Discharges Required

§21.17 Requirement to Monitor and Analyze

§21.19 Conflicts With Other Code Sections

§21.21 Severability

§21.23 Violation a Public Nuisance

California Government Code §6502

California Government Code §23004

California Water Code §8100 *et. seq.*

Relationship Of Applicable Ordinances Or Other Legal Authorities To The Requirements of 40 CFR §122.26(d)(2)(i)(A-F) And The Order

Although, depending upon the particular issue, there may be multiple ways in which particular sections of the County of Los Angeles' ordinances, LACFCD's ordinances, and statutes relate to the requirements contained in 40 CFR §122.26(d)(2)(i)(A-F) and the Order, the table below indicates the basic relationship with Part VI(A)(2)(a) of the Order:

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
i. Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.450 [construction] §12.80.460 [industrial and commercial] §12.80.470 and .480 [industrial and commercial NPDES requirements] §12.84.440 [LID standards] §12.84.445 [hydromodification control] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.340 [violations] §22.60.350 [public nuisance] §22.60.360 [infractions] §22.60.370 [injunction] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.103 [violations and penalties]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§26.104 [enforcement] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
ii. Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited] LACFCD Code: §21.07 Prohibited Discharges
iii. Prohibit and eliminate illicit discharges and illicit connections to the MS4.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.420 [illicit connections prohibited] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.23 Violation a Public Nuisance

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
iv. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4.	Los Angeles County Code: §12.80.410 [illicit discharge prohibited]; §12.80.440 [littering and other polluting prohibited] LACFCD Code: §19.07 Interference With or Placing Obstructions, Refuse, Contaminating Substances, or Invasive Species in Facilities Prohibited §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
v. Require compliance with conditions in Permittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows).	Los Angeles County Code: §12.80.490 [notification of uncontrolled discharge] §12.80.570 [obstructing access to facilities] §12.80.580 [compliance inspection] §12.80.610 [violation a nuisance] §12.620 [nuisance abatement] §12.80.635 [violation penalty]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§12.80.640 [penalties not exclusive] §12.84.440 [LID standards] §12.84.445 [hydromodification control] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.340 [violations] §22.60.350 [public nuisance] §22.60.360 [infractions] §22.60.370 [injunction] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.103 [violations and penalties] §26.104 [enforcement] §26.106 [permits] §26.108 [inspections] LACFCD Code: §19.11 Violation a Public Nuisance §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.19 Conflicts With Other Code Sections §21.23 Violation a Public Nuisance
vi. Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders.	Same as item v., above
vii. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees.	California Government Code §6502 California Government Code §23004
viii. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation.	California Government Code §6502 California Government Code §23004
ix. Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4.	Los Angeles County Code: §12.80.490 [notification of uncontrolled discharge] §12.80.570 [obstructing access to facilities] §12.80.580 [compliance inspection] §12.80.610 [violation a nuisance] §12.80.620 [nuisance abatement] §12.80.635 [violation penalty] §12.80.640 [penalties not exclusive] §22.60.380 [enforcement.] §26.106 [permits] §26.108 [inspections]

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
x. Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations.	Los Angeles County Code: §12.80.450 [construction mitigation] §12.80.500 [good housekeeping practices] §12.80.510 [construction BMPs] §12.80.520 [industrial/commercial BMPs] §12.84.440 [LID standards] §12.84.450 [LID Plan Review] §22.60.330 [general prohibitions] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance
xi. Require that structural BMPs are properly operated and maintained.	Los Angeles County Code: §12.80.530 [installation of structural BMPs] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze

Order Part VI(A)(2)(a) Items	Primary Applicable Ordinance/Statute
	§21.23 Violation a Public Nuisance
xii. Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4.	Los Angeles County Code: §12.80.530 [installation of structural BMPs] §22.60.380 [enforcement.] §22.60.390 [zoning enforcement order] §26.106 [permits] §26.108 [inspections] LACFCD Code: §21.05 Standards, Guidelines, and Criteria §21.07 Prohibited Discharges §21.09 Installation or Use of Illicit Connections Prohibited §21.11 Littering Prohibited §21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity §21.15 Notification of Uncontrolled Discharges Required §21.17 Requirement to Monitor and Analyze §21.23 Violation a Public Nuisance

<u>Order Part VI(A)(2)(b)(ii)</u>

"*Identification of the local administrative and legal procedures available to mandate compliance with applicable municipal ordinances identified in subsection (i) above and therefore with the conditions of this Order, and a statement as to whether enforcement actions can be completed administratively or whether they must be commenced and completed in the judicial system.*"

The local administrative and legal procedures available to mandate compliance with the above ordinances are specified in those ordinances, particularly in:

Los Angeles County Code:

§12.80.550 Enforcement—Director's powers and duties.

§12.80.600 Notice to correct violations—Director may take action.

§12.80.610 Violation a public nuisance.

§12.80.620 Nuisance abatement—Director to perform work when—Costs.

§12.80.630 Violation—Penalty.

§12.80.635 Administrative fines.

§12.80.640 Penalties not exclusive.

§12.84.450 LID Plan Review.

§12.84.460 Additional Requirements.

Title 26, §103 Violations And Penalties

Title 26, §104 Organization And Enforcement

Title 26, §105 Appeals Boards

Title 26, §106 Permits

§22.60.330 General prohibitions.

§22.60.340 Violations.

§22.60.350 Public nuisance.

§22.60.360 Infractions.

§22.60.370 Injunction.

§22.60.380 Enforcement.

§22.60.390 Zoning enforcement order and noncompliance fee.

LACFCD Code:

§21.05 Standards, Guidelines, and Criteria

§21.07 Prohibited Discharges

§21.09 Installation or Use of Illicit Connections Prohibited

§21.11 Littering Prohibited

§21.13 Evidence of Compliance With Permit Requirements for Industrial or Commercial Activity

§21.15 Notification of Uncontrolled Discharges Required

§21.17 Requirement to Monitor and Analyze

§21.23 Violation a Public Nuisance

LACFCD attempts to first resolve each enforcement action administratively. However, the above cited ordinances also provide LACFCD with the authority to pursue such actions in the judicial system as necessary.

Very truly yours,

JOHN F. KRATTLI
County Counsel

By Judith A. Fries
JUDITH A. FRIES
Principal Deputy County Counsel
Public Works Division

JAF:jyj

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December 9, 2013

Lisa Rapp, Director of Public Works
City of Lakewood
5050 Clark Avenue
Lakewood, CA 90712

Re: Order No. R4-2012-0175
NPDES No. CAS004001

Dear Ms. Rapp:

In my capacity as City Attorney for the City of Lakewood (the "City"), I hereby confirm that the City has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR @ 122.26(d)(2)(i)(A-F) and the Order referenced above. Such legal authority is derived from Article 11, Section 7 of the California Constitution, Section 13002 of the California Water Code, and Section 5801 of the Lakewood Municipal Code, which incorporates by reference the pertinent provisions of the Los Angeles County Code.

The City is authorized to take enforcement action by administrative proceedings or in the judicial system.

Very truly yours,

Steven N. Skolnik

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355 South Grand Avenue, 40th Floor, Los Angeles, California 90071-3101
Telephone 213.626.8484 Facsimile 213.626.0078

December 9, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of La Mirada to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of La Mirada (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the

extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Chapter 13.12 of the La Mirada Municipal Code ("LMMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (LMMC § 13.12.070—Industrial Site Activity; 13.12.060—Construction sites requiring a building permit and/or grading plan);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (LMMC § 13.12.040 --Illicit discharges and connection.; LMMC § 13.12.050--Illicit disposal);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (LMMC § 13.12.040 --Illicit discharges and connections; LMMC § 13.12.050--Illicit disposal);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (LMMC § 13.12.040 --Illicit discharges and connections.; LMMC §

13.12.050--Illicit disposal; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (LMMC § 13.12.040 --Illicit discharges and connections; LMMC § 13.12.050--Illicit disposal; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (LMMC § 13.12.070—Industrial Site Activity; 13.12.060—Construction sites requiring a building permit and/or grading plan; LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their effectiveness in reducing the discharge of pollutants to the MS4 (LMMC § 13.12.075--Standard urban stormwater mitigation plan (SUSMP) requirements; LMMC § 13.12.090--Civil remedies available; LMMC § 13.12.100--Penalty for violation of chapter).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (LMMC Chapter 13.12) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).
- Administrative Penalties and Citations (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

B. Nuisance Remedies

- Public nuisance under State law.
- City nuisance abatement procedures (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

C. Criminal Remedies

- Misdemeanor citations/prosecution (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (LMMC Chapter 1.08—Penalties, Administrative and Civil Remedies, and General Provisions).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

James L. Markman
City Attorney

cc: Mayor and Members of the City Council
Jeff Boynton, City Manager
Gary Sanui, Public Works Director
Marlin Muñoz, Senior Administrative Analyst
Candice K. Lee, Esq.
Andrew Brady, Esq.

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OFFICE OF THE CITY ATTORNEY
Long Beach, California

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Amy R. Webber
Theodore B. Zinger

February 26, 2015

VIA CERTIFIED MAIL AND EMAIL

RETURN RECEIPT REQUESTED

Mr. Samuel Unger, P.E., Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013-2343

Attention: Mr. Ivar Ridgeway

RE: City of Long Beach Order No. R4-2014-0024/NPDES Permit No. CAS004003: City of Long Beach Statement of Legal Authority (2014-2015)

Dear Mr. Unger:

This office serves as City Attorney to the City of Long Beach. Pursuant to the requirements of Part VII.A (2)(b) of Order No. R4-2014-0024 ("Order") and NPDES Permit No. CAS004003 ("Permit"), the Long Beach City Attorney's Office submits this statement of legal authority.

The City of Long Beach ("City") has the legal authority to implement and enforce a majority of the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and the Order during the reporting period. In addition, insofar as certain legal requirements are not yet in place, the City is actively working to approve additional ordinances that will permit the City to meet all of the requirements of the Order and the Permit, resulting in a comprehensive and updated NPDES ordinance which contains provisions and remedies specifically tailored to the Order. It is anticipated that the remaining ordinances will be approved and in place prior to December 31, 2015.

The City's legal authority to implement and enforce these requirements is derived from the City's general police powers under Article XI, Section 7 of the California Constitution, and more particularly, the provisions of the Long Beach Municipal Code ("LBMC"), including Chapter 18.61 (NPDES and SUSMP Regulations) and the NPDES and SUSMP Regulations Manual, which details technical information and implementation parameters, alternative compliance for technical infeasibility, as well as other rules, requirements and procedures for implementation.

City Hall 333 West Ocean Boulevard, Eleventh Floor, Long Beach, California 90802-4664 (562) 570-2200 Fax (562) 436-1579
Workers Compensation ... 245 Fax (562) 570-2220

The City's legal procedures available to mandate compliance with the provisions of Chapter 18.61 include LBMC section 1.32 which deems any violation of the LBMC to be enforceable criminally as an infraction or misdemeanor, or as a public nuisance that can be abated and remedied administratively or judicially, in accordance with the enforcement procedures set forth in LBMC section 1.32.

If you have questions regarding this matter, please do not hesitate to contact this Office.

Very truly yours,

CHARLES PARKIN, City Attorney

By:
AMY R. WEBBER
Deputy City Attorney

ARW:arw A15-00019
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cc: Charles Parkin, City Attorney
Patrick H. West, City Manager
John L. Hunter, Stormwater Consultant (jhunter@jlha.net)

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Telephone 213.626.8484 Facsimile 213.626.0078

December 11, 2013

VIA U.S. MAIL AND E-MAIL

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
sunger@waterboards.ca.gov

Re: Legal Authority of the City of Norwalk to Implement and Enforce the Requirements of 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order R4-2012-0175, NPDES Permit CAS004001

Dear Mr. Unger:

The City of Norwalk (the "City"), by and through its City Attorney, hereby submits the following certification ("Statement"), pursuant to Section VI.A.2.b of Order R4-2012-0175 (NPDES Permit CAS004001), issued by the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on November 8, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System ("MS4") Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (the "Permit").

The City is one of the co-permittees under the Permit. Section VI.A.2.b of the Permit requires the City to provide the RWQCB with a statement by its chief legal counsel, certifying that the City has the legal authority to implement and enforce each of the current requirements set forth in 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Permit. The purpose of this Statement is to describe the City's compliance with Section VI.A.2.b of the Permit. As discussed in further detail herein, it is our opinion that the City has the necessary legal authority to implement the Permit and to control and prohibit discharges of pollutants into the Municipal Separate Storm Sewer System ("MS4"). However, this Statement is not, nor should it be construed as, a waiver of any rights that the City may have relating to the Permit.

1. Legal Authority Statement

In our opinion, the City has the necessary legal authority to comply with the legal requirements imposed upon it under the Permit, consistent with the requirements set forth in the U.S. Environmental Protection Agency's regulations promulgated under the Clean Water Act, and, specifically, 40 C.F.R. § 122.26(d)(2)(i)(A-F), and to the extent permitted by state and federal law and subject to the limitations on municipal action under the California and United States Constitutions, except as noted herein.

The City, as a general law city, has broad general police powers under the California Constitution to enact legislation for health and public welfare of the community to the extent not preempted by federal or state law. In addition, the City adopted ordinances for the purpose of ensuring that it has adequate legal authority to implement and enforce its storm water control program. The City has the authority under the California Constitution and state law to enact and enforce these ordinances, and these ordinances were duly enacted.

2. Ordinances

The City has adopted ordinances related to the regulation of urban runoff to control and prohibit discharges of pollutants into the MS4 and to comply with the requirements of the Permit applicable to it, as well as, to the extent applicable, 40 C.F.R. § 122.26 (d)(2)(i)(A)-(F). The City's Storm Water Ordinance (Chapter 18.04 of the Norwalk Municipal Code ("NMC")) is the principal City ordinance addressing the control of urban runoff. Under this ordinance, the City has the necessary legal authority to do the following:

i. 40 C.F.R. § 122.26(d)(2)(i)(A); Permit Section VI.A.2.a.i: Control the contribution of pollutants to its MS4 from storm water discharges associated with industrial and construction activity and control the quality of storm water discharged from industrial and construction sites. This requirement applies both to industrial and construction sites with coverage under an NPDES permit, as well as to those sites that do not have coverage under an NPDES permit (NMC § 18.04.100--Requirements for industrial/commercial and construction activities);

ii. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.ii: Prohibit all non-storm water discharges through the MS4 to receiving waters not otherwise authorized or conditionally exempt pursuant to Part III.A (NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions);

iii. 40 C.F.R. § 122.26(d)(2)(i)(B); Permit Section VI.A.2.a.iii: Prohibit and eliminate illicit discharges and illicit connections to the MS4 (NMC § 18.04.070--Prohibited activities);

iv. 40 C.F.R. § 122.26(d)(2)(i)(C); Permit Section VI.A.2.a.iv: Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4 (NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement);

v. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.v: Require compliance with conditions in Permittee ordinances, permits, contracts or

orders (*i.e.*, hold dischargers to its MS4 accountable for their contributions of pollutants and flows) (NMC §18.04.110--Enforcement);

vi. 40 C.F.R. § 122.26(d)(2)(i)(E)-(F); Permit Section VI.A.2.a.vi: Utilize enforcement mechanisms to require compliance with applicable ordinances, permits, contracts, or orders (NMC §18.04.110--Enforcement);

vii. 40 C.F.R. § 122.26(d)(2)(i)(D); Permit Section VI.A.2.a.vii: Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees (NMC § 18.04.070--Prohibited activities; NMC §18.04.110--Enforcement);

viii. 40 C.F.R. § 122.26 (d)(2)(i)(D); Permit Section VI.A.2.a.viii: Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation (NMC § 18.04.070--Prohibited activities; NMC §18.04.110--Enforcement);

ix. 40 C.F.R. § 122.26(d)(2)(i)(F); Permit Section VI.A.2.a.ix: Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with applicable municipal ordinances, permits, contracts and orders, and with the provisions of this Order, including the prohibition of non-storm water discharges into the MS4 and receiving waters. This means the Permittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from entities discharging into its MS4 (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects);

x. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.x: Require the use of control measures to prevent or reduce the discharge of pollutants to achieve water quality standards/receiving water limitations (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects; NMC § 18.04.070--Prohibited activities; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement);

xi. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xi: Require that structural BMPs are properly operated and maintained (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects); and

xii. 40 C.F.R. § 122.26(d)(2)(i)(E); Permit Section VI.A.2.a.xii: Require documentation on the operation and maintenance of structural BMPs and their

effectiveness in reducing the discharge of pollutants to the MS4 (NMC § 18.04.105 Standard urban stormwater mitigation plan (SUSMP) requirements for new development and redevelopment projects; NMC §18.04.090--Good housekeeping provisions; NMC §18.04.110--Enforcement).

3. Implementation

Some of the City's ordinances are implemented through permit programs and others are implemented as regulatory programs. Under each ordinance, one or more City bodies, departments, or department directors are authorized and directed in each ordinance to take the actions contemplated by the ordinance (*e.g.*, to consider evidence and make findings, to issue or deny permits, to impose conditions on projects, to inspect, to take enforcement action, etc.).

The City's Storm Water Ordinance (NMC Chapter 18.04) is the principal City ordinance addressing the control of urban runoff. This ordinance is regulatory, and applies to specified new and existing residential and business communities and associated facilities and activities, as well as new development and redevelopment, and all other specified new and existing facilities and activities that threaten to discharge pollutants within the boundaries of the City and within its regulatory jurisdiction, whether or not a City permit or approval is required. The City's Storm Water Ordinance also contains discharge prohibitions and requirements for the implementation of BMPs and other requirements necessary to implement the Permit.

Other City departments require compliance with the City's Storm Water Ordinance as a condition for issuance of relevant City permits. City departments may also impose specific conditions of approval consistent with the City's Storm Water Ordinance. All City environmental ordinances are also implemented, in part, through the application of the CEQA process to proposed projects.

4. Administrative and Judicial/Legal Procedures

In addition to the above authority, the City has in place various legal and administrative procedures to assist in enforcing the various urban runoff related Ordinances, including the following:

A. Administrative Remedies

- General Penalties (NMC Chapter 1.16--Violations).
- Administrative Penalties and Citations (NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).

B. Nuisance Remedies

- Public nuisance under State law.

- City nuisance abatement procedures (NMC Chapter 1.16—Violations; NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).

C. Criminal Remedies

- Misdemeanor citations/prosecution (NMC Chapter 1.12—Arrest and Citation Procedure).

D. Equitable Remedies

- Injunctive relief under State law and the Municipal Code (NMC Chapter 1.16—Violations; NMC Chapter 1.13—Administrative Citations; NMC Chapter 1.12—Arrest and Citation Procedure).
- Declaratory relief under State law.

E. Other Civil Remedies

- Federal law claims (*e.g.*, Clean Water Act and Resource Conservation and Recovery Act Citizen Suits).
- Remedies under the California Government Code.

Violations of the City's Storm Water Ordinance are deemed a "public nuisance," in which case enforcement actions can be completed administratively, or judicially when necessary.

Please contact me if you have any questions or if you need any additional information regarding the City's legal authority to enforce the Permit.

Very truly yours,

Steven L. Dorsey

Steven L. Dorsey
City Attorney

cc: Mayor and Members of the City Council
Michael Egan, City Manager
Adriana Figueroa, Administrative Services Manager
Candice K. Lee, Esq.
Andrew Brady, Esq.

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December 13, 2013

Sam Unger, P.E., Executive Officer
California Regional Water Quality
Control Board -- Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013-1105

Subject: Certification of Legal Authority

Dear Mr. Unger:

Alvarez-Glasman & Colvin serves as the City Attorney's Office for the City of Pico Rivera. As the City Attorney for the City of Pico Rivera (the "City"), I am aware of the following legal authority requirements specified in VI.A.2.b, of the MS4 Permit for Los Angeles County, Order No. R4-2012-0175, NPDES Permit No. CAS004001:

Each Permittee must submit a statement certified by its chief legal counsel that the Permittee has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR § 122.26(d)(2)(i)(A-F) and this Order. Each Permittee shall submit this certification annually as part of its Annual Report beginning with the first Annual Report required under this Order. These statements must include:

i. Citation of applicable municipal ordinances or other appropriate legal authorities and their relationship to the requirements of 40 CFR § 122.26(d)(2)(i)(A)-(F) and of this Order; and

ii. Identification of the local administrative and legal procedures available to mandate compliance with applicable municipal ordinances identified in subsection (i) above and therefore with the conditions of this Order, and a statement as to whether enforcement actions can be completed administratively or whether they must be commenced and completed in the judicial system.

The City has the legal authority to require compliance with the requirements associated with 40 CFR § 122.26(d)(2)(i)(A-F) and applicable provisions of the Order per Chapter 16.04 Storm Water and Urban Runoff Pollution Prevention of the City of Pico Rivera Municipal Code. The City has had such legal authority since 2002.

The City's Municipal Code provides for both administrative enforcement and legal enforcement of violations, which may result in administrative, civil, or criminal penalties. Section 16.04.140 provides that in the event the City serves a person with a notice of violation, and that person fails to comply within the given time period, the City has multiple remedies which are not listed to be exclusive or exhaustive, including: seeking prosecution of violations as a misdemeanor resulting in fines or imprisonment; seeking restitution of costs incurred by the City in the investigation and enforcement of compliance; and prosecution of violations as nuisance abatement resulting in liens and cost recovery.

Should you have any questions regarding this matter, please feel free to contact Deputy City Attorney Teresa Chen at (562) 699-5500.

Sincerely,

ALVAREZ-GLASMAN & COLVIN

Arnold M. Alvarez-Glasman
City Attorney

STEVEN N. SKOLNIK
Attorney at Law
15332 Antioch Street, #436
Pacific Palisades, California 90272
Telephone: (310) 459-3418 Facsimile: (310) 606-2775
E-Mail: sskolniklaw@gmail.com

December 9, 2013

Noe Negrete, Director of Public Works
City of Santa Fe Springs
11710 Telegraph Road
Santa Fe Springs, CA 90670

Re: Order No. R4-2012-0175
NPDES No. CAS004001

Dear Mr. Negrete::

In my capacity as City Attorney for the City of Santa Fe Springs (the "City"), I hereby confirm that the City has the legal authority within its jurisdiction to implement and enforce each of the requirements contained in 40 CFR @ 122.26(d)(2)(i)(A-F) and the Order referenced above. Such legal authority is derived from Article 11, Section 7 of the California Constitution, Section 13002 of the California Water Code, and Chapter 52 of the City Code.

The City is authorized to take enforcement action by administrative proceedings or in the judicial system.

Very truly yours,

Steven N. Skolnik

J & M
JONES & MAYER
ATTORNEYS AT LAW
3777 NORTH HARBOR BOULEVARD • FULLERTON, CALIFORNIA 92835
(714) 446-1400 • (562) 697-1751 • FAX (714) 446-1448

December 9, 2013

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013-1105

Re: Legal Authority Certification for the City of Whittier

Dear Mr. Unger:

As legal counsel for the City of Whittier, I have reviewed its existing ordinances including Chapter 8.36 of the Municipal Code, applicable statutes, and/or existing contracts and have determined that the City can operate pursuant to the legal authority required in 40 CFR 122.26(d)(2)(i)(A)-(F) and Part VI. A.2 of Order No. R4-2012-0175, issued by the Regional Water Quality Control Board – Los Angeles Region ("RWQCB"), adopted on December 28, 2012 and entitled "Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach (MS4)" [NPDES No. CAS004001] (the $2012 NPDES Permit").

Please call the undersigned if you have any questions.

Sincerely,

Richard L. Adams, II
Assistant City Attorney, City of Whittier

RLA/dm

cc: David Pelser, Director of Public Works
John L. Hunter & Associates

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CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

June 18, 2015

Permittees of the Lower San Gabriel River Watershed Management Group[1]
(See Distribution List)

APPROVAL OF THE LOWER SAN GABRIEL RIVER WATERSHED MANAGEMENT GROUP COORDINATED INTEGRATED MONITORING PROGRAM, PURSUANT TO ATTACHMENT E, PART IV.B OF THE LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NPDES PERMIT NO. CAS004001; ORDER NO. R4-2012-0175) AND ATTACHMENT E, PART IV.B OF THE CITY OF LONG BEACH MS4 PERMIT (NPDES PERMIT NO. CAS004003; ORDER NO. R4-2014-0024)

Dear Permittees of the Lower San Gabriel River Watershed Management Group:

The Los Angeles Regional Water Quality Control Board (Los Angeles Water Board or Board) has reviewed the revised monitoring program submitted on February 19, 2015 by the Lower San Gabriel River Watershed Management Group (Group). This monitoring program was submitted pursuant to the provisions of NPDES Permit No. CAS004001 (Order No. R4-2012-0175), which authorizes discharges from the municipal separate storm sewer system (MS4) operated by 86 municipal Permittees within Los Angeles County (hereafter, LA County MS4 Permit), and NPDES Permit No. CAS004003 (Order No. R4-2014-0024), which authorizes MS4 discharges from the City of Long Beach (hereafter, Long Beach MS4 Permit). Both MS4 permits allow Permittees the option to develop and implement a coordinated integrated monitoring program (CIMP) that achieves the five Primary Objectives set forth in Part II.A of Attachment E and includes the elements set forth in Part II.E of Attachment E[2]. These programs must be approved by the Executive Officer of the Los Angeles Water Board.

The Los Angeles Water Board has reviewed the Group's revised CIMP and has determined that the CIMP includes the elements set forth in Part II.E of Attachment E and will achieve the Primary Objectives set forth in Part II.A of Attachment E of the LA County MS4 Permit and equivalent sections of the Long Beach MS4 Permit.

Public Review and Comment

On July 3, 2014, the Board provided public notice and a 46-day period to allow for public review and comment on the Group's draft CIMP. A separate notice of availability regarding the draft CIMPs, including the Group's CIMP, was directed to State Senators and Assembly Members

[1] Permittees of the Lower San Gabriel River Watershed Management Group CIMP include the Los Angeles County Flood Control District; and the cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, and Whittier.

[2] Equivalent sections in the Long Beach MS4 Permit are Attachment E, Parts II.A and II.D, respectively.

within the Coastal Watersheds of Los Angeles County. The Board received three comment letters that had comments applicable to the Group's draft CIMP. One joint letter was from the Natural Resources Defense Council (NRDC), Heal the Bay, and Los Angeles Waterkeeper, and the other letters were from the Construction Industry Coalition on Water Quality (CICWQ) and Ventura Countywide Stormwater Quality Management Program. During the review of the draft and revised CIMP, the Los Angeles Water Board considered those comments applicable to the Group's proposed CIMP.

Los Angeles Water Board Review

Concurrent with the public review, the Los Angeles Water Board, along with U.S. EPA Region IX staff, reviewed the draft CIMPs. On November 21, 2014, the Los Angeles Water Board sent a letter to the Group detailing the Board's comments on the draft CIMP and identifying the revisions that needed to be addressed prior to the Board's approval of the Group's CIMP. The letter directed the Group to submit a revised CIMP addressing the Los Angeles Water Board's comments. Prior to the Group's submittal of its revised CIMP, the Los Angeles Water Board staff had a meeting on January 23, 2015 and email exchanges with the Group's representatives and consultants to discuss the Board's remaining comments and necessary revisions to the draft CIMP. The Group submitted its revised CIMP on February 19, 2015 for Los Angeles Water Board review and approval.

In separate correspondence to all Permittees developing CIMPs and Integrated Monitoring Programs (IMPs), the Los Angeles Water Board will also be providing clarification of requirements for toxicity monitoring – specifically regarding additional toxicity monitoring upstream and at outfalls where toxicity is identified during at sampling event at a receiving water monitoring site.

CIMP Approval

The Los Angeles Water Board hereby approves the Group's February 19, 2015 revised CIMP. Pursuant to Attachment E, Part IV.C.6 of the LA County MS4 Permit[3], the Group must commence implementing its monitoring program within 90 days after this approval of the final CIMP (i.e. no later than September 16, 2015). Please note that the Group is responsible for complying with all reporting provisions included in Attachment E, Part XIV – XVIII and Section E of Part XIX, "Reporting Requirements for San Gabriel River WMA TMDLs," and Attachment D, Sections IV, V, and VII.A of the LA County MS4 Permit[4]. The Group is also responsible for complying with applicable reporting provisions included in Section C of Part XIX, "Reporting Requirements for Dominguez Channel and Greater Harbors Waters WMA TMDLs."[5] Finally, the Group is also responsible for complying with the following requirements under Annual Reporting and Adaptive Management.

[3] Equivalent requirement in the Long Beach MS4 Permit is Attachment E, Part IV.C.5.

[4] Equivalent requirements in the Long Beach MS4 Permit are: Attachment E, Parts XIV-XVIII; Attachment E, Part XIX.C, "Reporting Requirements for San Gabriel River WMA TMDLs"; and Attachment D, Parts IV, V, and VII.A.

[5] Equivalent requirement in the Long Beach MS4 Permit is Attachment E, Part XIX, Section A.

Annual Reporting

Within the reporting year, through its Annual Report per Attachment E, Part XVIII of the LA County MS4 Permit[6], the Group shall report on the status of the phased initiation of stormwater outfall monitoring established in the revised CIMP and specified below.

- Table 4-1 "Schedule for Implementation of Water Quality Monitoring Activities in the Lower San Gabriel River Watershed": The CIMP establishes a phased approach to initiating monitoring with receiving water station GR1 added in the first year; stormwater outfall monitoring stations CC2 and SG1 added in the second year; and stormwater outfall monitoring station BC1 added in the third year. Additionally, receiving water station GR2 may be added in the third year if San Gabriel River Reach 2 wet weather exceedances are detected at GR1.

In addition, the Annual Report shall provide an Integrated Monitoring Report that summarizes all identified exceedances of:

- o outfall-based stormwater monitoring data,
- o wet weather receiving water monitoring data,
- o dry weather receiving water monitoring data, and
- o non-storm water outfall monitoring data

against all applicable receiving water limitations, water quality-based effluent limitations, non-storm water action levels, and aquatic toxicity thresholds as defined in Sections XII.F and G of this MRP. All sample results that exceeded one or more applicable thresholds shall be readily identified.

The Annual Report shall also include a Municipal Action Level (MAL) Assessment Report, which shall present the stormwater outfall monitoring data in comparison to the applicable MALs, and identify those subwatersheds with a running average of twenty percent or greater of exceedances of the MALs in discharges of stormwater from the MS4. Please note that beginning in Year 3 after the effective date of the LA County MS4 Permit, each Permittee or group of Permittees shall submit a MAL Action Plan with the Annual Report (first MAL Action Plan due with December 15, 2015 Annual Report) to the Regional Water Board Executive Officer, for those subwatersheds with a running average of twenty percent or greater of exceedances of the MALs in any discharge of storm water from the MS4. Please note that implementation of an approved Watershed Management Program (WMP) or Enhanced Watershed Management Program (EWMP) per Part VI.C of the LA County MS4 Permit fulfills all requirements related to the development and implementation of the MAL Action Plan, as per Attachment G of the LA County MS4 Permit[7], for those pollutants addressed by the WMP or EWMP.

[6] Equivalent requirement in the Long Beach MS4 Permit is Attachment E, Part XVIII.

[7] Equivalent sections in the Long Beach MS4 Permit are Part VII.C and Attachment G.

Adaptive Management

The Regional Water Board or its Executive Officer, consistent with 40 CFR section 122.41, may approve changes to the Monitoring and Reporting Program, after providing the opportunity for public comment, either:

1. By request of the Group or by an interested person after submittal of the Monitoring Report. Such request shall be in writing and filed not later than 60 days after the Monitoring Report submittal date, or
2. As deemed necessary by the Regional Water Board Executive Officer, following notice to the Group.

As part of the adaptive management process, any modifications to the CIMP must be submitted to the Los Angeles Water Board for review and approval. The Group must implement any modifications to the CIMP upon approval by the Los Angeles Water Board or its Executive Officer, or within 60 days of submittal of modifications if the Los Angeles Water Board or its Executive Officer expresses no objections. Note that the Group's Report of Waste Discharge (ROWD) is due no later than July 1, 2017[8]. To align any modifications to the CIMP proposed through the adaptive management process with permit reissuance, results of the first adaptive management cycle should be submitted in conjunction with the Group's ROWD.

If you have any questions, please contact Mr. Chris Lopez of the Storm Water Permitting Unit by electronic mail at Chris.Lopez@waterboards.ca.gov or by phone at (213) 620-2095. Alternatively, you may also contact Mr. Ivar Ridgeway, Chief of the Storm Water Permitting Unit, by electronic mail at Ivar.Ridgeway@waterboards.ca.gov or by phone at (213) 620-2150.

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer

Enclosures: Lower San Gabriel River Watershed Management Group Distribution List

[8] The ROWD for the Long Beach MS4 Permit is due September 29, 2018.

Lower San Gabriel River Watershed Management Group
Distribution List (via email)

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acecivil@aol.com

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Keith Jones
Caltrans
kjones@dot.ca.gov

Terri Grant
Los Angeles County Flood Control District
tgrant@dpw.lacounty.gov

July 21, 2015

Permittees of the Lower San Gabriel River Watershed Management Group[1]

FINAL APPROVED LOWER SAN GABRIEL RIVER WATERSHED MANAGEMENT PROGRAM (WMP), PURSUANT TO THE LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NPDES PERMIT NO. CAS004001; ORDER NO. R4-2012-0175) AND THE CITY OF LONG BEACH MS4 PERMIT (NPDES PERMIT NO. CAS004003; ORDER NO. R4-2014-0024)

Dear Permittees of the Lower San Gabriel River Watershed Management Group:

On November 8, 2012, the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) adopted Order No. R4-2012-0175, *Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4* (hereafter, LA County MS4 Permit). On February 6, 2014, the Board adopted Order No. R4-2014-0024, *Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City of Long Beach* (hereafter, Long Beach MS4 Permit). The LA County MS4 Permit and the Long Beach MS4 Permit allow Permittees the option to develop either a Watershed Management Program (WMP) or an Enhanced Watershed Management Program (EWMP) to implement permit requirements on a watershed scale through customized strategies, control measures, and best management practices (BMPs). Development of a WMP or EWMP is voluntary and allows a Permittee to address the highest watershed priorities, including complying with the requirements of Part V.A (Receiving Water Limitations), Part VI.E and Attachments L through R (Total Maximum Daily Load Provisions), by customizing the control measures in Parts III.A (Prohibitions – Non-Storm Water Discharges) and VI.D (Minimum Control Measures), except the Planning and Land Development Program[2].

On April 28, 2015, on behalf of the Los Angeles Water Board, I approved, with conditions, the Lower San Gabriel River (LSGR) Group's WMP. My approval letter directed the LSGR Group to

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[1] Permittees of the Lower San Gabriel River Watershed Management Group include the Los Angeles County Flood Control District; and the cities of Artesia, Bellflower, Cerritos, Diamond Bar, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Pico Rivera, Santa Fe Springs, and Whittier.

[2] The cited permit sections are from the LA County MS4 Permit. Equivalent requirements in the Long Beach MS4 Permit are as follows: Part VI.A (Receiving Water Limitations), Part VIII (Total Maximum Daily Load Provisions), Part IV.B (Prohibitions – Non-Storm Water Discharges), and Part VII.D-VII.M (Minimum Control Measures).

submit a final WMP that satisfies all the conditions listed in the letter no later than June 12, 2015. On June 12, 2015 the LSGR Group submitted its final WMP, as directed.

After review of the final LSGR WMP submitted on June 12, 2015, I have determined that the LSGR Group's WMP satisfies all of the conditions identified in my April 28, 2015 approval letter. The WMP dated June 12, 2015 hereby constitutes the final approved WMP for the LSGR Group.

The Los Angeles Water Board appreciates the participation and cooperation of the LSGR Group in the implementation of the LA County MS4 Permit and the Long Beach MS4 Permit. If you have any questions, please contact Ivar Ridgeway, Storm Water Permitting, at Ivar.Ridgeway@waterboards.ca.gov or by phone at (213) 620-2150.

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer